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Global Pretrial Detention Use: A Cross-National Analysis

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GLOBAL PRETRIAL DETENTION USE: A CROSS-NATIONAL ANALYSIS

by

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A dissertation submitted to the Graduate Faculty in Criminal Justice in partial fulfillment of the

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This manuscript has been read and accepted for the Graduate Faculty in
Criminal Justice in satisfaction of the dissertation requirement for the
Degree of Doctor of Philosophy.

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ABSTRACT

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To better understand global pretrial detention patterns, this study explores economic, political, and social factors associated with two measures of pretrial detention: the number of pretrial detainees as a rate of the general population, and the number of pretrial detainees as a proportion of the overall prison population. Through simple correlation analysis, stepwise regression, and moderation analyses, the study identifies factors which are most strongly associated with the two pretrial detention measures. The literature does not report any large-scale cross-national studies on pretrial detention. This study addresses this gap, focusing exclusively on pretrial detention using a large cross-national sample of almost 200 countries.

The economic, political, and social correlates of the two pretrial detention outcome measures are not the same as many of the correlates of general incarceration. This insight provides a useful pathway for constructing new theoretical approaches to understanding cross-national pretrial detention patterns.

Factors dealing with insecurity, development, and good governance are all significantly associated with the proportion of prisoners in pretrial detention. Countries with high levels of insecurity, and lacking development and good governance, tend to have a high proportion of prisoners in pretrial detention. This finding is important for national policy makers and international development assistance providers, especially in places where development intersects with modernization and democratic transitions – both of which are associated with pretrial detention practices.

ACKNOWLEDGMENTS

This dissertation is the culmination of years of learning and scholarship, and a deep desire to understand and engage with the world and its complexity. This quest for knowledge and agency is ably encapsulated by Friedrich Schiller (1759-1805), German poet, philosopher, and historian:

> Knowledge, the object of knowledge and the knower are the three factors
> which motivate action; the senses, the work and the doer comprise the
> threefold basis of action.

Many people have contributed to my thirst for knowledge, particularly my parents. My father instilled in me a love of books, and an intellectual curiosity which set me on a lifelong path of enquiry and study. At an early age, my mother patiently guided me to ensure school projects – with their background research, extensive reading, and attention to detail – were enjoyable and empowering experiences. For the supportive and nurturing environment my parents created, and the guidance they continue to provide, I am truly grateful.

My sister and her family opened their home to me, during which time I used part of a sabbatical to begin formulating ideas and asking questions which led to the development of the theme on which this dissertation is based. Their hospitality and good cheer were very helpful to give direction and impetus to this study.

I am especially thankful to my wife, Sharon, and my children, Tristen and Amelia. They graciously and stoically endured a husband and father preoccupied with tracking down journal articles on pretrial detention, puzzling over the intricacies of regression analysis, or grumpily editing yet another dissertation draft. They gave me the time and space to complete this dissertation journey – which started years ago with coursework and evening classes, culminating

in many hours hunched behind a computer over precious weekends. The opportunity costs of completing a doctoral degree program are difficult to quantify but are considerable.

I am most appreciative of my advisor and dissertation committee chair, Dr. Lucia Trimbur, who provided ongoing support, encouragement and advice. Drs. Rosemary Barberet and Jeremy R. Porter, the other members of my dissertation committee, also generously gave valuable guidance and feedback. I am fortunate to have worked with such an excellent – and patient – committee.

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CHAPTER 1: INTRODUCTION

Background

The right to be presumed innocent until proven guilty is entrenched in international law, standards and norms. Yet, over a quarter of all prisoners, some three million people, are in pretrial detention worldwide. During the course of an average year, an estimated 15 million persons are remanded to pretrial detention (Schönteich, 2014). In many places pretrial detention rather than imprisonment after conviction is the norm. In South Asia, Central and West Africa, and parts of Latin America the majority of prisoners are pretrial detainees (Walmsley, 2017). Today's cohort of pretrial detainees will collectively spend 640 million days in pretrial detention, often languishing for weeks, months and even years before their trials are finalized or charges dismissed.

Many pretrial detainees are treated more harshly than convicted prisoners (UNICEF, 1998; Rodley, 2000; Jones, 2003; Nowak, 2007). Pretrial detainees are regularly held in police cells, sometimes for extended periods of time, where conditions can be particularly crowded. Prison administrators regard their main mandate as the custody and rehabilitation of convicted prisoners and see pretrial detainees as a group whose imprisonment is temporary and somewhat incidental to their work. As a result, pretrial detainees are typically not provided with educational, vocational and related work opportunities. In poorer countries, health services are frequently particularly inadequate in remand facilities. There is a reluctance to provide treatment for infectious diseases that requires a sustained period of therapy for people in pretrial detention, whose custody is seen as temporary, even if "temporary" turns out to be of long duration.

The generally poor conditions under which pretrial detainees are confined often serve an instrumental purpose. Police and prosecutors exploit the period of pretrial detention as an

opportunity to cajole detained defendants to cooperate with the criminal investigation (Human Rights Watch, 2017). Pretrial detainees are particularly vulnerable to physical and psychological abuse during the first few days of detention as interrogators seek to extract confessions from defendants (Novak, 2009). Such abuses, and the generally deplorable conditions in pretrial detention induce defendants to plead guilty with the expectation of being transferred to a prison for convicted prisoners where conditions are generally better. Even in jurisdictions where physical abuse and torture is relatively rare, pretrial detainees face heightened risks of conviction compared to analogous defendants awaiting trial at liberty (Davies, 1971; Williams, 2003; Stevenson, 2017). Pretrial detention often serves as a *de facto* form of punishment (Vagg & Dünkel, 1994; Redpath, 2015), especially in countries where conviction rates are low because of under-resourced or dysfunctional criminal justice systems. This may be the case in the 50 or so countries where the majority of prisoners are pretrial detainees. The result is not solely too many people in pretrial detention, but also injustice and corrosion of the rule of law.

Perhaps paradoxically, the wide-scale use of pretrial detention undermines public security. Globally, prisons are filled beyond their official capacity by some 1.5 million prisoners. The world's prison crowding problem would, in principle, be solved by halving the number of pretrial detainees. Lower crowding, and more focused efforts at the rehabilitation of convicted prisoners should reduce recidivism. Moreover, in jurisdictions where pretrial detainees are not confined separately from convicts, such mixing heightens the risk of abuse and can have a criminogenic effect. There is also evidence to suggest that pretrial detention – especially of longer duration – is positively associated with the likelihood that pretrial detainees will subsequently (re)offend (Lowenkamp, VanNostrand, & Holsinger, 2013a).

Pretrial detention often unnecessarily burdens criminal justice systems and strains public finances. Many detainees are not convicted of the charges that led to their arrest and detention (Human Rights Watch, 2017); many others receive a non-custodial sentence because of the minimal risk they pose to public security even after their guilt has been proven (Karth, 2008; Human Rights Watch, 2010; Peillard, Ahumada, & Chahuán, 2011; UNODC, 2011). A significant chunk of state resources devoted to the confinement of pretrial detainees – $14 billion in the U.S. (Henrichson, Rinaldi, & Delaney, 2015; Ortiz, 2015) and around €20 billion by European governments (Aebi, Tiago, & Burkhardt, 2016) annually – is money which could have been spent on combating or preventing crime more effectively, such as hiring more police officers or increased funding for social welfare programs.

In 2015 the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development which seeks to, among other things, reduce the proportion of prisoners in pretrial detention (United Nations, 2015). The inclusion of pretrial detention in the global development agenda is an important political recognition of the issue in the development context, and underscores the link between pretrial detention and economic development. Pretrial detainees often lose their jobs, are forced to abandon their education, and are evicted from their homes. Their families suffer from lost income and forfeited education opportunities, producing a multi-generational effect in which the children of detainees experience reduced educational attainment and lower lifetime income (OSJI, 2011b; Baradaran Baughman, 2017; Muntingh & Redpath, 2018). In fragile communities the impact of pretrial detention – lost earnings, broken homes, and the incarceration of adult caregivers – aggravate some of the underlying causes of crime.

Pretrial detention and corruption can be mutually-reinforcing phenomena. A criminal justice system that overuses pretrial detention is susceptible to corruption, and an environment

marked by corruption will likely lead to the excessive use of pretrial detention. Corruption is disproportionately prevalent during the pretrial phase of the criminal justice process because it receives less scrutiny and is subject to more discretion than subsequent stages of the justice process, and often involves lower paid and mostly junior actors in the system (OSJI, 2010). The corrupt and arbitrary abuse of power disproportionately punishes the poor, destroys the justice system's credibility, and undermines the rule of law.

The manifold harms associated with the (over)use of pretrial detention are often interrelated and cumulative in their impact. For example, pretrial detention aggravates prison overcrowding, which has negative public health consequences and a criminogenic effect on detainees. Both undermine socio-economic development through higher incidences of illness and crime. Thwarted development and poverty, in turn, foster crime which engenders insecurity and increases public demands for draconian pretrial detention practices.

Its widespread use and pernicious consequences should not suggest that pretrial detention is inherently excessive or unwarranted. Applied fairly and sparingly, pretrial detention can play an important role in a balanced criminal justice system. To do so, a rational and effective pretrial justice system needs to balance two potentially competing rights. Namely, the right of defendants to personal liberty and to be presumed innocent until convicted, and the right of the general public to live in safety and see defendants stand trial and, if the evidence so indicates, convicted and punished. To achieve this balance in compliance with internationally accepted norms and standards can be a challenge, especially for criminal justice systems burdened by high levels of crime, dysfunction, corruption, and a lack of resources.

International standards and norms

Underlying the legal consideration of the applicability of pretrial detention are the right to liberty and the presumption of innocence. The presumption of innocence is universally recognized as a key principle in the administration of criminal justice (Stumer, 2010).[1] This implies that the treatment of defendants throughout the criminal justice process should, in principle, be consistent with their innocence. Nevertheless, according to international law as reflected in numerous treaty provisions and authoritative jurisprudential interpretations thereof, pretrial detention is an acceptable constraint on defendants' liberty provided a number of circumscribed preconditions are met.

The International Covenant on Civil and Political Rights (ICCPR) provides that arrestees be brought promptly before a judicial officer and are entitled to a trial within a reasonable time or to release, and that it "shall not be the general rule that persons awaiting trial shall be detained in custody, but release may be subject to guarantees to appear for trial" (ICCPR, 1966, Art. 9(3)). The United Nations Standard Minimum Rules for Non-custodial Measures, enumerate the following guidelines in respect of pretrial detention (UN Standard Minimum Rules, 1990, Rule 6): pretrial detention shall be used as a means of last resort in criminal proceedings, with due regard for the investigation of the alleged offense and for the protection of society and the victim; alternatives to pretrial detention shall be employed at as early a stage as possible; pretrial detention shall last no longer than necessary and shall be administered humanely and with respect for the inherent dignity of human beings; and the offender shall have the right to appeal

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[1] Article 11(1), *Universal Declaration of Human Rights* (adopted 1948); Article 14(2), *International Covenant on Civil and Political Rights* (adopted 1966, entered into force 1976); Article 6(2), *Convention for the Protection of Human Rights and Fundamental Freedoms* (adopted 1950, entered into force 1953); Article 7(b), *African Charter on Human and Peoples' Rights* (adopted 1981, entered into force 1986); Article 8(2), *American Convention on Human Rights* (adopted 1969, entered into force 1978); Article 6(2), *European Convention on Human Rights* (adopted 1950, entered into force 1953).

to a judicial or other competent independent authority in cases where pretrial detention is employed.

In 1990, the Eighth United Nations Congress on the Prevention of Crime and Treatment of Offenders established the principle that pretrial detention "may be ordered only if there are reasonable grounds to believe that the persons concerned have been involved in the commission of the alleged offences and there is a danger of their absconding or committing further serious offences, or a danger that the course of justice will be seriously interfered with if they are let free" (United Nations, 1991, p. 158). In its jurisprudence the UN Human Rights Committee, the expert body responsible for interpreting the ICCPR, has emphasized that domestic authorities must interrogate whether less restrictive measures than pretrial detention can secure the attendance of defendants at trial. Moreover, a state cannot assume that a defendant will abscond, tamper with evidence, or obstruct the investigation of the case. Any risks associated with the pretrial release of a defendant must be investigated by the state (Ballard, 2011).

Statement of the problem

The purpose of this study is to better understand how economic, political, and social variables are associated with two national-level pretrial detention measures. While evidence of such relationships exists for incarceration generally, this is lacking in respect of pretrial detention. This is a curious gap in the research literature given that pretrial detention is a major driver of imprisonment. Over a quarter of all prisoners in the world are pretrial detainees. In many countries, pretrial detention is the norm with detainees outnumbering sentenced prisoners. Moreover, pretrial detention is a particular draconian aspect of the criminal justice process. Not convicted of a crime, and legally presumed to be innocent, pretrial detainees lose their freedom, and, as stated earlier, can also lose their family, health, job, and community ties.

This study uses a variety of economic, political, and social variables, primarily drawn from the comparative imprisonment literature, to quantify their relationship with two pretrial detention measures. Namely, the number of pretrial detainees expressed as (i) a *rate* per 100,000 of the general population, and (ii) a *proportion* of the overall prison population. The objective is to identify and analyze the relationships between the aforementioned variables and the two pretrial detention measures in a comparative cross-national analysis. A variety of statistical techniques are used: (1) a simple correlation analysis and a one-way Analysis of Variance (ANOVA) for the categorical variable of "legal system classification," (2) a forward, stepwise regression to determine empirically which combination of independent variables best predict pretrial detention, and (3) moderator analyses using selected independent variables, which allowed for the testing of a number of hypotheses and theories around the use of pretrial detention, and identifying global patterns of pretrial detention and its economic, political and social correlates.

Pretrial detention is a routine practice in the administration of criminal justice. Every contemporary criminal justice system makes use of some form of pretrial detention, confining suspected offenders awaiting trial or the finalization of their trial. This is the case in criminal justice systems based on common law, civil law, and Islamic law principles; democracies and authoritarian regimes; countries with free market and centrally planned economies; and developed and developing states. In short, pretrial detention is a universal practice wherever states and formal criminal justice institutions exist in some form.

As is the case with overall imprisonment rates (Lappi-Seppälä, 2011), there is significant national variation in the size of pretrial detention populations worldwide. According to Walmsley (2017), particularly high rates of pretrial detention are found in, for example, Panama

(248 pretrial detainees per 100,000 of the general population), Uruguay (202), and the United States (146). Countries with low rates of pretrial detention include Namibia (9), Nicaragua (19), and India (22). The global median pretrial detention rate is 33, with regional median rates varying from a high of 95 in the Americas to a low of 24 in Oceania. Countries with high numbers of pretrial detainees expressed as a proportion of the overall prison population include Paraguay (77.9%), Bangladesh (73.8%), and Nigeria (71.7%). Low proportions of pretrial detainees exist in Egypt (9.9%), Japan (11.0%), and Kazakhstan (14.5%). The global median proportion is 27%, with regional median proportions ranging from 15.2% in Oceania to 41.5% in Africa.

It should be noted that the dataset from which the comparative pretrial detention populations are drawn does not include the People's Republic of China because of the unavailability of up-to-date data (Walmsley, 2017). Walmsley (2016, p. 9) estimates that China's pretrial detention population was "more than 650,000" in 2009. Others (van Kempen, 2012) provide a figure of 941,000 pretrial detainees for China in 2009. Walmsley's figure suggests that some 28% of all prisoners in China are pretrial detainees, which is around the global median. Including an estimated 650,000 Chinese pretrial detainees in the global total increases the proportion of prisoners in pretrial detention to a global mean of 33.8%.

Numerous empirical studies have sought to explain the cross-national variation in penal policy and imprisonment, exploring relationships between incarceration rates and a variety of economic, political, and societal factors (e.g., Neapolitan, 2001; Ruddell & Urbina, 2004; Ruddell, 2005; De Koster et al., 2008; Lappi-Seppälä, 2011a). National-level explanations of pretrial detention practices and, by implication, the number of pretrial detainees, have been documented in a variety of investigations (Foglesong, 2011; OSISA, 2011), descriptive studies

(Msiska, 2008; Venegas & Vial, 2008; Van Kalmthout, Knapen, & Morgenstern, 2009; Van Kempen, 2012; Charret-Del Bove & Mourlon, 2014), evaluation reports (Sandefur et al., 2011; Baba, 2012; Griggs, 2013), and academic studies (Doherty & East, 1985; Ryan, 1993; Klein, 1997; Dhami, 2002; Sarre & Bamford, 2006; Baradaran, 2010; Fujimura-Fanselow & Wickeri, 2013). By definition such national-level analyses focus on local peculiarities, limiting the transferability of insights and experiences to other jurisdictions.

In comparison to quantitative cross-national imprisonment research, the literature on comparative quantitative research on pretrial detention is sparse. Only three large-scale cross-national studies (Ruddell & Urbina, 2007; Lappi-Seppälä, 2011a; Albrecht, 2012) were found which deal tangentially with pretrial detention numbers and their correlates. Thus, while relationships between economic, political and social factors, and general incarceration rates have been explored, as have a variety of correlates of pretrial detention measures at the national level, no such relationships have been investigated cross-nationally using a large sample of both developed and developing countries. This constitutes an important gap in the literature as cross-national comparative studies are particularly suitable for hypothesis testing, the inductive discovery of new hypotheses, and theory building (Collier, 1993).

Conceptual framework

The basic model tested in this study is presented in diagrammatic form in Figure 1 below. It essentially examines the relationships – and inter-relationships – between a variety of economic, political, and social factors as independent variables, and two measures of pretrial detention as dependent variables.[2]

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[2] The two dependent variables were chosen on the basis of their relevance to the study (i.e., that they measure or reflect the use and extent of pretrial detention) and data availability. The study's ambition was to cover a broad range of developed and developing countries. Data for the two dependent variables are available for 216 prison systems worldwide (Walmsley, 2016). Any other national-level pretrial detention-specific quantitative data, such as

The pretrial detention measures employed by this study reveal significant national variation across the globe and even within regions. Neighboring countries with similar legal traditions can exhibit starkly different measures of pretrial detention. For example, the rate of pretrial detention in the U.S. (146 per 100,000 of the general population) is almost four times that of Canada (40). On the other hand, the number of pretrial detainees expressed as a proportion of the overall prison population is some 65% higher in Canada (34.9%) compared to the U.S. (21.1%). Yet, countries which are continents apart and with different legal traditions can have similar measures of pretrial detention. For example, the rate and proportion of pretrial detainees in Costa Rica (61 per 100,000 / 17.2%) differs only moderately from that of the Russian Federation (75 per 100,000 / 16.9%).

Given the aforementioned variation in pretrial detention measures, the presumption arises that the relationships between these measures and the selected independent variables are both complex and multi-dimensional. Some of the variation may be explained by highly contextualized local factors such as domestic pretrial detention laws, policies, and practices. For example, the number of statutory alternatives to pretrial detention, the proportion of crimes for which pretrial detention is mandatory, or the amount and quality of judicial training on pretrial justice issues, can all influence the use of pretrial detention. This study does not deal with such localized variables. Large-scale cross-national studies are not suitable for comparing laws and practices at the granular level. The amount of contextual information required for such an investigation renders it impractical. Instead, this study concerns itself with indicators or variables for which data are available across the majority of both developed and developing countries.

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the mean or median duration of pretrial detention, or the pretrial detention admission or "flow" rate, would have reduced the sample size of the study to a few dozen, primarily developed, countries only.

Figure 1: Relationship model for cross-national analysis of pretrial detention
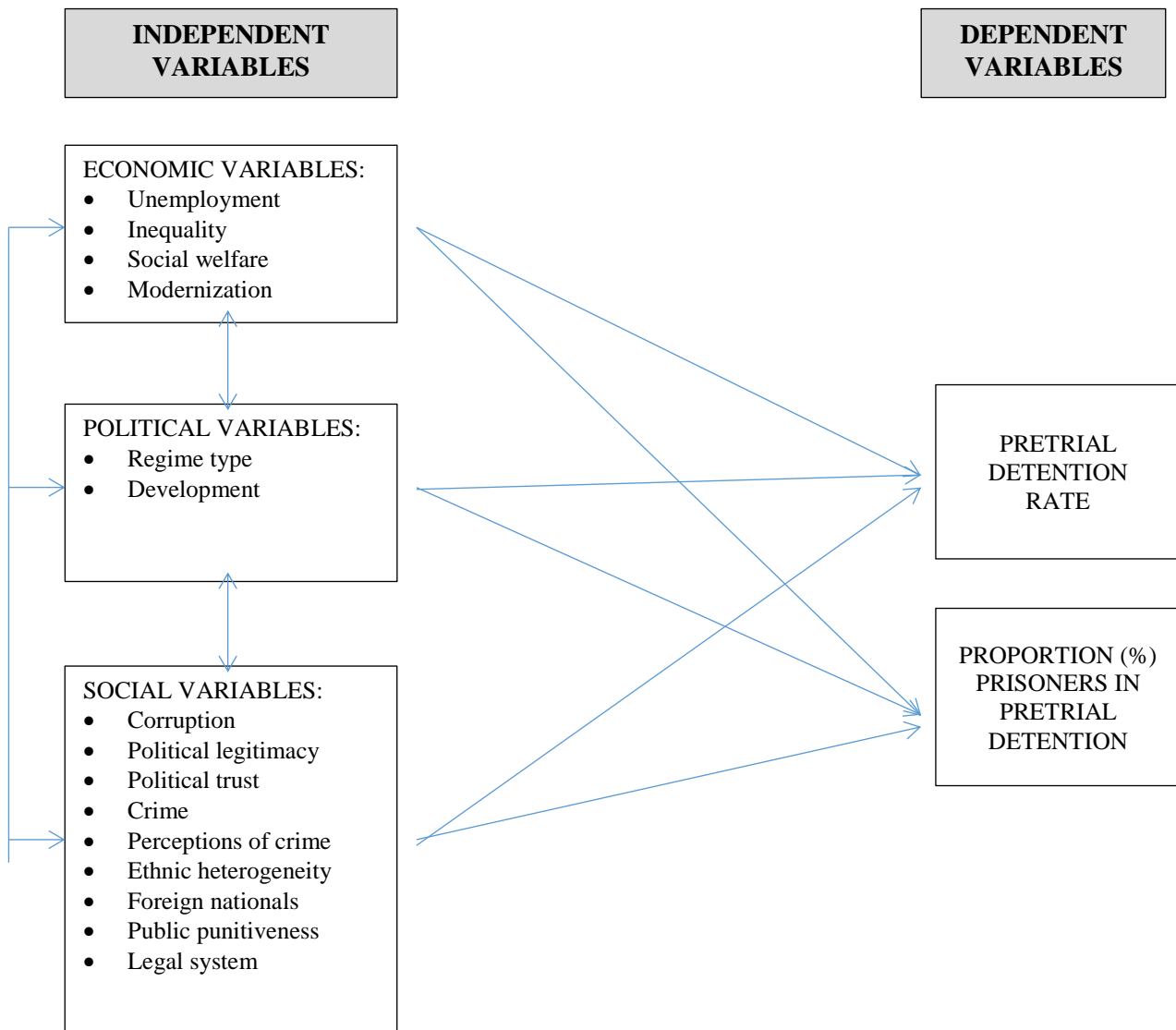
The two pretrial detention measures – the study's dependent variables – reflect two potentially distinct phenomena. Indeed, international comparisons of these measures have a tendency to contradict one another (Foglesong & Stone, 2011). That is, countries which have a high proportion of prisoners in pretrial detention often have low rates of pretrial detainees, while countries with a low proportion of prisoners in pretrial detention tend to have high rates of pretrial detainees. For example, as indicated in Figure 2, the U.S. and Russia have low

proportions of prisoners held in pretrial detention but high rates of pretrial detainees. Conversely, Bangladesh, India, and Sierra Leone have high proportions of prisoners held in pretrial detention but low rates of pretrial detainees.

Figure 2: Two measures of pretrial detention, selected countries

	Proportion of prisoners in pretrial detention			Pretrial detention rate (per 100,000 population)
Bangladesh	73.8		USA	146
Nigeria	71.7		Brazil	105
Liberia	67.9		South Africa	81
India	67.2		Russia	75
Sierra Leone	54.3		Australia	50
Brazil	36.3		Bangladesh	33
Australia	31.2		*Global median*	*33*
South Africa	27.9		Liberia	31
Global median	*27.0*		Sierra Leone	30
USA	21.1		Nigeria	25
Russia	16.9		India	22

Source: Walmsley (2017)

The *rate* variable is an accurate indicator of the absolute number of pretrial detainees in relation to a jurisdiction's overall population. It reflects the scale of pretrial detention and permits easy cross-jurisdictional comparisons. The number of defendants remanded to pretrial detention and the duration of their detention (and the size of the general population) determine the pretrial detention rate.[3] The *proportion* variable is, unlike the pretrial detention rate, affected by the number of sentenced prisoners (Schönteich, 2015). For example, if the number (or rate) of pretrial detainees remains the same but the number of sentenced prisoners increases, then the number of pretrial detainees expressed as a proportion of the overall prison population will

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[3] Everything else remaining equal, a longer average or mean duration of pretrial detention results in a higher rate of pretrial detention. 200 persons in pretrial detention for an average of six months represent the same average *rate* of pretrial detainees (as measured per 100,000 of the general population) as 100 persons in pretrial detention for an average of twelve months. Thus, if the number of pretrial detainees remains the same, the rate of pretrial detention will increase if the average duration of detention rises (although this may be somewhat counterbalanced by an increase in the general population).

decline. Thus, changes in sentencing policy or the more efficient processing of trials (leading to more convictions and the imposition of custodial sentences) will affect the proportion measure. Low proportions of prisoners held in pretrial detention in countries such as the U.S. and Russia, for example, might be ascribed to sentencing policies or practices which result in long prison terms, thereby increasing the sentenced prisoner population. The proportion of pretrial detainees is also influenced by the inflow of pretrial detainees into the justice system and the duration of their detention.

Research questions and hypotheses

The purpose of this study is to better understand how economic, political, and social variables (the independent variables) are associated with both the number of pretrial detainees expressed as a rate per 100,000 of the general population, and the number of pretrial detainees expressed as a proportion of the overall prison population. The overall research question the study poses is the following: What relationships exist among economic, political, and social factors extraneous to the day-to-day operational and policy environments of criminal justice systems on the one hand, and national pretrial detention practices on the other hand? From this two subsidiary questions emerge:

- Is there a relationship between the individual independent variables (taken separately) and each of the dependent variables and, if so, what is the extent thereof?

- What combination of the independent variables (if any) demonstrates the most robust relationship between the independent variable(s) and each of the dependent variables?

The below research hypotheses (Table 1), derived from the theoretical considerations and extant empirical studies discussed in Chapter 2 (the literature review chapter), and further

discussed in chapter 3 (the methodology chapter), seek to answer the overall and subsidiary

research questions.

Table 1: Variables and hypotheses

Variable category	Hypotheses
Economic factors	
Unemployment	• H1a: Unemployment levels are *positively* correlated with pretrial detention *rates*. • H1b: Unemployment levels do *not correlate* significantly with the *proportion* of prisoners in pretrial detention.
Inequality	• H2a: Economic inequality is *positively* correlated with pretrial detention *rates*. • H2b: Economic inequality does *not correlate* significantly with the *proportion* of prisoners in pretrial detention.
Social welfare	• H3a: State welfare expenditure is *negatively* correlated with pretrial detention *rates*. • H3b State welfare expenditure does *not correlate* significantly with the *proportion* of prisoners in pretrial detention.
Modernization	• H4a: A country's level of modernization is *positively* correlated with pretrial detention *rates*. • H4b: A country's level of modernization is *negatively* correlated with the *proportion* of prisoners in pretrial detention.
Political factors	
Regime type	• H5a: Stable democracy and civil liberties are *negatively* correlated with pretrial detention *rates*. • H5b: Stable democracy and civil liberties are *negatively* correlated with the *proportion* of prisoners in pretrial detention.
Development	• H6a: Countries' levels of development are *positively* correlated with pretrial detention *rates*. • H6b: Countries' levels of development are *negatively* correlated with the *proportion* of prisoners in pretrial detention.
Social factors	
Corruption	• H7a: Levels of official corruption are *negatively* correlated with pretrial detention *rates*. • H7b: Levels of official corruption are *positively* correlated with the *proportion* of prisoners in pretrial detention.
Political legitimacy	• H8a: Levels of state political legitimacy are *negatively* correlated with pretrial detention *rates*. • H8b: Levels of state political legitimacy do *not correlate* significantly with the *proportion* of prisoners in pretrial detention.
Political trust	• H9a: Levels of social trust are *negatively* correlated with pretrial detention *rates*.

	• H9b: Levels of social trust are *negatively* correlated with the *proportion* of prisoners in pretrial detention.
Crime	• H10a: Levels of recorded crime are *positively* correlated with pretrial detention *rates*. • H10b: Levels of recorded crime are *positively* correlated with the *proportion* of prisoners in pretrial detention.
Perceptions of crime / safety	• H11a: Perceptions of crime / safety are *positively* correlated with pretrial detention *rates*. • H11b: Perceptions of crime / safety are *positively* correlated with the *proportion* of prisoners in pretrial detention.
Ethnic heterogeneity	• H12a: Levels of ethnic diversity are *positively* correlated with pretrial detention *rates*. • H12b: Levels of ethnic diversity are *positively* correlated with the *proportion* of prisoners in pretrial detention.
Foreign nationals	• H13a: The proportion of foreign nationals in national populations are *positively* correlated with pretrial detention *rates*. • H13b: The proportion of foreign nationals in national populations are *positively* correlated with the *proportion* of prisoners in pretrial detention.
Public punitiveness	• H14a: Levels of public punitiveness are *positively* correlated with pretrial detention *rates*. • H14b: Levels of public punitiveness are *positively* correlated with the *proportion* of prisoners in pretrial detention.
Legal system	• H15a: Compared to civil law countries, common law countries have *lower* pretrial detention *rates*. • H15b: Compared to civil law countries, common law countries have *lower proportions* of prisoners in pretrial detention.

Method

An extensive review of the literature and past research informed the identification of the themes, constructs, and variables of the study. This, in turn, guided the elaboration of the study's research questions and hypotheses (Table 1). Data for the dependent variables were drawn from an existing database maintained by the Institute for Criminal Policy Research at the University of London, the most comprehensive and up-to-date cross-national database for the study's outcome measures. In respect of the independent variables used in this study, in addition to being guided by the literature, preference was given to datasets compiled by reputable international

organizations (e.g., Transparency International, UNDP, the World Bank) and those for which

large cross-national datasets were available (typically covering in excess of 150 countries). A

number of potential independent variables were discarded during the design phase of the study

either because data were unavailable for a significant number of countries or the variables were

similar to others under consideration so that their inclusion would have been unnecessarily

duplicative.[4] For some hypotheses only one variable was chosen where the variable matched, or

closely matched, the construct to be investigated. In other cases, more than one variable was used

to test the hypothesis in question. The objective was to obtain the most recent available data for

each measure. While most datasets used are from 2015 and 2016, a few variables utilized older

datasets. In some cases data from multiple years were collated to obtain larger sample sizes.

     The data were collected, collated, and cleaned for analysis. This included a descriptive

and exploratory examination of the dependent and independent variables to provide a better

illustration of the research variables in question, while probing for oddities and investigating

variables that needed to be transformed. The objective was to identify variables that seemed

highly skewed and lacked sufficient variability. These variables were log transformed to

decrease the variability of the data and make the data conform more closely to the normal

distribution to allow for accurate analyses.

     Three statistical techniques were used to answer the study's research questions and test

the associated hypotheses. First, a simple correlation analysis exploring the relationship between

each of the 29 independent continuous variables and the two dependent pretrial detention-related

variables, and a one-way Analysis of Variance (ANOVA) for the categorical independent

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[4] Independent variables which were considered but ultimately discarded include: male unemployment; democracies versus autocracies database; index of civil liberties and political rights; confidence in judicial system; prosperity index; religious diversity index; and international migration stock as a proportion of the total population.

variable of "legal system classification" to explore its relationship with the two dependent variables. Second, a forward, stepwise regression to determine empirically which combination of independent variables best predict both pretrial detention-related dependent variables. Third, moderator analyses using selected independent variables to better understand how corruption moderates the relationship between state strength and pretrial detention; democratization and development moderate the relationship between crime and pretrial detention; and, democratization moderates the relationship between development and pretrial detention.

Significance of the study

Pretrial detention is an important component of imprisonment generally. In excess of a quarter of all prisoners in the world are in pretrial detention. In over 50 countries the majority of prisoners are pretrial detainees (Walmsley, 2017). Pretrial detention is a significant contributor to prison overcrowding and the negative consequences thereof. It prompted the UN General Assembly to emphasize the importance of measures to reduce overcrowding and pretrial detention in its 2016 resolution on human rights in the administration of justice (UNGA, 2016). International concern about the excessive use of pretrial detention is also reflected in the development of UN Principles and Guidelines on the right of anyone deprived of their liberty to challenge the lawfulness of detention (OHCHR, 2015). As stated earlier, pretrial detention harms individuals, families, and communities; wastes state resources; undercuts socio-economic development; and undermines the rule of law. In short, anyone interested in imprisonment needs to take account of pretrial detention.

There is a burgeoning empirical literature exploring the cross-national correlates of imprisonment. This study complements and expands this literature by focusing on the cross-national correlates of pretrial detention. This will contribute to a better understanding of pretrial

detention (and general imprisonment) practices in a broader, global context. In particular, the study will tease out economic, political, and social correlates of pretrial detention to explain the factors which relate to two key pretrial detention measures. This should enhance understanding of the factors which correlate with pretrial detention numbers globally and allow for making general statements about global patterns of pretrial detention use.

The study will permit the development of new empirically-grounded theories on variations in, and characteristics of, cross-national pretrial detention practices. For example, the study will allow for the development of models and theories that explain the relationship between levels of development or democratization and pretrial detention practices, or ethnic heterogeneity and pretrial detention. This should provide helpful empirically-based insights for, inter alia, development funders, democracy assistance providers, and national authorities to better understand how large economic, political, and social developments may relate to pretrial detention practices. This has not been done before using such a large sample of counties. Existing comparative studies which explore pretrial detention correlates focus on a relatively small sample of developed countries only.

Bangladesh, India, and Pakistan collectively hold almost a quarter of the world's inhabitants but only 10% of its pretrial detainees. Africa contains 15% of the global population but only 9% of all pretrial detainees. By 2050, almost half the earth's population will be in Africa and the aforementioned three South Asian countries. Also by 2050, Nigeria – a country with a particularly small pretrial detention population – is projected to be the third most populous country in the world with 440 million inhabitants. All of these countries are classified as lower-middle income, as are many countries in Africa. If, for example, this study demonstrates a positive correlation between a country's or region's level of economic development and its

pretrial detention rate (and, as hypothesized, a negative correlation between economic development and the number of pretrial detainees as a proportion of all prisoners), then anticipated economic development in sub-Saharan Africa and South Asia could result in significantly higher rates of pretrial detention, but lower proportions of pretrial detainees. Such an insight would be helpful to policy makers and governmental planners. Namely, to anticipate that economic development may go hand-in-hand with a higher pretrial detention rate (and the absolute number of pretrial detainees), but a lower number of pretrial detainees as a proportion of the overall prison population. In practical terms, there would be a need to develop and implement effective alternatives to pretrial detention, promulgate policies which limits police reliance on arrest (which often leads to pretrial detention), improve criminal justice efficiencies to reduce the average duration of pretrial detention, and, as a last resort, plan and budget for more prison infrastructure and staff while expecting a decline in the proportion of prison spaces needed for pretrial detainees.

Organization of the study

The study begins with a review of the relevant empirical and theoretical literature (Chapter 2). Next is a methodology section (Chapter 3) which outlines the research hypotheses derived from the theoretical considerations and extant empirical studies discussed in Chapter 2, and provides a description of the dependent and independent variables used to test these hypotheses. The sources and nature of the data for the dependent and independent variables are described. This is followed by an explanation of the procedures used to collect, clean, and prepare the data for analysis, and a detailed description of the statistical analyses and techniques used to answer the study's research questions and test the associated hypotheses. Chapter 4 (Results) presents the results or findings of the aforementioned statistical analyses in some detail,

exploring the results in terms of each of the three main statistical techniques used. Chapter 5

(Discussion) contextualizes the study's findings, and elaborates on the meaning and significance

of the statistical results presented in Chapter 4. Chapter 5 also presents salient policy

implications and explores areas of future research which can build on this study's findings.

CHAPTER 2: LITERATURE REVIEW

Introduction

Systematic comparative research on punishment is relatively new; comparative research on penal policy and imprisonment has been undertaken "only since the last decades of the twentieth century", according to Brodeur (2007, p. 49). Since then "an increasingly international scholarly world [has developed] in which more people are motivated to look across national boundaries" (Tonry, 2007, p. 4) in a systematic manner, often comparing a large number of countries or jurisdictions. Today, a growing body of academic work engages with comparative methodologies for the study of crime and criminal justice to enhance our understanding of states' responses to crime and public insecurity (Vagg, 1993; Garland, 2001; Bennett, 2004; Ruddell & Urbina, 2007). Comparative research on criminal justice issues is "burgeoning", according to Tonry (2015, p. 505).

Traditionally, empirical studies of imprisonment covering a large number of jurisdictions have primarily been descriptive in nature (Mauer, 1995; Newman, 1999; Walmsley, 2003; Carranza, 2014). While more intricate cross-national analyses of imprisonment are growing in number, most focus on a modest sample of countries, usually of developed or first-world countries (Sutton, 2000 & 2013; Jacobs & Kleban, 2003; Blumstein, Tonry, & Van Ness, 2005; Cavadino & Dignan, 2006; Downes & Hansen, 2006; Lappi-Seppälä, 2007 & 2011b; De Koster et al., 2008).

Only a small number of studies exist which seek to empirically explore the correlates of imprisonment across a large sample of jurisdictions, usually in excess of 100 countries (Neapolitan, 2001; Ruddell & Urbina, 2004; Ruddell, 2005; Lappi-Seppälä, 2011a). These

studies have explored the relationships between punishment / incarceration and inequality (Greenberg, 1999; Killias, 1986), minority threat (Ruddell, 2005; Ruddell & Urbina 2004), political arrangements or regimes (Killias, 1986; Neapolitan, 2001; Williams & Timberlake, 1984), and the influence of legal systems (Ruddell, 2005).

In comparison to quantitative cross-national imprisonment research, the literature on comparative quantitative research on pretrial detention practices is sparse. After an extensive literature search, only three large-scale cross-national studies (Ruddell & Urbina, 2007; Lappi-Seppälä, 2011a; Albrecht, 2012) were found which deal tangentially with pretrial detention numbers and their correlates.

There is a substantial body of academic and "grey literature"[5] which, while comparative, explores a relatively small number of jurisdictions and is consequently more descriptive than analytical or quantitative (e.g., Van Kalmthout, Knapen, & Morgenstern, 2009; Fair Trials International, 2011; UNODC, 2011; Fair Trials, 2016), or such literature focuses on a single country or jurisdiction only (e.g., Barreto, 2007; Baradaran, 2010; Colbert, 2011; Kazemian, McCoy, & Sacks, 2012).

This literature review first examines the more general and relatively substantial cross-national imprisonment literature, followed by the literature exploring cross-national quantitative pretrial detention studies, and ends with a selective review of the more descriptive comparative or single-jurisdictional literature dealing with the causes, drivers, and correlates of pretrial detention use.

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[5] Grey literature are materials produced by organizations outside of the traditional commercial or academic publishing channels. Grey literature include materials produced by civil society or non-governmental organizations, private sector companies and consultants, and governments and their agencies.

General imprisonment literature

Political economy

First published in 1939, Rusche and Kirchheimer's *Punishment and Social Structure* is a seminal Marxian analysis of punishment, especially mass imprisonment, as a social institution. Rusche and Kirchheimer (2003) held that the rationale of punishment was primarily economic; that severity of punishment in a society is influenced by the relative value of labor. Moreover, that the harshness of criminal penalties is inversely related to the value of labor. While their work has been criticized for the stereotypically Marxian tendency to reduce all variables to economic determinants (Lacey, 2008), it has been used by criminologists and sociologists to make sense of contemporary forms of mass imprisonment (Zimring & Hawkins, 1993).

French sociologist, Loïc Wacquant, in *Prisons of Poverty* (2009a) and *Punishing the Poor* (2009b), adopts a neo-Marxian approach to develop a materialist explanation for trends in penalization and incarceration in developed countries. According to Wacquant, the routine use of imprisonment is a mechanism for managing social insecurity brought about by economic developments characterized by neo-liberal free markets of which the tightening of welfare expenditure is a prominent feature. A combination of declining welfare benefits, greater employment insecurity through, inter alia, flexible labor arrangements, and a dominant neo-liberal discourse, result in "surplus labor" which is blamed for petty crimes of survival which are criminalized. Consequently, welfare state regimes are transformed into Darwinian penal states in which the economically and socially marginal are routinely imprisoned.

Labor surplus

In an early cross-national study of punishment and penal severity covering 47 countries, Killias (1986) investigated the relationship between incarceration rates and various economic

factors, including unemployment, inequality, and per capita income. The study found that unemployment and income concentration explained a substantial amount of variance in incarceration rates. High power concentration at the governmental level, unequal income distribution, and unemployment were associated with more severe punishment, including incarceration. In a wide-ranging review of the literature covering 44 empirical studies, Chiricos and DeLone (1992) concluded that independent of the effects of crime, labor surplus is consistently and significantly related to prison populations.

Others, however, have failed to find significant associations between unemployment and incarceration in comparative studies. The evidence for such a link has been described as being "rather equivocal" (Young & Brown, 1993, p. 36). Sutton (2004) reviewed data from 15 affluent capitalist democracies over a three-decade period (1960-1990) using pooled regression techniques. He found no evidence of a causal relationship between business cycles (including unemployment) and imprisonment. To the extent that there is a relationship between the two, this is "an artefact of antecedent differences between neoliberal and corporatist societies" with the former producing higher imprisonment rates compared to the latter (Sutton, 2004, p. 170). Sutton does not rule out an association between unemployment and incarceration for specific high-risk populations such as poorly educated young men or immigrants. He proposes an institutional refinement to the structural approaches deriving from Rusche and Kirchheimer (2003) based on his findings that lower levels of incarceration are associated with union strength, low levels of political partisanship, employment growth, and corporatist labor market institutions.

Using a sample of 148 countries to examine cross-national variation in the use of imprisonment, Neapolitan (2001) found no evidence for the position that incarceration rates are associated with unemployment or labor surplus. Ruddell (2005) also found no significant

association between the unemployment rate and the imprisonment rate (counted as both sentenced prisoners and pretrial detainees) in a bivariate analysis of the 100 richest nations based on per capita Gross Domestic Product (GDP). This may, however, be because the richest countries are disproportionately likely to have relatively developed social welfare systems which might moderate the impacts of social stress, the latter factor being a driver of certain forms of crime, and hence, imprisonment (Piven & Cloward, 1993; Brisman, 2012). Ruddell (2004) also failed to find a significant association between unemployment and imprisonment in the U.S. in a longitudinal research design to examine the underlying political, cultural, and social factors contributing to the rise in incarceration between 1952 and 2000.

Inequality

In a comparative analysis of 70 countries, Williams and Timberlake (1984) sought to test the "threat hypothesis." Namely, that crime control policies reflect the interests of economic elites. The more pronounced income inequality, the greater the resource capacity of such elites and the more intense the threat to their elite position which, in turn, results in greater use of legal-coercive sanctioning. While the authors found no evidence of an independent effect of income inequality on criminal sanctions or vice versa, they concede that their conclusion is tentative as their study may not have considered variables which could be suppressing the effect of income inequality on state-sanctioned punishment.

A number of subsequent cross-national studies failed to find a significant relationship between economic inequality and imprisonment rates (Greenberg, 1999; Neapolitan, 2001; Ruddell, 2005). Wilkins and Pease (1987) explored the relationship between economic inequality and imprisonment in seven Western European democracies and found inconsistent results, as did Jacobs and Kleban (2003) in their analysis of 13 democracies. Krus and Hoehl (1994) used

multiple regression analysis to identify correlates of imprisonment rates in 30 countries in the late 1980s and early 1990s. They found that the strongest correlation with countries' incarceration rates was an index of unequal distribution of wealth, calculated as a ratio of the percentage of national income received by the wealthiest decile of households to that of the two lowest deciles of households.

Welfare orientation

In a review of data from 15 prosperous capitalist democracies between 1960 and 1990, Sutton (2004) concludes that imprisonment rates are sensitive to variation in the structure of labor markets. Namely, that the distribution of political power and the structures in place to govern the distribution of employment, social protection, and social status appears to influence incarceration rates, with corporatist-type democracies producing lower incarceration rates compared to political economies based on neoliberal values.

In a cross-comparative study of 25 developed, mainly European countries, Lappi-Seppälä (2007) found "an evident connection between welfare orientation and penal culture" (p. 8). Namely, a significant positive correlation between income inequality and prisoner rates, and an inverse relationship between state commitment to welfare (expressed as a proportion of GDP devoted to welfare expenditure and the actual amount spent thereon) and the prisoner rate. Lappi-Seppälä (2007) speculated that the relationship between state welfare payments and penal policy may be attributable to greater feelings of social solidarity, which are arguably more widespread in welfare-oriented states. This is partly based on Durkheimian tradition, and feelings of social solidarity found in "modern" and "industrial" societies and the dependence individuals have on each other in more advanced societies, and draws on the hypothesis that relative penal leniency and low levels of economic inequality are "manifestations of a higher degree of

empathic identification and concern for the well-being of others… citizens in the more collectively oriented societies will also tend to identify with criminals, not just with their victims" (Greenberg, 1999, p. 297). Lappi-Seppälä (2007) also surmised that established welfare states may be less punitive because of policy interventions such as promoting safeguards against social marginalization (thereby reducing the risk that socially and economically marginalized individuals engage in criminal conduct) and providing a relatively broad range of statutorily mandated alternatives to imprisonment. A number of other cross-national studies report that social welfare spending is negatively related to crime (Currie, 1985; Fiala & LaFree, 1988; Savage, Bennett, & Danner, 2008). In a later comparative study of 30 (mostly European) industrialized countries, Lappi-Seppälä (2011b) explores a range of explanatory factors for national variations in imprisonment rates, and concludes that "moderate penal policies have their roots in a consensual and corporatist political culture, in high levels of social trust and political legitimacy, and in a strong welfare state" (p. 303).

In a cross-sectional analysis of 18 Organization for Economic Cooperation and Development (OECD) countries, Downes and Hansen (2006) found that countries which spend a higher proportion of their GDP on welfare tend to have lower imprisonment rates (with Japan being a marked exception). Their study is robust, using longitudinal data to show that declining welfare expenditures impact imprisonment in the West. Countries with a comprehensive welfare system protect their citizens from income loss, poverty, and low pay, thereby enhancing "social harmony," while states with modest welfare systems are associated with "greater inequality among its citizens and the ensuring social problems that this brings" (Downes & Hansen, 2006, p. 10). The authors do, however, note that increases in welfare spending in the United Kingdom coincided with substantial growth in the imprisonment rate, suggesting this may be due to too

few welfare resources going to the delivery of social services for those in need as opposed to the management of these resources by expensive state bureaucracies.

In an examination of imprisonment rates in 13 developed Western democracies from 1970 to 1995, Jacobs and Kleban (2003) found that countries with higher welfare spending as a proportion of GDP tend to have lower incarceration rates. However, once the U.S. is excluded from the analysis, such a relationship falls away, suggesting that the explored relationship between state welfare expenditure and imprisonment rates is due to the particularly modest welfare expenditures coupled with exceptionally high incarceration rates in the U.S.

The averment that social welfare spending has a mitigating effect on crime is disputed by some on ideological or philosophical grounds (Rector, 1992; Niskanen, 1996). Moreover, Cavadino and Dignan (2006) did not find support for the thesis that lower expenditure on welfare benefits leads to higher imprisonment rates when looking at 12 OECD countries. They used a typology of the political economy and culture for the selected countries, grouping them into four sub-groups: neo-liberal, conservative-corporatists, social democratic, and oriental-corporatist. They show significant similarities within typologies. Neo-liberal political economies have the highest imprisonment rates, followed by, in descending order, conservative-corporatist, social-democratic, and oriental-corporatist. In a longitudinal cross-national analysis of 16 developed Western countries over a ten-year period (1992-2001), De Koster, van der Waal, Achterberg, and Houtman (2008) concluded that economic explanations for variations in imprisonment are unsustainable. In particular, that a range of indicators of economic neo-liberalization, including welfare expenditure, do not appear to affect imprisonment rates. Rather, they concluded that imprisonment rates are driven by a new-rightist political culture emphasizing social order; a

process driven not by economic insecurity but by cultural insecurity fueled by issues such as national identity, mass migration, and traditional moral values.

Modernization

Durkheim's (1947) analysis of the transition from traditional agrarian societies to modern ones led to the development of a modernization perspective on crime (Clinard & Abbott, 1973; Neuman & Berger, 1988). Modernization theories contend that as traditional and agrarian-based economies with high levels of informal social control transform into industrialized and urban economies, crime and social disruption follow (Shelley, 1981; Neuman & Berger, 1988). It is the pace rather than the level of development which is crucial for understanding the patterns of crime. Rapid change accentuates conflict and pushes society into a transitory state of disequilibrium as values clash over appropriate norms resulting in increasing deviance and crime (Barak, 2001). In response, developing countries swap customary law for formal criminal justice institutions which emphasize sanctions such as imprisonment. Moreover, such social changes lead to increasing inequality and crime which, in turn, places upward pressure on incarceration rates. Modernization-related dislocations are, however, temporary in nature, and increases in crime are, over time, moderated by "new social forms that bind societies together more strongly and produce more effective forms of social control" (LaFree, Curtis, & McDowall, 2015, p. 484).

A number of studies, broadly supportive of modernization theory in the context of imprisonment, have been reported in the literature. A cross-national study by Killias (1996) found that more affluent nations with the wherewithal to maintain extensive prison systems have higher incarceration rates. In a cross-national analysis of 13 Western democracies, Jacobs and Kleban (2003) also found that countries with higher per capita GDP had higher incarceration rates. An exploration of cross-national patterns of punishment in 140 countries by Ruddell and

Urbina (2004) found that GDP growth had a clear and consistent association with the use of imprisonment. That is, wealthier nations had higher rates of imprisonment. Ruddell (2005), in a comparative study of the richest 100 countries in terms of per capita GDP, however, found that the top 50 richest countries had lower average rates of imprisonment compared to the bottom 50 countries in his sample.

Legitimacy

While a Durkheimian approach links official punitiveness such as imprisonment with feelings of social solidarity, the Weberian tradition explains state punitiveness according to the concentration of power in a society and the need to protect political authority or legitimacy (Killias, 1986). In support of the latter, Garland (2001) argues that governments who perceive themselves to be vulnerable or lacking popular legitimacy will resort to expressive gestures and punitive responses. Conversely, regimes confident in their ability to retain power are less likely to rely on overly punitive sanctions. Duvall and Shamir (1980) speculate that repressive states with a structural propensity for coercion may not find it necessary to rely overly on overt coercive sanctions. Williams and Timberlake (1984) point out that "states organized to the formal exclusion of non-elites may impose coercive sanctions less frequently than those that are more 'democratic' in nature" (p. 419). Bollen (1980) reports evidence supporting this argument; that a growth in political liberties increases the risk of coercive state sanctioning.

Lappi-Seppälä (2007) sought to empirically test the relationship between social trust (Durkheim) and legitimacy (Weber) on the one hand and imprisonment rates on the other. In a cross-comparative study of 25 developed, mainly European, countries he found a strong inverse relationship between levels of imprisonment, legitimacy, and (social and institutional) trust. That is, countries with high levels of social trust (i.e., "horizontal" trust in people and fellow citizens)

and political trust ("vertical" trust in state institutions) tend to have low prisoner rates. In short, there is "strong support for the hypothesis that the degree of social and political trust and penal severity are closely interrelated, and that declining trust associates with increasing prisoner rates" (Lappi-Seppälä, 2007, p. 16). Societies with high levels of social trust can be expected to have relatively low levels of fear of crime which in turn should mitigate public pressure for tough penal sanctions.

Lappi-Seppälä (2007) posits that institutional trust and legitimacy are related; declining legitimacy and institutional trust can bring about tougher penal policies as governments seek to demonstrate their control over public security. Moreover, trust in institutions and legitimacy promotes norm-compliance and behavior (Tyler, 2003). Consequently, justice systems which maintain norm-compliance through trust and legitimacy, as compared to fear and deterrence, can maintain order with relatively low levels of sanctions including incarceration. Lappi-Seppälä (2007) concludes that trust may be a "key variable in explaining the shape and contents of penal policies" (p. 18).

Crime

The association between crime and imprisonment rates has been investigated both cross-sectionally and longitudinally. Some analysts have found that imprisonment rates are largely unrelated to victimization rates or to trends in reported crime; a finding described as the "crime-incarceration disconnect" (Lappi-Seppälä, 2011b, p. 308). In a study of 30 industrialized, primarily European, countries Lappi-Seppälä (2011b) found an inverse correlation between total reported crime and imprisonment rates. Similarly, a review of 218 countries exploring the relationship between crime and prison overcrowding found the relationship to be negative

(Lappi-Seppälä, 2011a). That is, countries with higher total levels of reported crime tend to have lower levels of prison crowding.

Tonry (2007) comes to a similar conclusion in a descriptive review of the literature dealing with causes of penal policies in Western countries, as does Kent (2010) in an analysis of the literature dealing with capital punishment. In a study of 20 developed countries, Greenberg (1999) found no significant relationship between crime rates and incarceration levels. Unlike most comparative studies on crime and imprisonment, Greenberg did not confine his analysis to homicide only. Modelling overall and demographic-specific homicide victimization trends from the late 1980s to the late 2000s covering 86 countries, Baumer and Wolff (2014) found no significant association between growth in imprisonment rates and homicide trends.

Some studies have found a more ambiguous association between incarceration and crime rates. In a cross-comparative study of 25 developed countries, Lappi-Seppälä (2007) found reported homicide rates to be positively associated with overall prisoner rates, although the results were disproportionately strengthened by two Baltic countries with particularly high homicide and imprisonment rates. Reported assault rates were negatively associated with prisoner rates. That is, countries with higher rates of reported assaults tended to have lower prisoner rates. Lappi-Seppälä (2007) concluded that differences in cross-national prisoner rates cannot be explained by differences in crime. In an analysis of homicide rates in 235 countries Lappi-Seppälä and Lehti (2014) found a correlation of close to zero between imprisonment and homicide rates. The only regional exception was Europe, with a fairly strong positive correlation. However, as in Lappi-Seppälä's 2007 analysis, this was almost exclusively attributable to the strong relationship between homicide and incarceration in countries of the former Soviet Union. One study, however, found a positive relationship between homicide and imprisonment. In a

bivariate analysis of the world's richest 100 nations based on per capita GDP, Ruddell (2005) found that homicide rates were strongly associated with imprisonment rates (calculated as the sum of the sentenced prisoner and pretrial detainee rates).

Group or racial threat

A number of theories of prejudice emphasize group-level causes (King & Wheelock, 2007) of imprisonment. Several theories falling under the general rubric of group threat theory explore threats to the dominant group by the subordinate group as a cause of the former's prejudice. Group threat theory postulates that prejudice and inter-group hostility are largely reactions to real or perceived threats by subordinate groups. Dominant groups seek to preserve their advantaged social position and view encroachments on their privileges by minority groups as disrupting to the existing social order. One of the earliest versions of group-threat theory developed by Blumer (1958) posits that prejudice emerges as groups develop a sense of their social position relative to one another. Moreover, intergroup hostility does not emanate simply from material conditions. Feelings of competition and hostility emerge from historically and collectively developed judgments about the positions in the social order that in-group members believe they should rightfully occupy relative to members of an out-group. One element thought to be related to the degree of threat is the size of the subordinate group relative to the dominant group. A popular formulation of this principle is found in Blalock (1967) and is often classified as the "political threat hypothesis" or "power threat hypothesis".

Although originally envisaged as a theory of prejudice and discrimination, group threat theory and its derivatives informs a growing body of research on formal social control and criminal punishment. There is considerable empirical evidence from the U.S., demonstrating that the racial composition of places is associated with higher levels of state social control. For

example, incarceration rates are on average higher in states with larger African-American populations, independent of potential mediating factors such as crime and unemployment rates (Greenberg & West, 2001). Larger African-American populations are also associated with forms of state social control such as policing (Earl et al., 2003) and criminal justice expenditure (Jacobs & Heims, 1999). Moreover, community demographics influence public opinion about crime and punishment. Individuals residing in areas with a higher concentration of African-Americans are more likely to perceive higher crime rates (Quillian & Pager, 2001) and support capital punishment (Baumer, Messner, & Rosenfeld, 2003).

Minority threat hypotheses provide scholars with a theoretical framework for understanding cross-national patterns of punishment. National-level studies of Western democracies have found relationships between the size of minority populations and the use of formal social control or punishment (Wacquant, 1999; Beckett & Western, 2001; Greenberg & West, 2001; Jacobs & Carmichael, 2001). Ruddell and Urbina (2004) examined the relationship between population heterogeneity and the use of punishment, measured in terms of imprisonment rates (and the abolition of capital punishment) in 140 countries. Controlling for political repression, violent crime, modernization, and economic stress, they found that religious diversity is positively associated with imprisonment (and that greater population homogeneity is associated with the abolition of capital punishment). The sample of 140 countries was selected on the basis of availability of information. As wealthier countries are likely to have greater resources to collect and disseminate statistical information, such countries were overrepresented in the sample. Using a panel design to examine the effect of minority presence on imprisonment rates in 13 liberal democracies from 1970 to 1995, Jacobs and Kleban (2003) found that the presence of large minority populations produces higher imprisonment rates. Jacobs and Kleban's

(2003) cross-national analysis suggests that "expansions in minority presence and the resulting threats to majority group dominance combine to produce increasingly punitive outcomes" (p. 746).

Empirical studies have shown that compared to majority groups, members of minority groups are, on average, subject to greater police scrutiny such as stop-and-search (OSJI, 2007; OSJI, 2009; Sharad, Rao, & Shroff, 2010; Ferrandino, 2015) and arrest (Kane, 2003; Kane, Gustafson, & Bruell, 2010); are more likely to be incarcerated (Tonry, 1997; Albrecht, 1997; Wacquant, 1999; Carmichael, 2005); and are subject to harsher punishment by criminal justice systems (Yates & Fording, 2005; Walker, Spohn, & DeLone, 2003).

Much of the work on the group threat hypothesis relies primarily on aggregate threat measures, such as "percent black," which does not fully reflect important underlying threat processes. It is generally assumed that aggregate measures of group size tap into group power and associated levels of individual perceived threat. Yet, "relative numbers in a population do not necessarily reflect degrees of relative power of various groups nor do they necessarily reflect the amount of threat that might be perceived by an elite group" (Tittle & Curran, 1988, p. 33). Possibly because of this methodological simplification, research findings on minority threat have not always been consistent. For instance, Bridges and Crutchfield (1988) report an inverse relationship between black imprisonment rates and the size of the black population among states in the U.S. Such discrepant findings might reflect several limitations that are common in prior research on racial / ethnic group threat processes, including "a routine reliance on aggregate threat measures and a failure to investigate different specific group threat mechanisms" (Johnson et al., 2011, p. 406).

Form of government and public opinion

Herbert Packer (1968) distinguished between two extreme positions or models of how criminal justice systems function. Namely, a "crime control model" which seeks to protect the rights of law-abiding citizens through the efficient apprehension and punishment of offenders, placing a premium on security and order, and a "due process model" which emphasizes human rights and is designed to protect the rights of defendants. Authoritarian regimes tend to favor the former model, with its focus on deterring criminal conduct and identifying and containing offenders as efficiently as possible. Liberal democracies err on the side of the due process model with its legal restrictions on state excesses and emphasis on procedural justice.

In an analysis of 111 countries, Sung (2006) found a strong relationship between democracy and increased criminal case attrition. That is, in liberal democracies relatively few arrests lead to convictions and custodial sentences compared to more authoritarian regimes, notwithstanding that "the size of both the police and prison staff turned out to be significantly larger in more democratic countries" (Sung, 2006, p. 326). However, in an analysis of 70 developed and developing countries, Ruddell and Thomas (2009) found that police numbers (sworn officers expressed as a rate of the general population) were higher in countries with less durable or stable political regimes, with less democratic regimes generally deploying more police. However, contrary to their expectations Ruddell and Thomas (2009) found that punitive crime control strategies, such as incarceration rates, were not significantly associated with police strength.

Democracy constrains executive power which may reduce imprisonment. However, in democracies public opinion and a free media shapes and informs policy priorities and outcomes. Consequently, if the public seeks more penal severity and crime control policies, democracy may

foster punitiveness and correlate with higher incarceration rates (Pratt, 2007). While a basic tenet

of democracy "is the need for accountability – and, hence, ideally, responsiveness – of

governments to the views and expressions of the electorate," such values are in "potential

conflict" with liberal and inclusive criminal justice policies (Lacey, 2008, p. 19). A number of

influential criminologists have argued that over the last few decades numerous developed

Western countries, especially Anglo-Saxon ones, have shifted towards a more punitive and crime

control paradigm to address growing public insecurity. David Garland's (2001) *The Culture of*

Control, Jock Young's (1999) *The Exclusive Society*, and Jonathan Simon's (2007) *Governing*

Through Crime review the loss of public faith in "penal modernism" and "penal welfarism"

which dominated criminal justice policy making for the first few decades after WWII.

     After reviewing the U.S. incarceration literature, Enns (2014) finds the evidence "far

from conclusive" (p. 2) that the U.S.' rising imprisonment rate reflects a response to public

punitiveness. Jacobs and Carmichael (2001) found a relationship between state political ideology

and state-level incarceration rates. Nicholson-Crotty, Peterson, and Ramirez (2009) found a

moderate relationship between public opinion and federal criminal justice policy. Other U.S.

studies question the relationship between public opinion and punitive polices (Gottschalk, 2008;

Brown, 2006; Zimring & Hawkins, 1991). Yet others proffer political explanations other than

public opinion for punitive criminal justice policies in the U.S., including the political party in

power and the influence of interest or pressure groups (Gottschalk, 2006; Weaver, 2007; Yates &

Fording, 2005).

     In a 13-country cross-national analysis focusing on political institutions and

imprisonment, Jacobs and Kleban (2003) found that national incarceration rates are positively

associated with federalism, while the opposite is the case in countries with corporatist

governance arrangements. Corporatist political arrangements common to many advanced

European democracies are, in contrast to federalist systems, more centrally managed societies

where elites or unelected experts negotiate compromises on a range of societal issues. According

to Jacobs and Kleban (2003), such "hierarchical arrangements" serve to establish a "solidaristic

polity" (p. 729) and foster penal policies which Garland (2001) terms penal welfarism. In such

corporatist arrangements the emphasis is on the reintegration of offenders through the

intervention of professional experts. By contrast, in federalist systems the public can generally

exert considerable influence at the sub-national level on government decisions, such as penal

policy. In federal political systems citizens' influence over policy is elevated, especially in

respect of decisions made by local officials who are sensitive to public demands of a symbolic or

moral nature such as penal polices. Jacobs and Kleban's (2003) findings support theorists such as

Garland (1990) who argue that incarceration rates are a product of political institutions that

influence the extent of public control over penal policy.

Legal system / tradition

In a bivariate analysis of 100 countries, Ruddell (2005) found that countries with

common law systems were significantly associated with the use of imprisonment, while

countries with civil law systems had a non-significant relationship. D'Amico and Williamson

(2015) investigated the relationship between incarceration rates and legal origins in a cross-

section of 113 countries. Using data from 2001 to 2011, they found that countries with civil legal

origins had lower imprisonment rates compared to countries with common law origins. Their

findings are robust even after controlling for intervening variables such as crime rates, criminal

justice resources, economic factors, political institutions, and social factors. D'Amico and

Williamson (2015) speculated that imprisonment is likely a more affordable mechanism to deter

crime and punish offenders in common law countries. By contrast, in civil law countries bureaucratic infrastructures allow for relatively affordable alternatives to incarceration such as day-fines, community service, seizure of property, drug rehabilitation and probation. They write, "Given the greater prominence of bureaucratic institutions throughout civil law countries, alternative forms of punishment enforced through bureaucracies may substitute for imprisonment" (D'Amico & Williamson, 2015, p. 596).

DeMichele (2014) developed composite measures of legal and criminal justice practices potentially related to incarceration rates. With a sample of 15 Western countries and looking at incarceration rates between 1960 and 2010, DeMichele (2014) groups countries into three punishment regime types rooted in different legal cultures. Namely, common law countries consisting of populist regime types (high incarceration rates), continental European countries with bureaucratic regime types (moderate incarceration rates), and collective regime types as found in Scandinavia (low incarceration rates). In an earlier comparative study of 17 OECD countries, DeMichele (2013) found that post-WWII incarceration trends cluster according to legal families with imprisonment rates highest in common law countries, followed by countries within the Roman law tradition, and Nordic law countries having the lowest incarceration rates.

Cross-national quantitative pretrial detention literature

Political repression and democracy

Controlling for crime, population heterogeneity and development, Ruddell and Urbina (2007) examined the relationship between political repression and the use of punishment in 100 of the world's richest countries. They found that autocratic nations have higher overall imprisonment rates. Examining correlates of pretrial detention populations produced less consistent results, suggesting that the factors that contribute to pretrial detention may be different

to those related to imprisonment more generally. The authors did, however, find a statistically significant negative relationship between certain indicators of democracy – level of political repression, protection of civil liberties, and press freedom – and pretrial detention, with autocratic states showing higher numbers of pretrial detainees as a proportion of the overall prison population. The authors found a strong association between homicide and both pretrial detention and imprisonment, and a strong negative association between human development on the one hand, and sentenced prisoners and the number of persons in pretrial detention as a proportion of all prisoners on the other. Religious diversity was found to be strongly associated with incarceration but not with pretrial detention. Overall, Ruddell and Urbina (2007) concluded that while their "findings in regard to the plight of [pretrial] detention populations are modest, they underscore the importance of better understanding the conditions associated with detained populations" (p. 101).

Prison overcrowding

In a study of the causes of prison overcrowding in 218 countries, comparing national-level data for the number of persons in pretrial detention as a proportion of all prisoners with the percentage by which national prison systems are overcrowded, Lappi-Seppälä (2011a) found that pretrial detention was a major factor contributing to prison crowding, especially in developing regions in Africa, South and Central Asia, and South America. Largely confirming Lappi-Seppälä's (2011a) findings, an analysis of 200 countries to identify correlates of prison overcrowding by Albrecht (2012) identified "a strong and significant correlation" between pretrial detention (the number of pretrial detainees as a proportion of the overall prison population) and the extent of overcrowding (p. 30).[6] The strength of the correlation varies

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[6] In his paper Albrecht (2012) sometimes conflates two distinct measures of pretrial detention. Namely, the rate of pretrial detention and the proportion of all prisoners who are pretrial detainees. Thus, in his analysis Albrecht states

between countries and regions. The correlation is robust at the global level, and especially so in Asia and to a somewhat lesser extent in Africa; no significant correlation was found for Europe and South America. Using a cluster analysis, Albrecht (2012) identified three distinct prison overcrowding clusters: (i) Low crowding associated with high GDP per capita, low violence rate, low state fragility, a high Human Development Index (HDI) and democracy, and low perceived corruption. (ii) Medium crowding associated with lower GDP per capita, higher violence and more perceived corruption. (iii) High crowding associated with a low prisoner rate, high proportion of pretrial detainees, low per capita GDP, high violence, weak HDI and democracy, and weak government structures.

Drawing on a variety of country-specific and multi-country studies, Albrecht (2012) articulates two explanations for the correlation between pretrial detention and prison crowding. First, governance-related issues around delays in the processing of pretrial cases through the criminal justice system caused by inefficient practices and procedural and legal problems. Second, statutory and bureaucratic pressures, including insufficient legal alternatives to pretrial detention, which result in the excessive use of pretrial detention by judicial officers. Albrecht (2012) did not find any correlation at the global level between prison crowding and the overall imprisonment rate (i.e., counting pretrial detainees and sentenced prisoners together), but rather the opposite with crowding correlated with a low general imprisonment rate. This seemingly paradoxical finding is explained in the context of poor governance, with prison crowding correlated with a variety of weak governance and development indicators, such as high rates of violence, low per capita GDP, and low democracy and human development values. According to

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that "overcrowding is correlated with the rate of pretrial detainees" (p. 12), while it is clear from the data he presents (p. 13) that the analysis uses the second aforementioned measure (proportion of prisoners who are pretrial detainees).

Albrecht (2012) overcrowding is associated with problems of "governance, a weak economy and obvious problems in the criminal justice systems," including "deficits in case processing and procedural capacity" (p. 12). Drawing on a variety of country-specific analyses, Albrecht (2012) suggests that prison overcrowding is particularly acute in places undergoing significant social change or political transitions, and in post-conflict situations.

Comparative descriptive or single-jurisdictional literature

A number of studies, not all of them academic, but also undertaken by NGOs and regional or international organizations, compare a small number of jurisdictions to better understand pretrial detention practices. These are typically descriptive in nature with some rudimentary quantitative comparisons or analyses. Others focus on one jurisdiction only and are primarily descriptive in nature.

Unemployment and labor surplus

As discussed above, some research suggests a relationship between labor surplus and punishment (Rusche & Kirchheimer, 2003; first published in 1939). Namely, when labor is plentiful (and unemployment high), punishment is likely to be more severe and arbitrary. In an analysis of bail practices in respect of a sample of defendants charged with felonies in New Jersey, Kazemian, McCoy, and Sacks (2012) find little evidence to suggest that judicial officers' bail decisions result in the disproportionate pretrial detention of those typically falling into the category of labor surplus. Their findings "do not illustrate any blatant attempts to exert greater control over the young, poor, predominantly minority males who comprise the 'urban underclass'" (Kazemian, McCoy, & Sacks, 2012, p. 64). This is attributed, at least in part, to New Jersey's legislative framework which prohibits preventive detention and the state's constitution which favors release on bail.

Imprecise laws

Gaps exist between many states' *de jure* and *de facto* compliance with international standards in the area of pretrial justice. Kelly (2001) found that many states which use pretrial detention excessively have enacted, and purport to apply, national legislation that closely mirrors international standards' presumptions against the use of detention. This paradox is explained in part by the substantial vagueness of many of the relevant norms articulated by international institutions and conventions, which permit governments to demonstrate, at least on paper, fidelity with such norms without having to ensure specific outcomes. The international norms that apply at the pretrial stage are typically framed quite broadly, with "scope for legitimate disagreement as to precisely what is meant by expressions such as 'promptly', [and] 'without undue delay' vis-à-vis the need that an accused be expeditiously brought before a court for a bail hearing and subsequently stand trial" (Cape & Stapleton, 2012, p. 29).

An area where legislation can be vague or varies significantly between jurisdictions is in setting maximum permissible lengths of pretrial detention. In an assessment of 15 European Union (EU) states, Fair Trials International (2011), an NGO, found that several countries have no maximum period of pretrial detention laid down in their legal systems (France, Ireland, Lithuania, Romania, and Spain), others allow extensions with no upper limit (Germany and Poland), while others have very generous maximum periods such as four years in both the Czech Republic and Slovakia. The circumstances in which alternatives to pretrial detention can or should be imposed are also not always clearly set out in legislation or are left at the discretion of the judge. A review of pretrial detention laws and practice in 27 EU states found little evidence that the introduction of alternatives to pretrial detention resulted in a reduction in the number of detainees incarcerated as a proportion of all prisoners. The authors of the review concluded, "…

even in countries where alternative measures are explicitly mentioned in law, in some cases, the law itself does not give an explicit objective of these alternatives… even the conditions under which they might be applied are lacking" (Van Kalmthout, Knapen, & Morgenstern, 2009, pp. 95-96).

Studies have found disparities in judicial officers' pretrial detention decisions even on identical cases. That is, in laboratory studies the same judicial officer makes different decisions on identical cases, or different judicial officers differ in their decisions on identical cases (Dhami, 2005). In an analysis of the pattern of pretrial detention in five Brazilian cities, Barreto (2007) found the use of pretrial detention varied significantly in different parts of the country and is related to a number of subjective factors, such as the attitude of particular judges. Pretrial detention rates for persons arrested *em flagrante* ("caught-in-the-act") for petty theft ranged significantly from around 30% to 90% in the different cities surveyed.

Punitive public attitudes

Examples abound of policymakers exploiting public fear of crime – or, conversely, being driven by it – to restrict the pretrial release of defendants awaiting trial. For example, rising levels of crime and fear of crime in South Africa in the mid-1990s led to a significant tightening of the country's bail law (Schönteich, 1997). In a 1999 ruling, the South African Constitutional Court upheld the restrictive law on the basis that the limitation on the right of a defendant to be released on bail is reasonable and justifiable taking into account the high levels of serious violent crime in the country (Sarkin, Steyn, van Zyl Smit, & Pachke, 2000). During the 1990s many Latin America countries adopted extensive reforms of their criminal justice systems. In particular, these reforms sought to impose time limits on investigations, institute speedy trial provisions, and establish more judicial oversight at all stages of the criminal process. However,

increasing levels of fear of crime, and rising levels of violent crime, contributed to the "persistence of demands that the new systems focus more on public safety while producing civil and political movements to reform the new systems in order to make them 'harder' and increase their ability to provide solutions to the increase in criminal activity" (Duce, Fuentes, & Riego, 2008, p. 55 [translated from the original]). Between 1999 and 2007, ten Latin American countries adopted counter-reforms which restricted the right to pretrial release, either through legislation or executive decree (Duce, Fuentes, & Riego, 2008).

Limited state resources

A criminal justice system's lack of human or financial resources increases the risk of pretrial detention. Where the police and prosecution have limited investigative abilities due to a lack of forensic equipment or qualified investigators, they tend to rely disproportionately on confessions to bring matters to court. Often this implies that minor offenders who are "caught in the act" of, for example, theft or urinating in public, are arrested because they are easily identified, while those committing more serious crimes hidden from public view, such as serial killers or white-collar criminals, do not come to the attention of law enforcement agencies. A 2009 United Nations Office on Drugs and Crime study (UNODC, 2011) found that in most of the 30 African countries surveyed, the majority of pretrial detainees and convicted prisoners were incarcerated as a result of being charged with or convicted of minor offenses. For example, in Ghana, Malawi, Swaziland, and Zambia in excess of three-quarters of prisoners were incarcerated as a result of minor crimes.

In countries where conviction rates are low because of a lack of criminal justice system capacity, there is a temptation to use pretrial detention not to "attain its primary goal of upholding order and security and facilitating investigations, but rather, as… a form of sanction,"

according to a report produced by the African Policing Civilian Oversight Forum, an NGO (APCOF, 2011, p. 10). The lack of resources can also indirectly abet unnecessary pretrial detention or overly long detention periods. Many resource-poor jurisdiction do not have systems of personal or physical identification, rendering efforts to track persons released awaiting trial burdensome. For example, police in Malawi are known to "arrest relatives of suspects when a suspect herself cannot be found, apparently in order to 'draw the wanted individual out of hiding'" (Baradaran, 2010, p. 129). A similar practice of "proxy detention" has been documented in South Sudan (Baradaran, 2010).

A scarcity of police vehicles or fuel to run them can slow down the pretrial process and thereby increase both the duration of detention and the average number of detainees. In the immediate post-Yeltsin era, trials in Russia "often encountered long delays due to a shortage of police guards and vehicles to shuttle defendants from jail to court" (Smith, 1999, p. 115). Many jurisdictions in poorer countries lack an adequate court infrastructure so that courtrooms are often shared by more than one judicial officer. Some judges, for example, sit in court for only an hour or two a day to accommodate their colleagues who also need to use the facilities. In other places, there is a shortage of judicial personnel so that judges shuttle between courts resulting in adjournments and uncompleted trials (Olong, 2010).

The unavailability of alternatives to pretrial detention increases the likelihood that courts will remand awaiting trial prisoners into pretrial detention. In many countries legislation provides for a wide range of alternatives, but funding is often lacking to make alternatives a realistic option. Within the U.S. federal system, for example, home electronic monitoring and the placement of detainees in halfway houses exist as alternatives to pretrial detention, but these options are not used in some federal districts because of financial constraints (Douglas, 1997).

Inadequate legal representation and assistance

The availability of legal representation and assistance, especially at the early stages of the criminal justice process, can make a significant difference to arrestees' likelihood of being remanded into pretrial detention and, in cases where they are detained, the duration thereof (Cape & Stapleton, 2012). For example, an initiative in four Nigerian states, whereby duty solicitors (lawyers) were stationed at police stations under a 24-hour duty schedule, reduced the number of pretrial detainees by almost 20% and the duration of pretrial detention by 72% over a one year period (Nwapa, 2008). In Malawi, the introduction of paralegals, who provide legal advice and assistance to arrestees and defendants at police stations, remand centers and courts, played a significant role in reducing both the number and proportion of pretrial detainees in that country (Msiska, 2008). The providers of legal assistance in the aforementioned Nigerian and Malawian examples were community-based organizations as state budget allocations for legal aid are minimal. A UNODC (2011) survey on legal aid in Africa found that while national laws – often entrenched as constitutional provisions – respect a right to legal aid, access to legal aid is not available at all stages of the criminal justice process, and is particularly rare at police stations.

In 2008-2009, fewer than a dozen U.S. states (out of 50) ensured legal representation within the 48 hour initial bail hearing (Colbert, 2011). Until fairly recently, a number of U.S. states failed to provide lawyers at the bail stage of the criminal justice process (Colbert, Paternoster, & Bushway, 2002). A study involving nearly 4,000 lower-income defendants in the U.S. found that more than two-and-a-half times as many legally represented defendants were released on their own recognizance from pretrial custody compared to unrepresented defendants. Moreover, two-and-a-half times as many represented defendants had their bail reduced to an affordable amount. The study found that delaying legal representation until after the pretrial

release determination was the "single most important reason for lengthy pretrial incarceration of people charged with nonviolent crimes" (Colbert, Paternoster, & Bushway, 2002, p. 1720).

Police and prosecutorial influence

In many jurisdictions, both the police and the prosecution instinctively favor pretrial detention over pretrial release. The police is typically convinced that a defendant is guilty and the prosecution service, working closely with the police, is likely to adopt the police's position in most cases when it comes to requesting that a defendant be detained awaiting trial (Jones, 2003). Detained defendants, especially those without legal representation, are at the largely unfettered beck and call of detectives and prosecutors for repeated questioning, and are often more likely to cooperate with their interrogators. In the U.S., prosecutors have the authority to pursue a plea agreement and bargain with a defendant. In respect of most serious violent crimes and drug-related offenses, federal prosecutors enjoy a discretion whether or not to pursue pretrial detention. As a result, prosecutors can use pretrial detention as a "bargaining chip" during plea negotiations. "This converts pretrial detention from a method of protecting society from crimes committed by criminals out on bail into a tool which helps prosecutors obtain information or convictions" (Klein, 1997, p. 290).

Law enforcement's preference for pretrial detention should be counterbalanced by the judiciary. This balancing effect is undermined where the judiciary adopts a deferential position in respect of prosecutors' requests for pretrial detention. Judicial deference to the prosecution is especially marked in countries of the former Soviet Union. In Russia, since 2002, when the judiciary was given the power to decide upon pretrial detention (previously the responsibility of the prosecution), courts typically approve around 90% of all applications for pretrial detention (Foglesong, 2011). In Armenia (Penal Reform International, 2011) and Ukraine (Cape &

Namoradze, 2012), over 90% of requests for pretrial detention by the prosecution are granted by the courts. A review of 10 European Union jurisdictions in 2015 revealed that judicial acquiescence to prosecutorial requests for pretrial detention in Central and Eastern Europe were equally high: 83% in Bulgaria, 90% in Hungary, and 92% in Poland (Fair Trials, 2016). Even in jurisdictions with a long tradition of judicial independence, prosecutors' detention requests are usually adhered to by the courts. A study in England and Wales found that in 86% of cases judicial officers followed the prosecutions' request to detain a defendant awaiting trial (Hucklesby, 1996).

Corruption

Police officers, prosecutors and judges are underpaid in many countries, and corruption can be a serious problem. Decisions made about arrest, investigation, charge, and pretrial detention can often be best understood in terms of the ways in which these may contribute to generating an income (OSJI, 2010). Corruption and excessive pretrial detention are mutually reinforcing. A criminal justice system that uses pretrial detention excessively is susceptible to corruption, and an environment marked by corruption will likely lead to over-reliance on pretrial detention (Heller & Henderson, forthcoming).

In criminal justice systems where corruption is pervasive, defendants are likely to be released awaiting trial only if they are politically connected or have the means to bribe the arresting officer, prosecutor, or judicial officer dealing with their application for pretrial release. A review of arrest and detention practices of police in 21 African countries found that in many places the release of persons wrongfully arrested and the prompt handling of investigations depends on bribes rather than observance of legal procedure. "Corruption… exacerbates arbitrary execution of police functions of arrest and detention" (APCOF, 2011, p. 12). In some countries

police routinely round up the poor, women, homeless children, migrants, and refugees in mass arrests and subject them to extortion (APCOF, 2011).

Widespread corruption may also entice criminal justice officials not to release defendants awaiting trial out of a concern that doing so would place them under suspicion of engaging in corrupt behavior. In Brazil, for example, the public holds the judiciary in low regard, blaming it for a combination of injustice and impunity. The view that "the police arrest criminals and the judges let them go" is a fairly widely held prejudice in sections of Brazilian society and the use of pretrial detention by some judges is reportedly partly a response to this belief (IBA, 2010, p. 9).

Conclusion

The empirical cross-national imprisonment literature dealing with imprisonment generally reports an ambiguous relationship between unemployment and imprisonment, and typically no relationship between economic or income inequality and imprisonment. Imprisonment rates tend to be sensitive to variation in the structure of labor markets, at least in developed welfare state economies where prison rates are lower, although some studies focusing on a small number of countries fail to show a relationship between welfare expenditure and imprisonment. Modernization – when measured by GDP – is reportedly positively associated with imprisonment rates, with the exception of the most affluent countries.

There is support for the contention that governments lacking popular legitimacy use punitive criminal justice policies, including incarceration, to maintain order and control – at least among developed, mainly European, countries. The literature generally reports no or an ambivalent relationship between imprisonment and crime.

The literature is broadly supportive of group or racial threat theory – that dominant groups entrench their advantaged position through, inter alia, repressive social control and penal policies when they perceive their privileged position to be under threat. Countries with large minority populations often have higher imprisonment rates.

The literature suggests that forms of government and legal tradition are associated with the use of imprisonment. Federal systems tend to be more punitive in respect of incarceration rates, while corporatist governance arrangements tend to be associated with lower incarceration rates. Incarceration rates are higher in common law compared to civil law countries.

The cross-national quantitative pretrial detention literature reveals that while autocratic states have higher general imprisonment rates, this is not noticeably the case in respect of pretrial detention. There is, however, an association between political repression and higher proportions of prisoners in pretrial detention. Moreover, there is a strong correlation between prison crowding and pretrial detention, especially in developing regions of Africa and Asia.

The comparative descriptive or single-jurisdictional literature deals with the relationship between pretrial detention practices and issues of unemployment and labor surplus, imprecise laws, punitive public attitudes, limited state resources, police and prosecutorial influence, and corrupt practices by criminal justice personnel. These studies are typically descriptive with some basic quantitative analyses.

CHAPTER 3: RESEARCH METHODOLOGY

Introduction

This chapter outlines the research hypotheses derived from the theoretical considerations and extant empirical studies discussed in Chapter 2. The hypotheses are followed by a description of the dependent and independent variables that will be used in a cross-national study to test them. The steps taken to prepare the data for manipulation and analysis are also described. The chapter begins with a discussion of the importance and utility of large-scale cross-national quantitative studies, and some of the benefits and challenges associated with such a methodological approach.

Purpose, benefits, and challenges of cross-national methodologies

The comparative approach is not new to social science (Bennett, 2004; Howard, Newman, & Pridemore, 2000). Comparison can be used for hypothesis testing and contributes to the inductive discovery of new hypotheses and theory building, and plays an important role in concept-formation, bringing into focus suggestive similarities and contrasts among cases (Collier, 1993).

Through the use of statistical analyses, and covering the majority of the world's countries, this study seeks to investigate and quantify associations and relationships between a variety of factors or constructs and selected pretrial detention measures. Such an approach is not without general precedent; numerous cross-national studies have used a comparative approach to investigate correlates of prison overcrowding and general imprisonment rates. It has been found that such correlates and relationships can be "modelled along various economic, cultural and political conditions" (Albrecht, 2012, p. 21). The methods used by this study have therefore been

tested in comparative studies of general incarceration. However, no rigorous cross-national investigation has thus far been undertaken of the relationship between a variety of economic, political, and social factors, and pretrial detention measures. According to Ruddell and Urbina (2007), imprisonment research, while voluminous, typically neglects pretrial detainee populations.

Three methodological approaches guide most comparative research in the criminal justice field (Ruddell & Thomas, 2009). Namely, (i) examining the relationships between economic, political, and social factors and criminal justice operations in larger cross-national samples; (ii) examining the criminal justice processes of a relatively small number of countries using a longitudinal approach; and (iii) comparing justice systems within small samples of countries. Lijphart (1971) draws similar typological divisions in comparative social science research, distinguishing between the statistical, comparative, and case study methods, with the statistical method implying quantitative comparative research using large amounts of data. A similar three-pronged division – comparing many countries, comparing few countries, and single-country studies – is proposed by Landman (2008).

This study adopts Ruddell and Thomas' (2009) first approach. Namely, examining the relationships between economic, political, and social factors, and pretrial detention measures in a large cross-national sample. The focus is on identifying and analyzing relationships or correlations between a variety of factors (the independent variables) and two measures of pretrial detention (the dependent variables). "In more developed research areas it may be expected that researchers will be concerned with attempting to unpick causal explanations which underpin differences between cases, rather than attempting to merely identify patterns of outcomes of cases" (Norris, 2009, p. 230). The field of comparative pretrial detention-related studies,

especially large-scale cross-national studies, remains too underexplored to easily "unpick" causal explanations regarding the drivers of pretrial detention. The objective of this study, therefore, is to identify statistical correlations between independent and dependent variables, but not causal relationships.

In studies employing hundreds of cases or countries (as in this study), it is difficult to understand the details of each case / country, and the focus shifts to the analysis of variables and their relationships. The primary goal of variable-oriented research is the production of descriptive or explanatory variables. Descriptive inferences are produced by generalizing from patterns found within samples (King, Keohane, & Verba, 1994). With large sample sizes it is possible to generalize to a wider population. As Ragin and Robinson (2009) point out:

> All else being equal, the larger a sample is the greater the researcher's
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> confidence in generalizing to a wider population. Explanatory inferences are
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> produced through hypothesis testing. Hypothesis testing requires a well-
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> specified theory of the relationships among variables, which may be confirmed
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> or refuted by comparing the theory's predictions against evidence. (p. 14)

Past studies that collected data from a large number of countries and examined criminal justice-related issues, including incarceration policies and practices, have employed ordinary least squares (OLS) regression models (Neapolitan, 2001; Ruddell, 2005) or logistic regression (Ruddell & Urbina, 2004). These ranged in size from a few dozen to over 100 countries. Comparative research to better understand similarities and differences between countries, using statistical techniques to undertake theory testing and search for correlates, is becoming more commonplace as data availability and reliability improves (Howard, Newman, & Pridemore, 2000).

Comparative studies with large sample sizes from which the independent variables are extracted, have "methodological advantages such as reducing the possibility of multicollinearity, and enabling the investigators to include more variables in the statistical models," and for "patterns to emerge from the analyses that might not be apparent when examining fewer nations" (Ruddell & Thomas, 2009, p. 656). It is a truism in quantitative comparative research that the greater the number of "variables that may exert a potential influence on the phenomenon under investigation, the more cases are needed to test all the possible combinations of several variables" (Lor, 2012, p. 12).

Cross-national comparative studies incorporating a large number of countries are suitable for the formal testing of hypotheses. According to Bennett (2004), the testing of the generalizability of theories is a key benefit of cross-national comparative research:

> In almost all cases, theory is developed to explain an observed phenomenon. What is implicit in most theory generation is that the phenomenon is bound by time, space and culture, and the ensuing theoretical model is limited (if not idiosyncratic) to the social, political, and economic environment in which the phenomenon occurred. Theory development benefits from comparative research because a theory can be readily tested in varying environments and then modified or adapted to explain similar phenomena occurring globally, or a theory can be revealed as a limited *ad hoc* explanation of a culture-bound phenomenon. (p. 9)

There are some disadvantages to selecting countries as the units of comparison (Lor, 2012). One disadvantage is that within-country differences can be obscured. In some national units, such as large federal states like the U.S., Mexico, or Germany, internal differences may be

greater than the differences when comparing countries with one another. For example, the difference in the pretrial detention rate between California and Maine may be greater than the difference in the rate between the U.S. and Canada or Mexico. Lijphart (1975) reviewed the issue of "whole-nation bias" and the challenges with focusing on countries as the unit of analysis. Conversely, Bennett (2004) argues that comparative research allows for the examination of variables that have limited range within a single country. For example, social welfare spending varies very little between the federal states of Germany. Due to such a restricted variance it is difficult to tease out the statistical relationship between, say, welfare spending and pretrial detention rates. Such a relationship is often weak, unstable, and even unreliable (Bennett, 2004). However, by using a large cross-national sample it is possible to better ascertain the correlation and the role of related variables.

A challenge posed by large cross-national studies is that the necessary comparable data are incomplete (Norris, 2009) or become less valid as the sample size increases (Lor, 2012). This is especially the case when developing or post-conflict countries are included in the analysis. Such countries often lack the capacity to accurately collect up-to-date economic, political, and social statistics.

This study sought to compensate for gaps in the available data for the independent variables by, in some cases, collating data from multiple years to obtain larger sample sizes. (See Appendix 7 for availability of data for independent variables by country.) While data drawn over multiple years had high year-on-year correlations so that slight inconsistencies in the years these variables were drawn from did not represent a significant limitation, this is nevertheless a less than ideal solution.

The two dependent variables, on which the veracity of this study largely relies, also have limitations. Even though the dependent variables were selected because of their wide coverage (216 national prison systems), no data were available for 10 countries, including the People's Republic of China. The data for the dependent variables come primarily from national prison administrations (Walmsley, 2017), and are only as accurate as these government agencies are able to record and willing to report. Moreover, official prison data count only pretrial detainees who have been remanded to a prison or pretrial detention center (i.e., persons who are physically detained in a facility under the control of the prison administration). This undercounts the true number of pretrial detainees in places where detainees are also routinely confined at police stations. The data also reflect only the number of pretrial detainees on a particular date (i.e., "stock" as opposed to "flow" data) which may not be a good reflection of the average number of pretrial detainees for the year in question. For example, in countries with modest population sizes or small prison populations, the rate or proportion of pretrial detainees is sensitive to short-term and atypical events, such as a sudden increase in pretrial detainees because of a police operation which generates a high number of arrests. Finally, the dependent variable data are not counted the same in all jurisdictions. For example, in civil law systems, detainees convicted but not yet sentenced or awaiting final sentence after an appeal are classified as pretrial detainees, while in common law systems they are not. This poses a challenge for comparative analyses which include – as this study does – countries from jurisdictions which count the phenomenon under investigation in different ways.

Statistically-oriented cross-national studies incorporating a large number of countries also face problems related to the validity and reliability of measures used in comparisons. For example, per capita GDP says nothing about the distribution of income, while recorded crime

rates do not reveal the "dark figure" of crimes which are not reported or recorded by the police. Moreover, dichotomous variables may be too blunt to take into account nuanced differences. For example, by characterizing legal systems as either "common" or "civil" law, no cognizance is taken of legal systems which contain elements of both legal traditions. Large-scale cross-national studies are variable-oriented but such variables are often conceptualized and measured at a somewhat superficial level.

While the independent variables were carefully selected and, where possible, based on the literature and prior studies, this had to be tempered by the availability of data across a large sample of both developed and developing countries and the constructs which this study sought to explore. While some constructs make for easy measurement (e.g., unemployment), others had to be represented by measurements only obliquely representing the construct in question. For example, past studies have used urbanization as a measure of modernization (Bennett, 1991), yet a closer inspection of urbanization rates suggest this may be an imperfect measure for the modernization construct as employed in this study. With an official urbanization rate of 66%, Austria might be considered to have a lower modernization level than Libya with an urbanization rate of 79%, Venezuela (89%), or Uruguay (95%).

The larger the number of countries compared the less intensely each one will be studied. That is, the more countries included in a comparative study the higher the level of abstraction (Landman, 2008), with abstraction referring to the concepts used. Thus, in variable-oriented studies where many countries are used, the "focus is on a limited number of variables, which are abstracted and removed from the concrete reality and context of the countries that are studied by means of simplifying assumptions" (Lor, 2012, p. 10). Moreover, according to Howard, Newman, and Pridemore (2000) it can be "difficult to construct precise operational measures of

theoretical constructs" (p. 167) at a high level of abstraction, especially where – as is the case in this study in respect of the dependent variables – the researcher depends on secondary data collected by governments for administrative purposes.

Lor (2012) summarizes the challenges with many-country comparisons as follows:

Ontological assumptions underlying many-country comparisons are that countries can be seen as units, that the features being compared can be measured, that these features are sufficiently similar, and that variations in features in one country are largely independent of variations of the same features in other countries. The latter assumption is referred to as 'unit independence'. Vast differences between countries call into question the assumption that their features are comparable. (p. 12)

A related obstacle to cross-national research in criminal justice is the lack of uniformity in definitions and statistics (Lynch, 1988). Definitional, reporting, and recording differences among countries compromise the quality and comparability of cross-national data. This study faces the challenge of using a measure – pretrial detention – which is counted differently in different jurisdictions.

As a result of a lack of comprehensive time-series data for the dependent variables, it was not possible to use statistical techniques to show causation between the independent and dependent variables. Thus, while this study is able to demonstrate how these two categories of variables relate to one another, it is not possible to say whether any of the independent variables caused either of the dependent variables (e.g., that high homicide rates cause or contribute to a higher proportion of prisoners in pretrial detention).

A further methodological limitation is that some of the independent variables are comprised of indices which are, in turn, an amalgamation of a variety of measurements or data points. For example, the Democracy Index is based on the ratings for 60 indicators grouped in five categories: electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture. Each category has a rating on a 0 to 10 scale, and the overall index of democracy is the simple average of the five category indices (Keki, 2007). The data for each indicator come from public opinion surveys, expert assessments, and official statistics. Given the complexity of such indices – often comprised of sub-indices and numerous indicators or data points – it is a challenge to construe what they concretely represent. For example, this study ascertains that there is a modest negative correlation between the Democracy Index and the proportion of prisoners in pretrial detention. That is, "more" democracy predicts a lower proportion of prisoners in pretrial detention. Such a finding does not, however, permit a more nuanced analysis about what aspects or components of democracy correlate with the dependent variable. Based on the composition of the Democracy Index, it could be an aspect of, inter alia, countries' electoral processes, respect for civil liberties, political culture, or a combination of these and other themes.

Many of the independent variables used in this study are comprised of perception data, typically reflecting the perceptions or opinions of country experts, the general population (i.e., general opinion surveys), or specific groups (e.g., business owners). For example, the World Bank's Worldwide Governance Indicators (WGI) are based on subjective or perceptions-based measures of governance, taken from surveys of households and firms, and expert assessments. There is a risk of potential systematic bias in perceptions data. Different types of respondents may differ systematically in their perceptions of the same underlying reality. For example,

"experts" may not perceive the quality of governance in the same manner as the average citizen if experts are largely comprised of middle-to-upper class persons who disproportionately use private alternatives to government services, such as private education, healthcare, and security. Another form of bias in perceptions data is the possibility that subjective assessments of the construct being measured (e.g., governance) are driven by factors other than the construct itself. For example, the recent economic performance of a country may influence public perceptions on development, so that respondents may rate a country's development as positive simply because the economy is doing well. Finally, a potential source of bias in perceptions data is that providers of such data, such as the World Bank or the Economist Intelligence Unit, rely on each other's assessments, and consequently risk making correlated perception errors (Kaufmann, Kraay, & Mastruzzi, 2010).

A further challenge with comparative research is that the process of comparing through the application of particular units of analyses and variables is likely influenced by the researcher undertaking the analysis. "No comparison is completely neutral… the way in which the question is asked implies part of the response", according to Green (1994, p. 6). Choices of units, levels of analysis, and variables in cross-national comparisons may be influenced by, inter alia, the researcher's cultural background, linguistic knowledge, and resources. That is, researchers may "seek to analyze practices in different cultural settings through their own (inappropriate) conceptual lens. Inevitably, researchers have their own culturally and linguistically determined assumptions and their own mindsets" (Hantrais, 1999, p. 103). While such implicit or explicit researcher's bias will influence research findings irrespective of the methodology employed, the risk is greater in large-scale cross-national studies where most of the units of analysis (i.e., countries in the case of this study) are unfamiliar to the researcher.

In the context of a discussion on the strengths and limitations of large-scale cross-national comparative studies it is important to note that national contexts and peculiarities play an important role in shaping pretrial detention practices. While aspects of penal practices, including pretrial detention, can be explained by general economic, political, and cultural factors, their impact is "difficult to condense in terms of a simple statistical model" (Lappi-Seppälä, 2007, p.298). Many relationships are context-related and the aforementioned factors are likely to occur in different combinations in different jurisdictions and at different points in time. The methodological approach and units of analysis for this study focus on country-level relationships and patterns. Aggregation to such high levels masks the considerable variation in pretrial detention measures and their economic, political, and social correlates present in many countries. To overcome this limitation, some researchers favor country-specific research capable of analyzing such correlates or relationships at subnational level (LaFree & Kick, 1986; Neapolitan, 1997).

Writing in the context of growing levels of popular punitiveness and incarceration (at least in a number of developed countries), and the desire to understand starkly different cross-national levels of imprisonment, Nelken (2011) calls for an exploration of the differences in national political cultures and institutions. Nelken (2013) contends there may be some general or universal economic, political, and cultural factors which drive levels of punitiveness, such as populist rhetoric by political elites, greater socio-economic and political polarization, and an overall decrease of trust in governments and criminal justice experts. He warns, however, that other drivers of punitiveness are highly context specific such as, for example, in the United States the impact of racial divisions on the public's fear of crime and consequent punitive attitudes, and the role of elected prosecutors and judges. Alternatively, countries may have

context-specific impediments or "shields" against punitiveness such as the role and influence of strong centralized state bureaucracies in some European countries which are not easily swayed by popular opinion or the whims of politicians. In short, national-level peculiarities influence pretrial detention practices. These are not a focus of this study, however.

Despite the aforementioned limitations, the methodological approach of this study has a number of strengths and benefits. Cross-country comparison is useful for hypothesis testing and the inductive discovery of new hypotheses and theory construction. Comparisons can be used to better understand the relationships behind observed similarities and differences (Azarian, 2011). The use of large sample sizes reduces the risk of multicollinearity and permits the inclusion of a wide variety of variables to test a multitude of hypotheses. Comparative research also allows for the investigation of variables which have limited range within a country but considerable variation across countries.

Hantrais and Mangen (1998) discuss other advantages of cross-national comparative research. Namely, a deeper understanding of critical issues of concern in different countries; development of new directions and useful avenues for future research about which scholars may not previously have been aware; a more informed focus of analysis of the subject being investigated by suggesting new perspectives; and the identification of gaps in the existing knowledge base. Moreover, a "variable-oriented" approach, assessing the relationship between variables across a large sample of observations can serve to identify patterns that hold for the overall sample, thereby enabling predictions or inferences to be drawn (Ragin, 1987).

While data reliability remains a challenge, both the quantity and quality of data needed for international comparisons in a variety of fields, including the themes covered by this study, have improved significantly over the last few decades. National governments and international

organizations have engaged in ongoing efforts to address gaps in data availability and to ensure

datasets capture different country contexts (Cacace, Ettelt, Mays, & Nolte, 2013; Kriegler &

Shaw, 2016).

Study themes and hypotheses

This section is organized around the economic, political, and social factors that relate to

pretrial detention. Each factor is comprised of a number of themes or constructs identified in the

literature as germane to punishment / incarceration and/or pretrial detention practices. For each

of the constructs two hypotheses are proposed – one for each of the independent variables.

Economic factors

Unemployment

Rusche and Kirchheimer (1939/2003) hypothesized that punishment, especially mass

imprisonment, is driven primarily by economic considerations. Cross-national studies seeking to

test Rusche and Kirchheimer's theory focus disproportionately on developed and rich countries

and none explicitly investigate the relationship between unemployment and pretrial detention.

There is consequently scope for testing the labor surplus hypothesis using a large sample of

developed and developing countries with a focus on pretrial detention. Pretrial detention can be

construed as a mechanism of social control and punishment so that it is reasonable to assume that

Rusche and Kirchheimer's labor surplus dynamics apply to pretrial detention rates as well. This

leads to the following hypothesis:

H1a: Unemployment levels are *positively* correlated with pretrial detention *rates*.

If labor surplus affects all forms of criminal incarceration (i.e., both in respect of

sentenced prisoners and pretrial detainees), then the relationship between the two incarcerated

populations may not change as a result of labor surplus or unemployment. That is, if

unemployment results in higher numbers of both pretrial detainees and sentenced prisoners, then the number of pretrial detainees expressed as a proportion of all prisoners is unlikely to change significantly. This produces the following hypothesis:

H1b: Unemployment levels do *not correlate* significantly with the *proportion* of prisoners in pretrial detention.

Inequality

Inequality, a consequence of unemployment, may also be related to penal policies and practices, including incarceration. Williams and Timberlake (1984) speculate that in situations of high economic inequality, governments tend to focus more attention and resources on crime control activities. Wacquant (2000) argues that imprisonment serves as a mechanism for controlling offenders and maintaining the legitimacy of the capitalist state during periods of rising and sustained economic inequality. Others (Merton, 1938; Shaw & McKay, 1942; Hirschi, 1969; Agnew, 2006; Messner & Rosenfeld, 2006) speculate that the poor and unemployed have a greater propensity to engage in criminal conduct and risk being arrested and imprisoned compared to better-off members of society; a phenomenon which is exacerbated by inequality and social stratification. Notwithstanding the theoretical work, the cross-national empirical literature is largely inconclusive on the issue with numerous studies finding no significant relationship between economic inequality and imprisonment (Greenberg, 1999; Neapolitan, 2001; Ruddell, 2005). As the literature has not explicitly explored the relationship between inequality and pretrial detention, it is germane to test for this relationship based on the theoretical literature. This leads to the following hypothesis:

H2a: Economic inequality is *positively* correlated with pretrial detention *rates*.

As with labor surplus, more effective and better resourced crime control policies and/or increases in criminal conduct can be expected to increase both pretrial detainee and sentenced prisoner numbers, thereby not significantly affecting the relationship between the two. This suggests the following hypothesis:

H2b: Economic inequality does *not correlate* significantly with the *proportion* of prisoners in pretrial detention.

Social welfare

Both strain (Merton, 1938) and subculture theories (Cohen, 1955) link crime and criminal conduct with poverty. It follows that policies designed to reduce or mitigate the impact of poverty, such as increases in government spending on social welfare programs, should reduce both poverty and economic inequality and thereby decrease crime.

Empirical studies on the relationship between social welfare spending and changes in the crime rate have found significant negative correlations (Savage, Bennett, & Danner, 2008). Numerous cross-national studies found a negative correlation between welfare spending and imprisonment rates (Jacobs & Kleban, 2003; Downes & Hansen, 2006; Lappi-Seppälä, 2007). These have, however, focused on developed countries and used relatively small sample sizes (around two-dozen countries or less). A smaller subgroup of empirical studies fail to support the aforementioned findings and found that welfare expenditure does not affect incarceration rates (e.g., De Koster, van der Waal, Achterberg, & Houtman, 2008). Given these inconsistent findings and the fact that no studies explicitly explored the relationship between welfare expenditure and pretrial detention, the following hypothesis arises:

H3a: State welfare expenditure is *negatively* correlated with pretrial detention *rates*.

Based on the theoretical literature, social welfare expenditure reduces criminal conduct which should lower both pretrial detainee and sentenced prisoner numbers and not significantly affect the relationship between the two, suggesting the following hypothesis:

H3b State welfare expenditure does *not correlate* significantly with the *proportion* of prisoners in pretrial detention.

Modernization

A number of empirical cross-national studies found support for the modernization perspective in the context of imprisonment (e.g., Jacobs & Kleban, 2003; Ruddell & Urbina, 2004). These findings have, however, been questioned by Ruddell (2005) who, in an analysis of the world's 100 richest countries, found that the top 50 richest countries had lower average rates of imprisonment compared to the next set of 50 countries. The basic premise of Durkheim's analysis should also apply to pretrial detention: as countries modernize, so their formal criminal justice institutions develop and grow. This, in turn, should bring about a higher number of arrests and the processing of arrestees through pretrial justice systems. The following hypothesis is proposed:

H4a: A country's level of modernization is *positively* correlated with pretrial detention *rates*.

Because modernization increases the salience of formal criminal justice institutions it is reasonable to assume that modernization will exert upwards pressures on both the use of pretrial detention and imprisonment, but more so on the latter as formal justice systems enhance their human and technical capacities to convict offenders. This leads to the following hypothesis:

H4b: A country's level of modernization is *negatively* correlated with the *proportion* of prisoners in pretrial detention.

Political factors

Regime type

Autocratic regimes tend to have higher incarceration rates compared to liberal democracies (Ruddell & Urbina, 2007). Governments which perceive themselves to be vulnerable or lacking popular legitimacy will resort to punitive policies to maintain their positions of authority and power (Garland, 2001). The autocracy – democracy pattern does, however, not appear to hold for pretrial detention rates, suggesting that some of the factors which contribute to pretrial detention may be different to those that lead to imprisonment more generally (Ruddell & Urbina, 2007). Ruddell and Urbina's study covered the world's 100 richest countries, and it would be insightful to assess their findings using a larger sample of countries which also cover developing and low-income countries. If it is assumed that autocratic states generally employ the "crime control model" as compared to the "due process model" (Packer, 1968), then autocratic regimes with relatively high incarceration rates should have high pretrial detention rates too. This makes for the following hypotheses:

H5a: Stable democracy and civil liberties are *negatively* correlated with pretrial detention *rates*.

H5b: Stable democracy and civil liberties are *negatively* correlated with the *proportion* of prisoners in pretrial detention.

Development

Countries with high levels of prison crowding tend to have a high proportion of prisoners in pretrial detention, especially in developing regions. This may be because of poor governance producing delays in the processing of pretrial cases through the criminal justice system (Albrecht, 2012).

A large cross-national analysis covering 200 countries found that prison crowding is associated with low general imprisonment rates (Albrecht, 2012). This finding can be explained in the context of poor governance. That is, badly governed and/or developing countries tend to have limited prison space producing overcrowding even when the overall imprisonment rate is low. Such countries have overall low imprisonment rates because they tend to lack the criminal justice capacity and resources to ensure a high proportion of arrestees are prosecuted and convicted. That is, a relatively high proportion of prisoners are pretrial detainees.

A criminal justice system's lack of human or capital resources, which is more acute in developing countries, increases the risk of pretrial detention. Where the police and prosecution have limited investigative abilities they tend to rely disproportionately on confessions to bring matters to court. Such confessions are most easily extracted from persons in custody, often in pretrial detention. Moreover, in countries where conviction rates are low because of a lack of criminal justice capacity, there may be a temptation on the side of criminal justice system operators to use pretrial detention as a form of *de facto* punishment (Schönteich, 2014).

A lack of resources can also indirectly influence the criminal justice system to unnecessarily detain defendants awaiting trial, or detain them for inordinately lengthy periods of time. Many resource-poor jurisdiction do not have systems of personal or physical identification, rendering efforts to track persons released awaiting trial burdensome. Pretrial release is consequently an unappealing option for law enforcement officials. Moreover, the unavailability of effective alternatives to pretrial detention in resource-poor settings increases the likelihood that courts will remand defendants into pretrial detention. Such development / governance factors suggest the following hypotheses:

H6a: Countries' levels of development are *positively* correlated with pretrial detention *rates*.

H6b: Countries' levels of development are *negatively* correlated with the *proportion* of prisoners in pretrial detention.

Social factors

Corruption

In criminal justice systems where corruption is pervasive, detained defendants are likely to be released awaiting trial only if they have the means to bribe the arresting officer, prosecutor, or judicial officer dealing with their application for pretrial release. In such jurisdictions arrests by the police are likely to be high as every arrest potentially leads to an income-generating bribe. The average duration of pretrial detention may be of relatively short duration as arrestees or defendants bribe themselves out of custody before the beginning of the trial process. It is thus plausible that in corrupt criminal justice systems relatively few defendants stand trial to be prosecuted and face the risk of conviction. This implies that corrupt systems will have relatively modest numbers (or rates) of pretrial detainees given the relatively short average duration of pretrial detention. Moreover, because of the rarity of trials, sentenced prisoner numbers should be particularly low. This allows for the following hypotheses:

H7a: Levels of official corruption are *negatively* correlated with pretrial detention *rates*.

H7b: Levels of official corruption are *positively* correlated with the *proportion* of prisoners in pretrial detention.

Political legitimacy

In a cross-comparative study of 25 developed, mainly European, countries Lappi-Seppälä (2007) found a strong inverse relationship between levels of imprisonment on the one hand, and

legitimacy and (social and institutional) trust on the other. Societies with high levels of social trust can be expected to have relatively low levels of fear of crime which in turn should mitigate public pressure for tough penal sanctions. It is reasonable to presume that similar dynamics apply to pretrial detention policies and practices: jurisdictions with high levels of political trust and legitimacy can be expected to have relatively low rates of pretrial detention. As high-trust societies are likely to have low rates of general imprisonment (i.e., both in respect of pretrial detainees and sentenced prisoners) it is not to be expected that the relative proportion of pretrial detainees to sentenced prisoners is affected significantly by varying levels of political trust or legitimacy. This allows for the following hypotheses:

H8a: Levels of state political legitimacy are *negatively* correlated with pretrial detention *rates*.

H8b: Levels of state political legitimacy do *not correlate* significantly with the *proportion* of prisoners in pretrial detention.

Political trust

High levels of political trust can also be expected to correlate with low rates of pretrial detention. Pretrial detention may be particularly sensitive to varying levels of political trust; arguably even more so than sentenced prisoner numbers. In jurisdictions with high levels of political trust, judicial officers should feel more comfortable releasing defendants awaiting trial on the assurance that the latter will not abscond or interfere with the criminal investigation and will, in due course, stand trial. This suggests the following hypotheses:

H9a: Levels of political trust are *negatively* correlated with pretrial detention *rates*.

H9b: Levels of political trust are *negatively* correlated with the *proportion* of prisoners in pretrial detention.

Crime

The association between crime and incarceration rates has been extensively explored. It is reasonable to assume that the relationship between crime and pretrial detention is less elastic compared to the relationship between crime and sentenced prisoner numbers. There are a number of intervening bureaucratic and procedural factors in the criminal justice process – between the pretrial detention stage and the point at which defendants are convicted and given a custodial sentence – which disrupt the "pipeline" between arrest and the imposition of a custodial sentence. The criminal justice system is akin to a funnel with many people coming into contact with the system at its large "open" end (Smit & Harrendorf, 2010). This is when persons are stopped and questioned by the police, or charged with a crime and remanded to pretrial detention. However, many of those arrested or remanded are not prosecuted because, inter alia, the incriminating evidence is not compelling enough, or state witnesses disappear or lose interest. Of those prosecuted, some will not be convicted. And, of those convicted, many will not receive a custodial sentence. It is probable, therefore, that high levels of crime will affect pretrial detention numbers more than the number of sentenced prisoners, at least in jurisdictions where case attrition rates are high. This leads to the following hypotheses:

H10a: Levels of recorded crime are *positively* correlated with pretrial detention *rates*.

H10b: Levels of recorded crime are *positively* correlated with the *proportion* of prisoners in pretrial detention.

Perceptions of crime / safety

Actual levels of crime, or even of recorded crime, are not necessarily the same as subjective perceptions of crime / safety. Public perceptions of high crime levels may, through public pressure, result in tougher and more punitive criminal justice policies and practices

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(Garland, 2000). For reasons set out above under the "crime" variable, perceptions of high crime levels may, on balance, not only increase the rate of pretrial detention but also the number of pretrial detainees as a proportion of all prisoners. This suggests the following hypotheses:

H11a: Perceptions of crime / safety are *positively* correlated with pretrial detention *rates*.

H11b: Perceptions of crime / safety are *positively* correlated with the *proportion* of prisoners in pretrial detention.

Ethnic heterogeneity

Group threat theory and its derivatives inform research on formal social control and criminal punishment. Minority threat hypotheses provide a theoretical framework for understanding cross-national patterns of punishment. Cross-national studies have also shown a relationship between population heterogeneity and punishment, with evidence that religious diversity is positively associated with imprisonment rates (Ruddell & Urbina, 2004).There is no compelling reason to assume that the group threat / population heterogeneity dynamic should not apply to pretrial detention practices as well. Indeed, there is empirical evidence to suggest that members of minority groups are, on average, at greater risk of arrest compared to majority groups (Bruell, 2010). Given the tendency of criminal justice systems to jettison cases during the course of the criminal justice process (see "case attrition" discussion above), it is possible that discriminatory practices against minority groups, or the targeting of minority groups by police, disproportionately affect pretrial detention numbers in relation to the number of sentenced prisoners. This suggests the following hypotheses:

H12a: Levels of ethnic diversity are *positively* correlated with pretrial detention *rates*.

H12b: Levels of ethnic diversity are *positively* associated with the *proportion* of prisoners in pretrial detention.

Foreign nationals

Most European Union countries disaggregate data on prison inmates to distinguish between citizens and foreign nationals. In the majority of EU countries foreign nationals are significantly overrepresented in national prison systems in comparison to their prevalence in the general national population. The same pattern holds for pretrial detention populations. In 2015, 24 out of 28 EU countries provided disaggregated data for their pretrial detention populations, differentiating between citizens and foreign nationals. In half of these countries, 30% or more of pretrial detention populations were comprised of foreign nationals. In a third, or eight countries, foreigners constituted in excess of 40% of all pretrial detainees (Aebi, Tiago, & Burkhardt, 2016). Others have reported that foreign nationals are overrepresented in arrest rates in many countries (Preston & Perez, 2006).

A variety of reasons can be proffered why foreign nationals might be overrepresented among pretrial detention populations. Non-nationals may, on balance, pose a greater flight risk being in possession of a foreign passport and having fewer local community ties compared to citizens. Some argue that foreign nationals have a greater tendency to engage in criminal acts compared to citizens (Albrecht, 1997; Yaeger, 1997). This tendency may be especially pronounced where foreign nationals are disproportionately comprised of young males, a demographic group which is universally relatively crime prone. Finally, and related to the above discussed group threat theories, there is the possibility of disparate and discriminatory treatment against foreign national by law enforcement agencies (Junger Tas, 1997; Wacquant, 1999). These considerations suggest the following hypotheses:

H13a: The proportion of foreign nationals in national populations are *positively* correlated with pretrial detention *rates*.

H13b: The proportion of foreign nationals in national populations are *positively*

correlated with the *proportion* of prisoners in pretrial detention.

Public punitiveness

It stands to reason that public punitiveness exerts some influence on penal policies and their application, especially in democracies with accountable and responsive policy makers. Policy makers have strategic incentives to reflect changes in punitive attitudes of citizens in their policy decisions (Jennings et al., 2015). Studies have shown feedback processes between public preferences and policy (Soroka & Wlezien, 2010) consistent with the ideas behind penal populism.

It is reasonable to assume that countries with high levels of public punitiveness will, everything else remaining equal, experience higher rates of pretrial detention. Less clear is the impact of public punitiveness on the numerical relationship between pretrial detainees and sentenced prisoners. Policy makers have limited influence over sentencing practices. Judicial independence and judicial sentencing discretion common to many jurisdictions act as a barrier to executive or political interference in sentencing practices. On the other hand, arrest and charging practices, and prosecutorial pretrial detention policies, are typically within the authority of the political executive and criminal justice policy makers. Pretrial detention practices are consequently more likely to be responsive to public punitiveness compared to sentencing practices. This suggests the following hypotheses:

H14a: Levels of public punitiveness are *positively* correlated with pretrial detention *rates*.

H14b: Levels of public punitiveness are *positively* correlated with the *proportion* of prisoners in pretrial detention.

Legal system

According to the cross-national empirical literature, countries with common law systems have higher overall incarceration rates compared to countries with civil law systems (e.g., DeMichele, 2014; D'Amico & Williamson, 2015). Common law trials are typically of relatively short duration, with emphasis on the oral testimony of witnesses. By contrast, in civil law systems a series of court hearings may be held over an extended period with documents and documentary evidence playing a more important role than witness testimony. Moreover, in civil law regimes appeals may be taken both on the facts and the law, and the appeal courts can open the record to receive new evidence (Messitte, 1999). During such appeal processes defendants continue to be classified as remandees or pretrial detainees, often described as "prisoners without a final sentence" by the statistical agencies of civil law countries (Morgenstern, 2009). Delays between the commission of an offense and trial are attributed to "the inherent complexity of the [civil law] system at the pre-trial stage, which is formal and in which duplication of tasks often occurs" (van Caenegem, 1999, p. 86). These insights suggest the following hypotheses:

H15a: Compared to civil law countries, common law countries have *lower* pretrial detention *rates*.

H15b: Compared to civil law countries, common law countries have *lower proportions* of prisoners in pretrial detention.

Dependent variables and dataset

This study uses two dependent variables: the number of pretrial detainees expressed as a rate per 100,000 of the general population; and the number of pretrial detainees expressed as a proportion of the overall prison population. The source for both dependent variables is the "World Pre-trial / Remand Imprisonment List" ("the List") (Walmsley, 2017) published by the

Institute for Criminal Policy Research (ICPR) at the University of London. In almost all cases

the original source for the data included in the List is the national prison administration of the

country concerned, or the executive ministry responsible for the prison administration

(Walmsley, 2017). The List contains the latest available data as of the end of November 2016 on

pretrial detainees held in penal institutions in 216 prison systems in independent countries and

dependent territories worldwide.[7] The latest available year for which these data are provided vary

somewhat, although most are from between 2014 and 2016. The data contained in the List reflect

the number of pretrial detainees on a particular date (i.e., "stock" as opposed to "flow" data,

whereby the latter would reflect the number of individual pretrial detention admissions over a

certain period). No data are available for 10 countries, including the People's Republic of

China.[8]

In providing information about prisoners held in pretrial detention, the List refers to

persons who, in connection with an alleged offense(s), are "deprived of liberty following a

judicial or other legal process but have not been definitively sentenced by a court for the

offence(s)" (Walmsley, 2017, p. 1). That is, data provided by the List include persons who have

been formally remanded to pretrial detention by a court but have not been definitively sentenced

by a court for the offence(s) with which they were charged. Pretrial detainees captured by the

data in the List include persons who are in one of five stages of the criminal justice process.

Namely, (i) the "investigation" stage, when defendants are being interrogated and the allegations

against them investigated to ascertain if there is justification for instituting a prosecution against

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[7] Dependent territories include places such as Aruba (Netherlands), Bermuda (UK), Hong Kong (China), Puerto Rico (USA), and Réunion (France).

[8] The third edition of the 'World Pre-trial / Remand Imprisonment List' (Walmsley, 2017) does not contain data for: Bhutan, China, Cuba, Equatorial Guinea, Eritrea, Guinea Bissau, Maldives, North Korea, Northern Mariana Islands, and Somalia.

them; (ii) the "awaiting trial" stage, after the investigation has ended and a decision has been taken to initiate a prosecution; (iii) the "trial" stage, while the trial is actually taking place; (iv) the "convicted unsentenced" stage, when detainees have been convicted by the court but not yet sentenced; and (v) the "awaiting final sentence'" stage, when detainees have been provisionally sentenced by the court of first instance but are awaiting the result of an appeal process which occurs before the definitive sentence is confirmed.

Some legal systems, common law systems in particular, do not count the aforementioned fourth and fifth stages (respectively, the "convicted unsentenced" and "awaiting final sentence" stages) as pretrial detention, and individuals in these stages are consequently not reflected in the List's data for such jurisdictions. Civil law systems typically include persons in the aforementioned fourth and fifth stages in their pretrial detention or remand data (for such jurisdictions the term "pretrial detention" is too narrow and the term "remand detention" is more accurate). This poses a challenge for comparative analyses which include – as this study does – countries from jurisdictions which count the phenomenon under investigation in different ways.

A few jurisdictions, especially countries belonging to the Council of Europe, provide disaggregated data according to the aforementioned stages of the criminal justice process (Aebi & Delgrande, 2014). This provides some insight into the impact of including "convicted unsentenced" and "awaiting final sentence" defendants in the overall count of pretrial detainees / remandees. Reviews by Morgenstern (2009) and Pease (1994) found that some civil law countries have higher numbers of pretrial detainees as a result of their expanded definition of remand detention. This, however, varies from one jurisdiction to the next, and it appears that the numbers in terms of the expanded definition are particularly high for jurisdictions with a long

appeals procedure and/or a large proportion of pretrial detainees / remandees who appeal against their conviction or sentence in the court of first instance.

As mentioned above, in almost all cases the original source for the pretrial detention data contained in the List is the national prison administration of the country concerned or the executive agency responsible for the prison administration. Such official prison administration / ministry data generally reflects only the number of pretrial detainees who have been remanded to a prison or pretrial detention center. This may undercount the true number of pretrial detainees in some places where detainees are also routinely confined at police stations. In jurisdictions where the state lacks the wherewithal to properly undertake criminal investigations, keeping pretrial detainees at police stations allows for easier and more robust interrogation of suspects to elicit confessions. Very few jurisdiction maintains centralized records of the number of pretrial detainees confined in police cells. It is therefore an unknown quantity which could, potentially, affect the analyses for countries where the number of pretrial detainees in police stations is significant.

Independent variables

A variety of variables were selected to test for the hypotheses enumerated above. Where appropriate, the variables were derived from the literature which investigated cross-national correlates of imprisonment and pretrial detention. Variables for which large cross-national datasets were available (typically in excess of 150 countries) were given preference over those which had data for a relatively small number of countries only. For some hypotheses only one variable was chosen where the variable matched, or closely matched, the construct to be investigated such as, for example, the national unemployment rate for the "unemployment" construct, or the Gini index for the "inequality" construct. In other cases, more than one variable

was used to test the hypothesis in question. For example, for the "modernization" construct, the Human Development Index (HDI) and urbanization levels were used as variables. See Table 2 for a list of the variables used, the constructs they represent, and the number of countries ("N") for which data were available for each variable. Appendix 1 provides a summary table of the hypotheses and the related constructs, variables, and data sources. Appendix 2 provides hyperlinks to the databases from which the data for the dependent and independent variables were drawn.

The most recent publically available data for each measure was sought. While most datasets used are from 2015 and 2016, some variables utilized older datasets. See the "years used" column in Table 2 for the years for which the data were obtained. In some cases data from multiple years were collated to obtain larger sample sizes. For example, Gini index data were obtained from 2007 to 2015. Data drawn over multiple years had high year-on-year correlations so that slight inconsistencies in the years these variables were being drawn from should not represent a significant limitation.

Table 2: Variable metadata

CONSTRUCTS	VARIABLE	YEARS USED	N	"BETTER" SCALE END[9]	NOTES
	Proportion prisoners in PTD	~2016	209		
	Pretrial detention rate	~2016	208		
UNEMPLOYMENT					
	Unemployment	2016	176	-	
INEQUALITY					
	Gini Index	2007-2015	133	-	Average across years used
SOCIAL WELFARE					
	Social Assistance Expenditure	2009-2015	59	+	Average across years used
	Education Expenditure	2015	140	+	
	Public Health Expenditure	2015	183	+	
MODERNIZATION					
	Human Development Index	2015	180	+	
	Urbanization	2016	202		
REGIME TYPE					
	Democracy Index	2016	160	+	
	Political Stability & Absence of Violence	2016	199	+	Projected estimates[10]
DEVELOPMENT					
	Government Effectiveness	2016	197	+	Projected estimates
	GDP per Capita	2016	175		Ln transformed
	Prison Occupancy Rate	~2016	193		
	Fragile States Index	2017	170	-	
	Public Services Indicator	2017	170	+	
	Police Per Capita	2007-2016	128		Range[11]
CORRUPTION					
	Corruption Perceptions Index	2016	169	+	
	Control of Corruption	2016	197	+	Projected estimates
POLITICAL LEGITIMACY					
	Rule of Law	2016	197	+	Projected estimates
	Judicial Independence	~2015	135	+	

[9] The "better" scale end is a shorthand way of expressing the politically or socially desirable end of an ordinal variable. For example, less unemployment is preferable to more unemployment, so that the lower end of the unemployment scale is "better" of preferred. In respect of the Gini Index, which measures inequality, with 1 expressing maximal inequality and 0 minimal inequality, the "better" scale end is on the lower side representing less inequality. Or, in respect of "social assistance expenditure" more is generally preferable to less, so that the "better" scale end is on the higher side representing more social assistance expenditure.

[10] Projected estimates indicate that these data are not explicitly measured *per se*, but rather, are predicted (estimated) based on weights assigned to other pre-existing data. This allows for generating a single number to represent a broader, sometimes difficult to observe construct. See Kaufmann, Kraay, & Mastruzzi (2011) for more information on how estimates are calculated.

[11] Range indicates that the most recently available data (within the specified years) were used.

CONSTRUCTS	VARIABLE	YEARS USED	N	"BETTER" SCALE END	NOTES
POLITICAL TRUST					
	Trust in National Government	2015	135	+	
CRIME					
	Homicide Rate	2010-2014	184		Ln transformed Range
PERCEPTIONS OF CRIME / SAFETY					
	Level of Peace / Insecurity	2017	155	-	
	Law & Order Index	2016	133	+	
	Safety and Security Index	2016	149	+	
	Percent Feeling Safe	2014	140	+	
ETHNIC HETEROGENEITY					
	Fractionalization - Ethnic Diversity	~2003	147		
FOREIGN NATIONALS					
	Stock of Immigrants	2015	186		
LEGAL SYSTEM					
	Legal System Classification	~2016	212		Recoded to 3 levels, N = 203
PUBLIC PUNITIVENESS					
	Voice and Accountability Index	2016	197	+	
	Press Freedom Index	2015	169	-	

Unemployment

Economic stress variables such as unemployment are standard control variables in studies

of imprisonment (Killias, 1986; Chiricos & DeLone, 1992; Neapolitan, 2001; Ruddell, 2005;

Ruddell & Urbina, 2007). Data were obtained from the International Labor Organization's

ILOSTAT database through the World Bank's "DataBank" web-portal which contains data on a

variety of development topics. The unemployment rate is measured as the number of

unemployed persons as a proportion of the total number of persons in the labor force. The labor

force is the sum of the number of persons employed and unemployed. The unemployed comprise

all persons of working age who are without work, (i.e., not in paid employment or self-

employment), available for work, and looking for work.

Inequality

Inequality was operationalized using the Gini coefficient expressed as a normalized Gini index. The Gini index measures the extent to which the distribution of income or wealth among individuals or households within an economy deviates from a perfectly equal distribution. It is a common measurement of inequality (Ceriani & Verme, 2012), including in cross-national criminological research (Neapolitan, 2001; Ruddell, 2005; Baumer & Wolff, 2014). A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. Data were obtained from the World Bank. Some of the Gini statistics were from different years, with the data derived from 2007 to 2015. This is not a serious limitation, as patterns of inequality tend to be stable over time. For example, the correlation between 2014 and 2010 Gini is .97; the correlation between 2014 and 2000 Gini is .92. Missing data for the Gini index were mean-replaced. That is, in cases where no Gini data for a given country existed for a given year, the average Gini scores were used for that country across all years to fill in the missing data.

Social welfare

Social welfare was operationalized through three variables: social assistance expenditure, education expenditure, and public health expenditure.

Social assistance expenditure reflects public spending on social assistance programs as a proportion of Gross Domestic Product (GDP). That is, total expenditures including spending on benefits (e.g., the amount of money a given government spends on social safety net programs such as social pensions, school feeding schemes, public works programs, and other social assistance) and on administrative costs (i.e., costs associated with the management and dispersal of social security program benefits). The indicator captures both the recurrent and capital

program budgets (i.e., operating and investment budgets). Data were obtained from the World Bank.

  Education expenditure was operationalized as government expenditure on education, including current, capital and transfer spending on education, expressed as a percentage of GDP. Data were obtained from the 2016 United Nations Development Report (UNDP, 2016, pp. 231-233).

  Public health expenditure reflects current and capital spending on health from government (central and local) budgets, external borrowing and grants (including donations from international agencies and non-governmental organizations) and social (or compulsory) health insurance funds (for example, funds for Medicare and Medicaid in the U.S.). Taken together, the factors function as a public health expenditure indicator, which is defined in turn as a percentage of GDP. Data were obtained from the 2016 United Nations Development Report (UNDP, 2016, pp. 226-229).

Modernization

  Modernization was operationalized through the Human Development Index (HDI) and urbanization levels. The HDI is a composite index measuring average achievement in three basic dimensions of human development: a long and healthy life (life expectancy in years), knowledge (expected years and mean years of schooling), and a decent standard of living (gross national income per capita). Consistent with Neapolitan (2001), Pratt and Godsey (2002), and Ruddell and Urbina (2007), the HDI is used as a proxy indicator of development. Data were obtained from the United Nations Development Programme (UNDP, 2016).

  Urbanization is used to capture a facet of development (Bennett, 1991). It is defined as people living in urban areas as calculated by national statistical offices. The indicator is

operationalized using World Bank population estimates and urban ratios from the United Nations

World Urbanization Prospects. Percentages urban are the number of persons residing in an area

defined as "urban" per 100 total population. They are calculated by the Statistics Division of the

United Nations Department of Economic and Social Affairs. Data were obtained from the World

Bank.

Regime type

Regime type was operationalized through two variables: the Democracy Index, and the

Political Stability and Absence of Violence Index.

The *Democracy Index* is made up of a weighted average of: (i) civil liberties (which

reflect, inter alia, the degree of free speech protection afforded to citizens and media outlets, and

the degree of protection granted to rights widely construed to be fundamental among democratic

countries); (ii) the electoral process and pluralism (which reflect the degree to which

mechanisms for a fair electoral process are consistently put to use, as well as the degree to which

multiple political parties can run against each other for votes in public elections); (iii) the

functioning of government (which reflects the degree to which governments can efficiently pass

and enforce effective legislation on behalf of citizens, and whether government actions such as

redistricting and catering to narrow voter blocs result in electoral and policy outcomes that are

unrepresentative of the wishes of the public); (iv) political participation (which reflects voter

turnout, the proportion of individuals in a given country who are members of political parties,

and overall engagement in political debate and advocacy); and (v) the political culture (which

reflects the belief among a given citizenry of the efficacy of democratic government). Data were

obtained from the Economist Intelligence Unit (EIU). The EIU is a UK-based for-profit entity

within the Economist Group (a British multinational media company specializing in international

business and world affairs information) providing forecasting and advisory services through research and analysis.

Political Stability and Absence of Violence measures perceptions of the likelihood of political instability and / or politically-motivated violence. Variables used to construct this measure include the incidence of armed conflict, violent demonstrations, and social unrest; the intensity of internal conflicts; the degree of ethnic tensions; the intensity and impact of protests and riots; the risk of damage to property, injury or death from terrorism and organized crime; and the risk of intra-state conflict.

Data were obtained from the World Bank's Worldwide Governance Indicators (WGI). The WGI report on six broad dimensions of governance for some 200 countries and territories. Namely, (i) Voice and Accountability; (ii) Political Stability and Absence of Violence; (iii) Government Effectiveness; (iv) Regulatory Quality; (v) Rule of Law; and (vi) Control of Corruption. The WGI are composite governance indicators based on 33 underlying data sources. These data sources are rescaled and combined to create the six aggregate indicators. The WGI are a research dataset summarizing the views on the quality of governance provided by enterprise, citizen, and expert survey respondents gathered from survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms (Kaufmann, Kraay, & Mastruzzi, 2006). The WGI are among the most widely used indicators of governance by policymakers and academics (Kaufmann, Kraay, & Mastruzzi, 2007). By averaging information from different data sources the WGI smooth out some of the peculiarities of individual measures of governance and are consequently more informative about the broad notions of governance they seek to measure.

Development

Development was operationalized using six variables: the World Bank's index of Government Effectiveness; per capita GDP; prison occupancy rates; the Fund for Peace's Fragile States Index and Public Services Indicator; and police per capita.

Government effectiveness data were obtained from the World Bank's Worldwide Governance Indicators (WGI). See above for a description of the WGI and how the different aggregate indicators, including government effectiveness, are comprised. The index of Government Effectiveness captures perceptions of the quality of public services (e.g., public schools, transportation infrastructure, drinking water and sanitation quality); and the quality of the civil service (e.g., institutional effectiveness of state bureaucracies) and its degree of independence from political pressures. The index also captures the quality of policy formulation and implementation, and the credibility of governments' commitment to such policies.

The index is a subjective measure of governments' performance by drawing on data sources that reflect the perceptions of a diverse group of survey respondents with first-hand knowledge of the governance situation in the country (Soo-Young & Whitford, 2009). Data incorporated into the index include surveys of experts, which reflect country ratings produced by commercial risk rating agencies, and cross-country surveys of residents carried out by international and non-governmental organizations (Kaufman, Kraay, & Zoido-Lobatón, 1999). Surveys of experts capture the perceptions of country analysts at multilateral development agencies such as the European Bank for Reconstruction and Development, the African and Asian Development Banks, and the World Bank (Kaufmann, Kraay, & Mastruzzi, 2007). Surveys of residents are surveys of individuals or domestic firms with knowledge of the governance situation in the country. The index is a combination of these varied data sources. The aggregation

procedure rescales the individual indicators from each underlying variable's source to make them comparable across data sources and then constructs a weighted average of each of these rescaled data sources to produce an aggregate indicator of government effectiveness (Soo-Young & Whitford, 2009).

Gross Domestic Product per capita is divided by mid-year population. GDP is the sum of gross value added by all resident producers in an economy plus any product taxes and minus any subsidies not included in the value of the products. Data are in U.S. dollars and were obtained from the World Bank.

Prison occupancy rate is calculated as the number of inmates in custody as a percentage of a country's official prison capacity. These data are specific to adults and consequently do not include data from juvenile systems. The data are collated and published by the Institute for Criminal Policy Research's World Prison Brief. In almost all cases the original source of the data are the national prison administration of the country concerned (Walmsley, 2017). The definition of overcrowding depends on a mix of normative, factual, and even cultural elements. Normative links are provided by international and regional human rights instruments which prohibit cruel, inhuman, and degrading treatment and punishment and guarantee human dignity. Sometimes national constitutions explicitly mention prisoners' right to "adequate accommodation", while in a few cases national law defines the minimum permitted space per prisoner. Definitions of overcrowding differ between countries and are dependent on, inter alia, the adoption of single cell accommodation as a standard practice versus the use of communal cells, the general prison designs, the economic resources available to prison administrators, and the degree of flexibility which is demanded from prison administrations by politicians, law makers, and the judiciary (Albrecht, 2012).

The *Fragile States Index* (FSI) is an annual ranking of some 170 countries based on the different pressures they face that impact their levels of fragility. Three primary sources of data – quantitative, qualitative, and expert validation – are triangulated and reviewed to obtain final scores for the FSI. FSI scores must be interpreted with the understanding that the lower the score, the better. Thus, a reduced score indicates an improvement and greater relative stability, while a higher score indicates greater instability or fragility. Data were obtained from the Fund for Peace, an independent, non-profit research and educational organization that seeks to prevent violent conflict and promote sustainable security.

The FSI is a weighted index across 12 variables that assess a state's vulnerability to conflict or collapse (Marshall & Cole, 2011). The Index is informed by the following indicators: the Security Apparatus indicator, which takes into account security threats and crime; the Fractionalized Elites indicator, which takes into account within-country divisions along ethnic, class and religious lines, as well as political gridlock; the Group Grievance indicator, which takes into account societal divisions, the frequency of extra-judicial between-group retributions, and the presence of reconciliation mechanisms; the Economic Decline indicator, which takes into account an array of measures that indicate economic decline; the Uneven Economic Development indicator, which reflects within-country income inequality; the Human Flight and Brain Drain indicator, which charts the departure of political figures as well as skilled workers from countries; the State Legitimacy indicator, which takes into account the level of confidence that citizens place in their respective governments, the presence of peaceful political demonstrations, measures on the transparency of governmental institutions, and political violence; the Public Services indicator (discussed in the paragraph below); the Human Rights and the Rule of Law indicator, which takes into account the existence of political freedoms, the

presence of fair judicial systems, illegal detention rates, and the degree to which political actors are able and willing to share power; the Demographic Pressures indicator, which considers population growth rates, public health / nutrition quality, environmental stability and resource management; the Refugees and Internally-Displaced Persons (IDPs) indicator, which considers the number of refugees and IDPs within a given country; and the External Intervention indicator, which measures the presence of external actors who support coalitions which oppose reigning governments, the presence of foreign troops, police training, and the presence of economic aid.

The *Public Services Indicator* is an index that aggregates the presence of basic state functions that serve the public. This includes the provision of essential services, such as health, education, water and sanitation, transport infrastructure, electricity and power, and internet connectivity. It includes the state's ability to protect its citizens from violence through perceived effective policing. The Indicator also considers how equally basic state functions and services are provided, and the extent to which the absence of general infrastructure negatively affects a country's development. The Public Services Indicator is one of twelve indicators that collectively comprise the Fragile States Index (see above). Data were obtained from the Fund for Peace.

Police per capita are the number of police personnel per 100,000 of the general population. Data were obtained through links specific to each country provided by Wikipedia that were independently verified (Harrendorf, Heiskanen, & Malby, 2010). Police personnel are police in public agencies whose principal functions are the prevention, detection, and investigation of crime and the apprehension of suspected offenders. Police support staff such as secretaries and clerks are excluded from these data.

Corruption

To operationalize corruption, two variables were used: Transparency International's Corruption Perceptions Index, and the World Bank's Control of Corruption index.

The *Corruption Perceptions Index* (CPI) is a composite indicator (i.e., an index that groups multiple measures together in a standardized manner) to measure perceptions of corruption in the public sector in different countries around the world. The CPI aggregates data from a number of sources that provide perceptions by business people and country experts of the level of corruption in the public sector. The 2016 CPI was calculated using 13 data sources which capture the assessment of experts and business executives on a number of corrupt behaviors in the public sector, including bribery, diversion of public funds, use of public office for private gain, nepotism in the civil service, and state capture. The data sources come from 12 institutions (e.g., African Development Bank, Economist Intelligence Unit, Freedom House, World Bank, and World Justice Project) that capture perceptions of corruption within the previous two years. The data are standardized to a scale of 0-100, where 0 equals the highest level of perceived corruption and 100 equals the lowest level of perceived corruption. For a country to be included in the CPI, a minimum of three sources must assess that country. A country's CPI score is then calculated as the average of all standardized scores available for that country. The CPI scores are closely correlated across years and with other global corruption indices (including polls by Gallup International, Business International, and the World Bank), making it a measure widely used by researchers (Treisman, 2000; Kääriäinen, 2007). Data were obtained from Transparency International's 2016 Corruption Perceptions Index (Transparency International, 2017).

Control of Corruption is an index combining up to 23 different assessments and surveys, depending on availability, each of which receives a different weight in relation to its estimated precision and country coverage. The Control of Corruption indicator draws on data from, inter alia, the World Bank, the African and Asian Development Banks, the Afrobarometer and Latinobarometer Surveys, Freedom House, the Economist Intelligence Unit, and the World Justice Project. The index captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Countries are evaluated on factors such as the prevalence of grand corruption and petty corruption at all levels of government; nepotism, cronyism, and patronage in the civil service; the perceived involvement of elected officials and judicial officers in corruption; and public trust in the financial honesty of politicians. Data were obtained from the World Bank's Worldwide Governance Indicators (WGI).

Political legitimacy

Two variables were used to operationalize political legitimacy: the World Bank's Rule of Law index, and a judicial independence index maintained by Harvard University.

The *Rule of Law* index measures the extent to which individuals and companies have confidence in and abide by the rules of society. Countries are evaluated on factors which include public confidence in the police and judicial system; popular observance of the law; a tradition of law and order; strength and impartiality of the legal system; prevalence of petty crime, violent crime, and organized crime; the extent to which a well-functioning and accountable police force protects citizens and their property from crime and violence; the extent to which serious crime is reported to the police and investigated; independence, effectiveness, predictability, and integrity of the judiciary; compliance with court rulings; legal recourse for challenging government

actions; willingness of citizens to accept legal adjudication over physical and illegal measures; government compliance with judicial decisions; the independence of prosecutors from political direction and control; the existence of effective and democratic civilian state control of the police through the judicial, legislative, and executive branches; the police respect human rights and are held accountable for abuses of power; impartiality and non-discrimination in the administration of justice; citizens are given a fair, public, and timely hearing by a competent, independent, and impartial tribunal; citizens have the right to independent counsel, and those charged with serious crimes are given access to independent counsel when it is beyond their means; protection of judges from interference by the executive and legislative branches; judges are appropriately trained to carry out justice in a fair and unbiased manner; law enforcement agencies are protected from political interference and have sufficient budgets to carry out their mandates; appointments to law enforcement agencies are made according to professional criteria; and law enforcement officials are not immune from criminal proceedings (Kaufmann, Kraay, & Mastruzzi, 2011). Data were obtained from the World Bank's Worldwide Governance Indicators (WGI).

The *judicial independence* index is a composite of direct and indirect indicators of judicial independence collected by Feld and Voigt (2003), Howard and Carey (2004), Marshall and Jaggers (2010), Keith (2012), and Johnson, Souva, and Smith (2013). The direct indicators of judicial independence measure the degree to which governmental and non-governmental actions directly encroach on and undermine judicial autonomy (e.g., legislation which curbs the autonomy of the courts). The indirect indicators of judicial independence assess phenomena that correspond with judicial independence such as the ability of courts to constrain the decision-making capacity of a country's executive (Linzer & Staton, 2005). Data were obtained from the

Harvard Dataverse Network, at the Institute for Quantitative Social Science (IQSS) at Harvard University.

Political trust

The data originated from the results of a Gallup World Poll (GWP) survey where respondents were asked, "In this country, do you have confidence in the national government?" The GWP is a cross-country household survey, interviewing more than 100,000 households in over 160 countries (Clausen, Kraay, & Nyiri, 2011). The GWP is fielded annually or biennially representing 95% of the world's adult population. The surveys are designed to be nationally representative of people who are 15 years old or older. Efforts are made to interview households in rural areas, as well as politically unstable and unsafe areas. The surveys are face-to-face interviews in all countries except the most developed countries where a shorter version of the survey is fielded by telephone (Tortora, Srinivasan, & Esipova, 2010). The data were obtained from the United Nations Development Programme (UNDP, 2016, pp. 250-252).

Crime

Crime was operationalized using national homicide rates. That is, the number of recorded intentional homicides (i.e., unlawful death purposefully inflicted upon a person by another) per 100,000 of the general population in a country. Data were obtained from the United Nations Office on Drugs and Crime (UNODC). In most cases, UNODC derived the data from national data repositories generated by either the criminal justice or the public health system. In the former, data are produced by law enforcement authorities in the process of recording and investigating a criminal case. In the latter, statistical information is produced by health authorities certifying the cause of death of individuals (UNODC, 2014). National authorities typically devote considerable attention to recording and investigating deaths due to violent and

external causes. "Consequently, either (or both) of these sources are the best possible options available to produce statistical information on homicide" (UNODC, 2014, p. 99). In respect of some 70 countries, where neither of these sources is available, homicide data were derived from estimates produced by the World Health Organization (WHO, 2014) based on a statistical model used to produce data on all causes of death, and "which provide the only available and comparable figure on intentional homicides" (UNODC, 2014, p. 99). The UNODC dataset has been criticized for its significant omissions (Altbeker, 2005) but it has improved considerably, to the point where it now covers all United Nations member states. UNODC also seeks to standardize and validate definitions and methods wherever possible, and conducts consultations with UN member states to this end (UNODC, 2014).

Homicide is an appropriate measure of crime in cross-national research because homicides tend to be relatively consistently and accurately reported, and there is a shared consensus about the seriousness of the crime (Archer & Gartner, 1984; Messner & Rosenfeld, 1997; Neapolitan, 1998, 2001; LaFree & Drass, 2002; Sutton, 2004). Although it is rare compared to most other crimes, homicide engenders a disproportionate amount of public and media attention and is often considered a strong indicator of crime and violence more generally (UNODC, 2014). As Kriegler and Shaw (2016) point out: "Places and times with more murders tend to be places and times with more other criminal rule-breaking… Therefore, the majority of research that seeks to compare different countries or track crime levels over a long period does so by the simple metric of murder figures as a proportion of the total population" (p. 46).

Perceptions of crime / safety

Four variables were used to operationalize perceptions of crime / safety: the Economist Intelligence Unit's Global Peace Index, Gallup's Law and Order Index, the Legatum Institute's Safety and Security Index, and an index covering perceptions of safety.

The *Global Peace Index* (GPI), measures a country's level of "negative peace" using three domains of peacefulness. The first domain, ongoing domestic and international conflict, explores the extent to which countries are involved in internal and external conflicts, as well as their role and duration of involvement in conflicts. The second domain evaluates the level of harmony or discord within a country. Ten indicators broadly assess societal safety and security. The assertion is that low crime rates, minimal terrorist activity and violent demonstrations, harmonious relations with neighboring countries, and a stable political environment can be equated with peacefulness. Finally, seven indicators relate to a country's militarization, reflecting the link between a country's level of military build-up and access to weapons and its level of peacefulness, both domestically and internationally (GPI, 2017). Data were obtained from the Institute for Economics and Peace, a global think tank which develops metrics to analyze peace and to quantify its economic benefits. The GPI is collated in collaboration with the Economist Intelligence Unit (EIU).

The *Law and Order Index* measures public perceptions of safety and its experiences with crime and police. It is a composite index created from a combination of four questions: (i) In the city or area where you live, do you have confidence in the local police force?; (ii) Do you feel safe walking alone at night in the city or area where you live?; (iii) Within the last 12 months, have you had money or property stolen from you or another household member?; and (iv) Within the past 12 months, have you been assaulted or mugged? Data were obtained from the 2017

Global Law and Order Report (Gallup, 2017) which collates people's answers to the aforementioned questions. Results are based on telephone and face-to-face interviews with approximately 1,000 adults per country, aged 15 and older, conducted throughout 2016 in 135 countries.

The *Safety and Security Index* measures countries' performance in the areas of national security and personal safety drawing on 11 data sources, including homicide rates, property-related crime victimization, perceptions of personal safety, state-sponsored political violence, and the incidence of lethal terrorism-related violence. The index combines objective measures of security and subjective measures of personal safety. Approximately two-thirds of the variables are objective, and are either survey-based (e.g., how many people had their property stolen over the last year) or assessments based on expert research. The remaining variables measure respondents' self-reported assessments (e.g., perceptions of personal safety). The index is part of the Legatum Prosperity Index, a framework that assesses countries on the promotion of their residents' wellbeing and wealth across nine pillars. Data for the Prosperity Index are drawn from a wide range of sources including inter-governmental organizations such as the United Nations, World Bank, and World Health Organization; independent research and non-governmental organizations such as Freedom House and Transparency International; and databases compiled by academics (Legatum Institute, 2016). The producers of the Prosperity Index, the Legatum Institute, is an international think-tank and educational charity.

Percent feeling safe: Personal perceptions of safety was operationalized as the proportion of respondents answering "yes" to a survey question, "Do you feel safe walking alone at night in the city or area where you live?" The data were drawn from the 2016 UNDP Human Development Report (UNDP, 2016, pp. 250-252). The original data were collected through the

Gallup World Poll (GWP), a cross-country survey of some 100,000 individuals in 160 countries (Clausen, Kraay, & Nyiri, 2011).

Ethnic heterogeneity

Population heterogeneity was operationalized through a measure of ethnic fractionalization. Ethnic fractionalization measures are intended to assess the degree of ethnic heterogeneity in a country. While there are multiple means to measure fractionalization, data from Alesina et al. (2003) were used. The fractionalization dataset compiled by Alesina et al. (2003) uses an index to reflect the probability that a randomly selected pair of individuals in a country belong to different ethnic groups. Where a country is inhabited by just one ethnic group, the index is zero. Sources of the data include the Encyclopaedia Britannica, the Central Intelligence Agency's World Factbook (2000), and national censuses. Alesina et al.'s data have been used by, and received considerable attention from, several researchers (e.g., Fearon 2003; Posner 2004; Bjørnskof 2008).

Foreign nationals

Foreign nationals was operationalized by the stock of the immigrant population or percent of the population that are immigrants. This is calculated as a ratio of the number of immigrants in a country, expressed as a percentage of the country's population. The definition of immigrant varies across countries but generally includes the stock of foreign-born people, the stock of foreign people (according to citizenship) or a combination of the two (UNDP, 2016). Data were obtained from the 2016 UNDP Human Development Report (UNDP, 2016, pp. 246-248). The original data source is the United Nations Department of Economic and Social Affairs (UNDESA, 2015). Most of the data UNDESA used to estimate the international migrant stock by country were obtained from national population censuses. Population registers and nationally

representative surveys also provided information on migrant numbers. In estimating the international migrant stock for countries, UNDESA equated migrants with the available foreign-born population data. "In most countries lacking data on place of birth, information on the country of citizenship of those enumerated was available, and was used as the basis for the identification of international migrants, thus effectively equating, in these cases, international migrants with foreign citizens" (UNDESA, 2015, p. 7).

Public punitiveness

Public punitiveness was operationalized through the World Bank's Voice and Accountability Index, and Reporters Without Borders' Press Freedom Index.

Voice and Accountability Index data were obtained from the World Bank's Worldwide Governance Indicators (WGI). The index measures the extent to which a country's residents can participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. The index is an aggregate of 20 different governmental, non-governmental, and commercial business information providers, and household surveys component data sources. Each component data source is combined, leading to the Voice and Accountability Index, using a statistical method called the unobserved components model. This model requires each component data source to be rescaled and normalized to create the overall index (Kocka & Gaskina, 2014).

Press Freedom Index data were obtained from Reporters Without Borders (RWB), an international non-governmental organization that promotes freedom of information and freedom of the press, with consultant status at the United Nations. RWB compiles and publishes the Press Freedom Index (PFI), an annual ranking of some 180 countries. The concept of press freedom is "operationalized as the extent to which legal and political environments, circumstances and

institutions permit and promote media freedom and the ability of journalists to collect and disseminate information unimpeded by physical, psychological or legal attacks and harassment" (Becker, Vlad, & Nusser, 2007, p. 11).

Data for the index are collected through the responses of experts, including media professionals and lawyers, to a questionnaire devised by RWB. This qualitative analysis is combined with quantitative data on abuses and acts of violence against journalists during the period evaluated. The issues covered in the questionnaire are pluralism (the degree to which varied opinions are represented in the media), media independence, media environment and self-censorship, legal framework, transparency, and the quality of the infrastructure that supports the production of news and information. Moreover, a team of specialists assigned to different geographical regions maintain a record of abuses and violence against journalists and media outlets. This quantitative indicator is used to weight the qualitative analysis of the situation in the country based on the replies to the aforementioned questionnaires. Scores are calculated on the basis of the responses of the experts combined with the data on abuses and violence against journalists. Countries are given scores ranging from 0 to 100, with 0 being the best possible score and 100 the worst. The PFI is used by organizations such as the UN Refugee Agency (UNHCR), the World Bank, and the Millennium Challenge Corporation in determining the allocation of development aid. A comparison of media freedom indices – the PFI, Freedom House's Freedom of the Press Index, and the International Research and Exchanges Board's Media Sustainability Index found their ratings to be empirically quite similar (Becker, Vlad, & Nusser, 2007).

Legal system

Legal system data were drawn from "JuriGlobe", a research group of academics from the Faculty of Law at the University of Ottawa, which focuses on, inter alia, collating information

relating to the different legal systems in the world. In JuriGlobe's database, legal system is a categorical variable represented as Civil, Common, Customary, Mixed (referring not to a single system but to a combination of systems), and Muslim. Due to the low sample size associated with Customary and Muslim law countries (only six countries were labelled as having exclusively either a Muslim or Customary law system), these categories were dropped, leaving Civil, Common, and Mixed categories.

Data analysis

A descriptive and exploratory examination of the dependent and independent variables was conducted to provide a better illustration of the research variables in question, while probing for oddities and investigating variables that needed to be transformed. The primary aim was to identify variables that seemed highly skewed and lack sufficient variability. These variables were log transformed to decrease the variability of data and make data conform more closely to the normal distribution to allow for accurate analyses. The benefits of log transforming variables in this fashion are two-fold: the residuals will tend to better align with linear regression assumptions, and it will be less likely that variables will have outliers that are highly influential for the analysis. Nevertheless, log transformations add an additional consideration to output interpretation, as the coefficients in the regression analysis no longer indicate a linear relationship, but rather a linear relationship based on a log transformation.

The distribution of the values for the dependent variables – the proportion of prisoners in pretrial detention, and the number of pretrial detainees per 100,000 of the general population – were not very skewed and would not pose a problem for correlations and regression analyses. See Table 3 for descriptive statistics, and Appendix 3, Figure 1, for histograms and distribution curves.

Table 3: Descriptive statistics for dependent variables

	N	Min.	Max.	Mean	S.D.
Proportion prisoners in pretrial detention	209	.000	.900	.33292	.205005
Number pretrial detainees per 100,000 general population	210	0	272	51.38	48.111
Valid N	208				

The distribution of the seven economic independent variables were not very skewed with the possible exception of "social assistance expenditure". However, because there are only 59 cases for that variable, log transformation made it only a slightly better predictor for one of the outcome measures, so rather than transforming, social assistance expenditure was not changed. See Table 4 for descriptive statistics, and Appendix 3, Figure 2, for histograms and distribution curves.

Table 4: Descriptive statistics for economic independent variables

	N	Min.	Max.	Mean	S.D.
Unemployment	176	.23	31.43	8.87	6.35
Gini index	133	24.72	63.20	39.12	8.60
Social assistance expenditure	59	.25	10.43	1.64	1.63
Education expenditure	140	.80	10.00	4.62	1.69
Public health expenditure	183	.80	16.40	4.16	2.51
Human Development Index	180	.35	.95	.70	.16
Urbanization	202	8.35	100.00	59.99	24.43

The distribution of the eight political independent variables were about normally distributed, with the exception of Gross Domestic Product per capita. See Table 5 for descriptive statistics, and Appendix 3, Figure 3 for histograms and distribution curves.

Table 5: Descriptive statistics for political independent variables

	N	Min.	Max.	Mean	S.D.
Democracy Index	160	1.43	9.93	5.64	2.15
Political Stability & Absence of Violence	199	-2.91	1.96	.01	.99
Government Effectiveness	197	-2.260	2.209	.02877	.979579
Gross Domestic Product per capita	175	285.73	102831.3	13080.32	18185.89
Prison occupancy rate	193	14.00	454.40	126.04	64.45
Fragile States Index	170	18.70	113.90	69.03	24.10

	N	Min.	Max.	Mean	S.D.
Public Services Indicator	170	1.00	10.00	5.42	2.69
Police per capita	128	38.00	1442.00	374.23	242.20

The distribution of the fourteen social independent variables were about normally distributed, with the exception of "homicide rate" and "stock of immigrant population". See Table 6 for descriptive statistics, and Appendix 3, Figure 4, for histograms and distribution curves.

Table 6: Descriptive statistics for social independent variables

	N	Min.	Max.	Mean	S.D.
Corruption Perceptions Index	169	11.00	90.00	43.52	19.23
Control of corruption	197	-1.67	2.30	0.02	0.99
Rule of law	197	-2.18	2.04	0.03	0.98
Judicial independence	135	4.00	86.00	48.74	17.83
Trust in national government	135	8.00	91.00	47.35	18.30
Homicide rate	184	0.00	74.60	7.58	10.89
Level of peace / insecurity	155	1.11	3.81	2.08	0.51
Law and Order Index	133	42.00	97.00	76.09	10.23
Safety and Security Index	149	33.08	86.62	66.11	11.57
Percent feeling safe	140	22.00	92.00	61.63	15.38
Ethnic fractionalization	147	0.00	1.00	0.47	0.26
Stock of immigrant population	186	0.10	88.40	9.68	14.78
Voice and Accountability Index	193	-2.13	1.58	0.05	0.96
Press Freedom Index	169	7.59	84.19	33.39	15.34

On the basis of the above results, three of the independent variables were log transformed: GDP per capita, homicide rate, and stock of immigrant population. A natural log transformation was appropriate for reducing the skewness of these variables. Natural log transformations are typical for data with a right-skewing tail, and has been utilized in past research (Ruddell, 2005) investigating social and political factors, particularly GDP (Kent, 2010). See Table 7 for descriptive statistics, and Appendix 3, Figure 5, for histograms and distribution curves.

Table 7: Descriptive statistics for log transformed independent variables

	N	Min.	Max.	Mean	S.D.
Gross Domestic Product (LN)	175	5.66	11.54	8.5684	1.44344
Homicide rate (LN)	182	-2.30	4.31	1.3063	1.27950
Stock of immigrant population (LN)	186	-2.30	4.48	1.2920	1.53066

The final independent variable – legal system – is a categorical variable. Data obtained

from the JuriGlobe research group at the University of Ottawa disaggregated legal systems into

five categories: Civil, Common, Customary, Mixed, and Muslim. Due to low sample sizes

associated with exclusively Customary and Muslim legal systems, these categories were dropped

leaving Civil, Common, and Mixed categories. See Table 8 for recoding of the legal system

descriptive statistics.

Table 8: Recoding of legal system categories

	Frequency	Percent	Valid percent	Cumulative percent
(Blank)	4	1.9	1.9	1.9
Civil	85	40.1	40.1	42.0
Common	33	15.6	15.6	57.5
Customary	3	1.4	1.4	59.0
Mixed	85	40.1	40.1	99.1
Muslim	2	.9	.9	100.0
Total	212			

	Frequency	Percent	Valid percent	Cumulative percent
Common	33	15.6	16.3	16.3
Mixed	85	40.1	41.9	58.1
Civil	85	40.1	41.9	100.0
Total	203	95.6	100.0	
Missing	9	4.2		
Total	212	100.0		

The overarching research question this study poses is: What relationships exist between

economic, political, and social factors extraneous to the day-to-day operational and policy

environments of criminal justice systems on the one hand, and national pretrial detention

practices on the other hand? From this two subsidiary questions emerge:

- Is there a relationship between the individual independent variables (taken separately) and each of the dependent variables and, if so, what is the extent thereof?

- What combination of the independent variables (if any) demonstrates the most robust relationship between the independent variable(s) and each of the dependent variables?

To address the first bullet point, all independent variables, with the exception of "legal

system", were individually correlated with the two pretrial detention outcome measures.

Correlation analysis estimates a sample correlation coefficient, more specifically the Pearson

Product-Moment correlation coefficient (Rodgers & Nicewander, 1988). It is an analysis suited

for establishing if there are possible connections between variables, and the strength of such

relationships. The sample correlation coefficient, denoted r (or R, or Pearson's r), ranges between

-1 and +1 and quantifies the direction and strength of the linear association between the two

variables under investigation. The correlation between two variables can be positive, denoting

that higher levels of one variable are associated with higher levels of the other, or negative,

denoting that higher levels of one variable are associated with lower levels of the other. That is,

the magnitude of the correlation coefficient indicates the strength of the association, while the

sign of the correlation coefficient indicates the direction of the association. -1.0 indicates a

perfectly negative correlation, -0.8 a strongly negative correlation, and -0.5 a moderately

negative correlation. The same applies, vice versa, for positive correlations, with +1.0 indicating

a perfectly positive correlation, etc. (Zou, Tuncali, & Silverman, 2003). It bears emphasizing that

even if two variables are highly correlated, this is not sufficient proof of causation. It is not

possible to determine which variable causes the other, or whether a third exogenous factor is at

play. To show causation, "the causal variables must precede the variable it causes, and several conditions must be met (e.g., reversibility, strength, and exposure response)" (Zou, Tuncali, & Silverman, 2003, p. 618).

In addition to the simple correlations, a one-way Analysis of Variance (ANOVA) was used to assess whether there were differences in the pretrial detention outcome measures based on legal system classification. A one-way ANOVA allows for testing whether differences in categorical membership (in this case, country legal system classification) correspond with differences in pretrial detention. That is, ANOVAs are used to assess whether there are differences in a continuous outcome measure based on a categorical independent variable with two or more "groups" (Wonnacott & Wonnacott, 1990).

To explore the second sub-question above – what combination of the independent variables (if any) demonstrates the most robust relationship between the independent variable(s) and each of the dependent variables – a stepwise selection technique was used to determine which independent variables best predict the two pretrial detention outcome variables, to thereby build cumulative prediction models based on the inputted predictors.

The objective was to determine empirically which combination of independent variables best predicted pretrial detention using a forward, stepwise regression. Forward regression means that during the model-building procedure, variables are inserted one at a time based on how the addition of each variable changes the model (Henderson & Denison, 1989). This contrasts with other methods (such as a typical regression, where all variables are simultaneously entered and assessed at once). This was done instead of a traditional ordinary least squares (OLS) method, where all variables are entered simultaneously, for two reasons: (i) to avoid having non-significant variables in the final equation as the analysis was only concerned with what *best*

predicts the outcome, and (ii) because highly correlated predictors entered simultaneously would likely wipe out any observable effects because of multicollinearity.

In line with past recommendations (Downey & King, 1998) mean replacement was used to allow for stepwise regression analyses. This is because automatic model-building procedures often require list-wise completion for all independent variables in order to be considered for the next procedural step. Because only 32 countries had complete data on all independent variables to be used, this would have resulted in a dramatically reduced sample size. (See Appendix 7 for the availability of data for the independent variables used in this study.) During mean replacement, countries that are missing data on a particular independent variable (e.g., HDI), have their missing data filled in with the mean HDI across countries. All the independent variables were included as selection options. To appropriately model the effects of legal system type (which is a categorical variable), two dummy-coded variables were included that represented (i) civil law legally systems, and (ii) mixed legal systems. Dummy coding is a typical way in which categorical variables are assessed in regression interactions by specifically testing for the differences between individual levels of the outcome (Aiken, West, & Reno, 1991).

Finally, to further interrogate the overall research question on relationships which may exist between economic, political, and social factors extraneous to the day-to-day operational and policy environments of criminal justice systems, and national pretrial detention practices, a number of moderator analyses were undertaken.

In statistics, moderation occurs when the relationship between two variables depends on a third variable. The third variable is referred to as the moderator variable or simply the "moderator" (Cohen et al., 2003). Statistically, the effect of a moderating variable is

characterized as an "interaction". That is, a quantitative or categorical variable that affects the direction and / or strength of the relation between dependent and independent variables. Within a correlational analysis framework, a moderator is a third variable that affects the zero-order correlation between two other variables, or the value of the slope of the dependent variable on the independent variable (Baron & Kenny, 1986).

With a moderator analysis, the starting point is a linear relationship in which variable X is presumed to relate to variable Y (e.g., government effectiveness relates to pretrial detention). A moderator variable M is a variable that alters the strength of the aforementioned relationship. For example, government effectiveness may reduce pretrial detention (more and quicker trials) more in less corrupt than in more corrupt jurisdictions. Consequently, corruption moderates (M) the effect of government effectiveness (X) on pretrial detention (Y). Moderator analysis measures the causal relationship between X and Y by using a regression coefficient (Hayes, 2013).

The following moderating (or altering) effects that selected variables have on the relationship between the economic, political, and social variables, and pretrial detention were explored:

- Whether corruption moderates the relationship between state strength and pretrial detention.
- Whether democratization and development moderate the relationship between crime and pretrial detention.
- Whether democratization moderates the relationship between development and pretrial detention.

In line with recommendations for examining moderation in regression analysis, both the independent and moderating variables were standardized prior to analysis in order to reduce

collinearity and facilitate ease of interpretation (Aiken, West, & Reno, 1991). The beginning

point of the moderator analyses was an assessment whether there was a statistically significant

interaction between the hypothesized independent variable and moderator. Where this interaction

was statistically significant, the interaction was decomposed by reporting the slopes for scores at

the low (-1SD) and high (+1SD) end of the moderator. Full model statistics for each moderated

regression analysis as well as a graphical representation of all tested moderated hypotheses are

found in Appendices 4 and 5.

CHAPTER 4: RESULTS

Introduction

Three statistical techniques were used to answer the study's research questions and test

the associated hypotheses. First, a simple correlation analysis exploring the relationship between

each of the 29 independent continuous variables and the two pretrial detention-related dependent

variables. For the categorical independent variable of "legal system classification" a one-way

Analysis of Variance (ANOVA) was used to explore its relationship with the two dependent

variables. Second, a forward, stepwise regression to determine empirically which combination of

independent variables best predict both pretrial detention-related dependent variables. Third,

moderator analyses using selected independent variables to better understand how corruption

moderates the relationship between state strength and pretrial detention; democratization and

development moderate the relationship between crime and pretrial detention; and,

democratization moderates the relationship between development and pretrial detention.

Analysis 1: Simple correlations

In the simple correlation analyses, the "correlation" is the "Pearson Correlation" (r),

which indicates the size of the effect, while the p-value indicates the certainty the trend is not due

to random chance. The Pearson Correlation is a value ranging from -1 to +1, where -1 indicates a

perfect negative correlation, and +1 indicates a perfect positive correlation. Pearson correlation

technically answers the following question: For every 1 standard deviation change in X, how

many standard deviations does Y change? Interpretations of the effect size in the social sciences

occur through a reliance on rules of thumb: .1-.2 is a small effect; .3-.4 is a medium-sized effect;

and .5 and greater is a large effect (Cohen, 1988). While the correlation and p-value often

correspond, there are instances where there is a high certainty of the effect (the *p*-value is very low), but the effect size is small. It is consequently important to consider both the correlation and *p*-value separately. In line with scientific standards, the criteria employed for "significance" is determined by whether or not the *p*-value is less than .05 (Cramer & Howitt, 2004).

Results of the simple correlations between all independent variables (except for legal system classification, a categorical variable) and the pretrial detention outcome variables follow below. For each variable, a finding is made whether the study's hypotheses are supported in respect of both outcome measures (pretrial detention rate, and the proportion of prisoners in pretrial detention), and on what basis this finding is made, providing both the numerical value of the correlation and the effect size. A summary of the findings are presented in Table 9.

Unemployment

The hypothesis that the pretrial detention rate would positively correlate with unemployment was not supported. There is virtually no correlation between the pretrial detention rate and unemployment $r(172) = .01$, $p = .932$. The Pearson correlation between the pretrial detention rate and unemployment is .01, based on a sample size of 172 countries. With such a small correlation coefficient, and rather large sample size, this result seems fairly certain. The hypothesis that the proportion of prisoners in pretrial detention would not correlate with unemployment was supported. There is a negative correlation between the proportion of prisoners in pretrial detention and unemployment $r(173) = -.12$, $p = .126$, but this failed to reach statistical significance, indicating that while there may be some small trend, it does not satisfy the threshold of certainty to be considered more than a random occurrence.

Inequality

The hypothesis that the pretrial detention rate would positively correlate with economic

inequality was supported. A moderately sized positive correlation, $r(129) = .40$, $p < .001$ was found, suggesting that the higher the level of economic inequality in a country, the higher the pretrial detention rate. The hypothesis that inequality would not correlate with the proportion of prisoners in pretrial detention was not supported. A modest positive association $r(130) = .26$, $p < .01$ was found, suggesting that the higher the level of economic inequality in a country, the higher the proportion of prisoners in pretrial detention.

Social welfare

The hypothesis that the pretrial detention rate would negatively correlate with social welfare was broadly not supported. There are numerically negative correlations observed in the variables of social assistance expenditure, $r(58) = -.19$, $p = .153$, education expenditure, $r(137) = -.06$, $p = .497$, and public health expenditure $r(179) = -.12$, $p = .100$. However, none of these correlations reach statistical significance. By consequence, it is not possible to say whether the correlations represent meaningful trends or merely random error. The hypothesis that the proportion of prisoners in pretrial detention would not correlate with social welfare was unsupported. All the social welfare variables utilized indicate a negative correlation. This is the case for social assistance expenditure, $r(59) = -.29$, $p < .05$, education expenditure, $r(138) = -.27$, $p < .01$, and public health expenditure $r(180) = -.34$, $p < .001$. The consistency of these findings provides relative certainty there is a small to medium negative association between social welfare and the proportion of prisoners in pretrial detention.

Modernization

The hypothesis that modernization would positively correlate with the pretrial detention rate was generally supported. Small statistically significant correlations were observed for both the Human Development Index, $r(176) = .16$, $p < .05$, and for urbanization, $r(198) = .16$, $p < .05$,

suggesting that countries that exhibit characteristics of modernization tend to have slightly higher rates of pretrial detention. There is moderate support for the hypothesis that modernization is negatively correlated with the proportion of prisoners in pretrial detention. Specifically, the Human Development Index is negatively correlated with the proportion of prisoners in pretrial detention, $r(177) = -.36$, $p < .001$, but there is no significant correlation with urbanization, $r(199) = -.10$, $p = .174$.

Regime type

The hypothesis that the pretrial detention rate would negatively correlate with stable democracy and civil liberties of political regimes was not supported. The analysis yielded non-significant correlations for the Democracy Index, $r(156) = .08$, $p = .305$, and political stability / absence of violence, $r(195) = .11$, $p = .126$. The hypothesis that the proportion of prisoners in pretrial detention would negatively correlate with stable democracy and civil liberties of political regimes was supported. This is the case for both the Democracy Index, $r(157) = -.20$, $p < .01$, and for the measure of political stability / absence of violence, $r(196) = -.33$, $p < .001$.

Development

The hypothesis that the pretrial detention rate would positively correlate with development received modest and mixed support. There is a positive correlations for GDP per capita (ln), $r(171) = .18$, $p < .05$, prison occupancy rate, $r(193) = .23$, $p < .01$, and police per capita, $r(126) = .22$, $p < .05$. However, there is no significant correlation between the pretrial detention rate and government effectiveness, $r(193) = .07$, $p > .05$, the Fragile States Index, $r(166) = -.08$, $p > .05$, and the Public Services Indicator, $r(166) = -.07$, $p > .05$. The hypothesis that the proportion of prisoners in pretrial detention would negatively correlate with development was partially supported by the analysis. Namely, there is a negative correlation between the

proportion of prisoners in pretrial detention and GDP per capita (*ln*), $r(172) = -.31$, $p < .001$, and government effectiveness, $r(194) = -.31$, $p < .001$. Higher proportions of prisoners in pretrial detention correlated positively with the Fragile States Index $r(167) = .37$, $p < .001$. Due to the manner in which the Fragile States Index is designed, larger or higher values on the Index correspond to *less* development, so that a positive *r* actually reflects a negative relationship between the outcome measure and development as measured by the Index. Positive correlations are present for two measures of development: prison occupancy rate $r(191) = .39$, $p < .001$, and the Public Services Indicator, $r(167) = .44$, $p < .001$. In respect of police per capita no significant correlation was found, $r(126) = -.15$, $p = .097$.

Corruption

The hypothesis that the pretrial detention rate would negatively correlate with corruption was not supported – neither by the Corruption Perceptions Index $r(165) = .01$, $p = .908$, nor by the measure of the control of corruption, $r(193) = .06$, $p = .376$. Both of these correlations are not only small in size, but also far from being close to statistical significance. The hypothesis that the proportion of prisoners in pretrial detention would positively correlate with corruption was supported by the Corruption Perceptions Index, $r(166) = -.35$, $p < .001$, and the control of corruption measure, $r(194) = -.30$, $p < .001$. Both the Corruption Perceptions Index and the control of corruption variables are oriented such that larger values indicate less corruption (one can loosely think of each of these as being measures of the "control" of corruption). As such, higher proportions of prisoners in pretrial detention correspond with lower "control" of corruption (i.e., more corruption).

Political legitimacy

The hypothesis that the pretrial detention rate would negatively correlate with levels of

political legitimacy found mixed results. Thus, while this is not the case for rule of law, $r(193) = .02$, $p = .841$, it is the case in respect of judicial independence, $r(133) = -.29$, $p < .001$. The latter finding provides considerable certainty that there is a medium size, negative association between the pretrial detention rate and judicial independence. The hypothesis that the proportion of prisoners in pretrial detention would not correlate with political legitimacy also found mixed results. The correlation between the proportion of prisoners in pretrial detention and judicial independence, while negative $r(134) = -.09$, $p = .279$, is not statistically significant. However, there is a highly significant medium, negative correlation between rule of law and the proportion of prisoners in pretrial detention, $r(194) = -.35$, $p < .001$.

Political trust

The hypothesis that the pretrial detention rate would negatively correlate with political trust found no support. While trust in the national government was negatively correlated with the pretrial detention rate, $r(133) = -.151$, $p > .05$, this correlation was not statistically significant. The hypothesis that the proportion of prisoners in pretrial detention would negatively correlate with political trust also found no support, $r(134) = .04$, $p > .05$.

Crime

The hypothesis that the pretrial detention rate would positively correlate with crime was supported, $r(178) = .42$, $p < .001$. The hypothesis that the proportion of prisoners in pretrial detention would positively correlate with crime was also supported, $r(179) = .31$, $p < .001$.

Perceptions of crime / safety

The hypothesis that the pretrial detention rate would positively correlate with perceptions of crime / safety was supported. Higher rates of pretrial detention correspond with lower scores (*higher* perceptions of crime / safety) on the Law and Order Index, $r(130) = -.34$, $p < .001$, and

the percentage of the population feeling safe, $r(137) = -.38$, $p < .001$. Higher rates of pretrial detention correspond with lower scores (*higher* perceptions of crime / safety) on the Safety and Security Index, $r(145) = -.15$, $p = .071$, but this failed to reach statistical significance. In respect of the level of peace / insecurity variable, the correlation was only very moderately positive and not statistically significant, $r(151) = .10$, $p = .243$. The hypothesis that the proportion of prisoners in pretrial detention would positively correlate with perceptions of crime / safety was supported. Higher proportions of prisoners in pretrial detention correspond with lower scores (*higher* perceptions of crime / safety) on the Law and Order Index, $r(131) = -.52$, $p < .001$, Safety and Security Index, $r(146) = -.44$, $p < .001$, and the percentage of the population feeling safe, $r(137) = -.34$, $p < .001$. In respect of the level of peace / insecurity variable, the correlation was also positive, $r(152) = .34$, $p < .001$.

Ethnic heterogeneity

The hypothesis that the pretrial detention rate would positively correlate with ethnic diversity was not supported, $r(143) = .03$, $p > .05$. The hypothesis that the proportion of prisoners in pretrial detention would positively correlate with ethnic diversity found some support. There is a significant, small-to-medium correlation between the proportion of prisoners in pretrial detention and ethnic diversity, $r(144) = .26$, $p < .001$.

Foreign nationals

The hypothesis that the pretrial detention rate would positively correlate with the proportion of foreign nationals in a country was not supported, $r(182) = .07$, $p > .05$. Moreover, the hypothesis that the proportion of prisoners in pretrial detention would positively correlate with the proportion of foreign nationals in a country was also not supported, $r(183) = -.10$, $p > .05$.

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Public punitiveness

The hypothesis that the pretrial detention rate would positively correlate with public punitiveness was not supported in terms of either the Voice and Accountability Index, $r(189) =$ .08, $p > .05$, or the Press Freedom Index, $r(165) = -.01$, $p = .891$. The hypothesis that the proportion of prisoners in pretrial detention would positively correlate with public punitiveness was supported only very modestly. There is a small but significant correlation between the proportion of prisoners in pretrial detention and the Voice and Accountability Index, $r(190) = -$ .16, $p < .05$. There is no correlation between the proportion of prisoners in pretrial detention and the Press Freedom Index, $r(166) = .09$, $p = .242$.

Table 9*: Simple correlations between independent variables and pretrial detention (PTD)*

	PTD rate			Proportion prisoners in PTD		
Hypothesis/Variable	*r*	*n*	Prediction	*r*	*n*	Prediction
Unemployment			↑			--
Unemployment	.01	172	↑	-.12	173	--
Inequality			↑			--
Gini Index	.40***	129	↑	.26**	130	--
Social Welfare			↓			--
Social Assistance Expenditure	-.19	58	↓	-.29*	59	--
Education Expenditure	-.06	137	↓	-.27**	138	--
Public Health Expenditure	-.12	179	↓	-.34***	180	--
Modernization			↑			↓
Human Development Index	.16*	176	↑	-.36***	177	↓
Urbanization	.16*	198	↑	-.10	199	↓
Regime Type			↓			↓
Democracy Index	.08	156	↓	-.20**	157	↓
Political Stability & Absence of Violence	.11	195	↓	-.33***	196	↓
Development			↑			↓
GDP per Capita (ln)	.18*	171	↑	-.31***	172	↓
Government Effectiveness	.07	193	↑	-.31***	194	↓
Prison Occupancy Rate	.23**	191	↑	.39***	191	↓
Fragile States Index	-.08	166	↓•	.37***	167	↑•
Public Services Indicator	-.07	166	↑	.44***	167	↓
Police per Capita	.22*	126	↑	-.15	126	↓
Corruption			↓			↑
Corruption Perceptions Index	.01	165	↑•	-.33***	166	↓•

Control of Corruption	.06	193	↑•	-.30***	194	↓•
Political Legitimacy			↓			--
Rule of Law	.02	193	↓	-.35***	194	--
Judicial Independence	-.29***	133	↓	-.09	134	--
Political Trust			↓			↓
Trust in National Government	-.151	133	↓	.04	134	↓
Crime			↑			↑
Homicide Rate (ln)	.42***	178	↑	.31***	179	↑
Perceptions of Crime / Safety			↑			↑
Level of Peace / Insecurity	.10	151	↑	.34***	152	↑
Law and Order Index	-.34***	130	↓•	-.52***	131	↓•
Safety and Security Index	-.15	145	↓•	-.44***	146	↓•
Percent Feeling Safe	-.38***	137	↓•	-.34***	137	↓•
Ethnic Heterogeneity			↑			↑
Fractionalization - Ethnic Diversity	-.03	143	↑	.26***	144	↑
Foreign Nationals			↑			↑
Stock of Immigrants (ln)	.07	182	↑	-.10	183	↑
Public Punitiveness			↑			↑
Voice and Accountability Index	.08	189	↑	-.16*	190	↑
Press Freedom Index	-.01	165	↑	.09	166	↑

Correlations between the outcome measures and independent variables: * $p < .05$. ** $p < .01$. *** $p < .001$.

Note. Predictions for the overall constructs (e.g., Regime Type) as well as the specific scales (e.g., the Democracy Index, or the Political Stability and Absence of Violence indicator) by which the construct of Regime Type can be measured are given with arrows (↑ and ↓). Prediction arrows for individual scales within each hypothesis may have a different direction than the arrow corresponding to the overall hypothesis itself. This is because scales may be oriented in either a positive or negative direction, depending on each unique scale's construction. For example, a *negative* (↓) association between the pretrial detention rate and the Fragile States Index was predicted, because *larger* values on the Fragile States Index correspond to *less* development. Similarly, a *positive* association between perceptions of crime / safety and pretrial detention was predicted, but because *lower* values of Percent Feeling Safe correspond with *higher* perceptions of crime / safety, the theoretical prediction was that the Percent Feeling Safe measure would *negatively* correlate with pretrial detention. Scales oriented in opposite directions of the construct are highlighted with (•).

Legal system

In addition to the simple correlations, a one-way Analysis of Variance (ANOVA) was used to assess whether there were differences in pretrial detention based on countries' legal system classification. The hypothesis that, compared to civil law countries, common law countries have lower pretrial detention rates was not supported by the analysis. An ANOVA revealed significant differences in the pretrial detention rate, $F(2,196) = 10.77$, $p < .001$, $R^2 = .099$. Post hoc analyses revealed that common law countries ($M = 83.84$, $SD = 70.28$) had significantly higher pretrial detention rates than mixed law countries ($M = 39.34$, $SD = 34.59$), *p*

< .001 and civil law countries ($M = 51.90$, $SD = 44.59$), $p = .003$, the latter two of which were not significantly different from each other, $p = .185$.[12] The hypothesis that, compared to civil law countries, common law countries have lower proportions of prisoners in pretrial detention was supported by the analysis. An ANOVA revealed significant differences in the proportion of prisoners in pretrial detention, $F(2,197) = 4.34$, $p = .014$, $R^2 = .042$. Post hoc analyses revealed that mixed legal systems ($M = .38$, $SD = .22$) had marginally higher proportions of prisoners in pretrial detention than civil law systems ($M = .31$, $SD = .20$), $p = .090$, and significantly higher proportions of prisoners in pretrial detention than common law countries ($M = .26$, $SD = .16$), $p = .021$, the latter two of which were not significantly different from each other, $p = .495$.

Analysis 2: Automatic predictive model building

The purpose of the automatic predictive model building is to determine which variables allow for the greatest prediction of pretrial detention. The analysis seeks to determine empirically which combination of independent variables best predict the two pretrial detention-related dependent variables. This was done using a forward, stepwise regression whereby variables are inserted one at a time based on how the addition of each variable changes the model.

Analysis 2a: Predicting the rate of pretrial detention

Model-building was used to determined which variables best predict pretrial detention rates. A total of five variables were selected for the final model, which was highly significant overall, $F(5,206) = 19.748$, $p < .001$ (Table 10). The adjusted R^2 (.308), indicates that the

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[12] *M*, or mean, refers to the average scores for a given variable. *SD*, or standard deviation, refers to the average "spread" around the mean. R^2 indicates the proportion of variance in the outcome that is accounted for by the variance in the independent variable. For example, an R^2 of .12 indicates that 12% of the variance of the outcome measure is accounted for (or explained) by the independent variable. The *F* value is a test statistic to generate a *p* value, but has little interpretative use. *SE*, or standard error, represents the standard deviation divided by the square root of the sample size. By (crude) rule of thumb, a confidence interval for an estimate exists at around +/- 2 SE units. For example, if *M* = 100, and *SE* = 10, a roughly 95% confidence interval around the estimate would be between 80 and 120.

combination of these five variables account for 30.8% of the variance in the scores for pretrial detention rates. The homicide rate is the first variable entered into the model, and was highly significant, $b = 19.000$, $SE = 2.625$, $\beta = .471$, $p < .001$.[13] The second most predictive variable is Human Development Index, $b = 162.638$, $SE = 24.514$, $\beta = .487$, $p < .001$. The third most predictive variable is prison occupancy rate, $b = .198$, $SE = .050$, $\beta = .255$, $p < .001$, followed by public health expenditure, $b = -2.958$, $SE = 1.335$, $\beta = -.144$, and police per capita, $b = .032$, $SE = .015$, $\beta = .126$ (with the latter two predictive variables having $p < .05$).

A closer inspection of the variables reveals an intriguing observation. Many of the item relationships in the model are similar (but typically weaker) in direction as was found in the individual correlations section above. For example, police per capita correlates with the pretrial detention rate at $\beta = .126$, but in the simple correlation analysis (Table 9), the Pearson correlation is .22. Nevertheless, there are also cases where variables selected by the final model are stronger than in the simple correlations analysis. For example, the standardized correlation for the Human Development Index is $\beta = .487$, which is greater than the original $r = .16$ found in the simple correlation analysis. This is not uncommon in multiple regression analyses, where controlling for particular independent variables has the potential to alter or change the relationship between other variables in the model. In cases when controlling for one variable increases the apparent relationship between another independent variable, this relationship is sometimes called a "negative confounder" (Mehio-Sibai, Feinleib, Sibai, & Armenian, 2005).

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[13] The lowercase "b" is interpreted literally as "for every 1 unit increase in X, how does Y change?" Note, however, that this value is specifically in the context of the scale used, which makes comparisons across scales difficult. For example, b coefficients will naturally be much smaller for a 1-10 scale than for a 1-100 scale. However, this does not necessarily indicate that the smaller b value is less "important". When comparing across different scales, it is often better to consider the standardized β statistic, which can be interpreted as "for every 1 standard deviation increase in X, how many standard deviations does Y change?" The standardized regression coefficient (β) is statistically identical to the Pearson correlation coefficient (r).

Table 10: Determining the best predictive model of the rate of pretrial detention

	b	SE	β
DV = Rate of PTD			
(Constant)	-112.082***	20.542	
Homicide Rate (ln)	19.000***	2.625	.471
Human Development Index (HDI)	162.638***	24.514	.487
Prison Occupancy Rate	.198***	.050	.255
Public Health Expenditure	-2.958*	1.335	-.144
Police per Capita	.032*	.015	.126
Adjusted R^2		.308	

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Analysis 2b: Predicting the proportion of prisoners in pretrial detention

Model-building was used to determine which variables best predict the proportion of prisoners in pretrial detention. A total of three variables were inputted, generating a highly significant overall statistical model, $F(3,211) = 22.209$, $p < .001$ (Table 11). The adjusted R^2 (.232), indicates that the combination of these variables accounts for 23.2% of the variance in the proportion of prisoners in pretrial detention.

Table 11: Determining the best predictive model for proportion prisoners in pretrial detention

	b	SE	β
DV = Proportion Prisoners in PTD			
(Constant)	.840***	.138	
Law & Order Index	-.007***	.002	-.275
Prison Occupancy Rate	.001**	.000	.203
Public Health Expenditure	-.016**	.006	-.178
Adjusted R^2		.232	

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

For the proportion of prisoners in pretrial detention analysis, the Law and Order Index is the strongest predictor, $b = -.007$, $SE = .002$, $β = -.275$, $p < .001$. This is followed by prison

occupancy rate $b = -.001$, $SE = .000$, $\beta = -.203$, $p < .01$, and public health expenditure $b = -.016$, $SE = .006$, $\beta = -.178$, $p < .01$. Many of the item relationships in the model were similar (but typically weaker) in direction as was found in the individual correlations section (Table 9). Thus, the standardized correlation for the Law and Order Index is $\beta = -.275$, which is smaller than the original $r = -.52$ found during the simple correlation analysis, but is still statistically significant and in the negative direction. The standardized correlation for prison occupancy rate is $\beta = .203$, compared to the original $r = -.39$, while the standardized correlation for public health expenditure is $\beta = -.178$, compared to the original $r = -.34$.

Analysis 3: Moderating effects

This section reports on three moderator analyses.[14] In particular, whether:

- corruption moderates the relationship between state strength and pretrial detention;

- democratization and development moderate the relationship between crime and pretrial detention; and

- democratization moderates the relationship between development and pretrial detention.

In total, 18 moderator analyses were undertaken. In respect of the rate of pretrial detention dependent variable, all 18 analyses produced a statistically significant result. In respect of the proportion of prisoners in pretrial detention dependent variable, five of the analyses were statistically significant.

The effect of state strength and "government effectiveness" on the rate of pretrial detention is moderated by corruption in interesting ways. In places where states are relatively

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[14] In statistics, moderation occurs when the relationship between two independent variables depends on a third variable. The third variable is called the "moderator variable" or "moderator". The effect of a moderating variable is called an "interaction", which is a variable (categorical or quantitative) that affects the direction and/or the strength of the relation between the dependent and independent variables (Cohen, Cohen, Aiken, & West, 2003).

effective or strong, high levels of corruption predict high rates of pretrial detention, while low rates of corruption predict lower rates of pretrial detention. Conversely, in places where governments or states are relatively weak, high levels of corruption predict low rates of pretrial detention, while low rates of corruption predict higher rates of pretrial detention.

The effect of insecurity on the rate of pretrial detention is moderated by levels of democracy and human development. In places with high levels of insecurity, more "democracy" predicts high rates of pretrial detention. By contrast, in places with less "democracy", high levels of insecurity predict no, or only a modest positive, relationship with the pretrial detention rate. In countries scoring high on human development, high levels of recorded homicide predict high rates of pretrial detention, while in countries scoring low on human development, high recorded homicide rates also predict high (but more modest) pretrial detention rates.

The effect of government effectiveness and state strength on the rate of pretrial detention is moderated by democratization. In countries which are less democratic, high levels of development predict high rates of pretrial detention. In countries which are more democratic, high levels of development predict low rates of pretrial detention. While development tends to be positively but modestly correlated with the pretrial detention rate, this relationship is affected by the degree of democracy and tends to apply more in respect of countries which are less democratic. Countries which are doing well economically and are relatively developed but which are not overly democratic experience high rates of pretrial detention. Conversely, economically successful and developed countries with higher levels of democratization experience lower rates of pretrial detention.

In places where states are relatively strong, high levels of corruption tend to predict a higher proportion of prisoners in pretrial detention. The same holds, albeit at less intensity, in

respect of countries where corruption is low. In places where governments are relatively

effective, high levels of corruption predict a lower proportion of prisoners in pretrial detention,

while in countries where corruption is relatively low, government effectiveness does not predict

any effect on the proportion of prisoners in pretrial detention.

In countries scoring high on "democratization", more government effectiveness predicts a

modestly lower proportion of prisoners in pretrial detention, while in countries scoring low on

democratization, more government effectiveness predicts a lower proportion of prisoners in

pretrial detention.

Full model statistics for each moderated regression analysis as well as a graphical

representation of all tested moderation hypotheses can be found in appendices 4 and 5. These

should be used in tandem with the below narrative when interpreting the results.

Analysis 3a: Corruption, state strength and pretrial detention

This analysis assessed whether corruption (as measured by the Corruption Perceptions

Index, and "control of corruption") moderates the relationship between state strength (as

measured by government effectiveness, Fragile States Index, and Public Services Indicator) and

pretrial detention.

Pretrial detention rate

The relationship between government effectiveness as an indicator of state strength and

the rate of pretrial detention is significantly moderated by the Corruption Perceptions Index, $b = -10.276$, $SE = 3.316$, $\beta = -.271$, $p < .01$ (Table 12).[15] The interaction was then decomposed into

the simple slopes of those that scored low on the Corruption Perceptions Index moderator (Low

M) and those that scored high on the Corruption Perceptions Index moderator (High M). This

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[15] In general, "significance" is assessed in statistical moderation just like any other analysis. A *p* value of less than or equal to .05 is considered statistically "significant".

revealed that for countries at the low end of the moderator (countries scoring low in the Corruption Perceptions Index, which are perceived as more corrupt), the relationship between government effectiveness and the pretrial detention rate is relatively positive (b = 6.28, SE = 9.01) compared to countries that were at the high end of the moderator (countries scoring high in the Corruption Perceptions Index, which are perceived as less corrupt), which tend to have a relatively negative slope (b = -14.26, SE = 10.33). Put another way, as countries become more corrupt (lower Corruption Perceptions Index), the relationship between government effectiveness and the pretrial detention rate becomes more positive. When countries are corrupt, more government effectiveness results in higher rates of pretrial detention. When countries are relatively uncorrupt, more government effectiveness predicts lower rates of pretrial detention. See Figure 3 for a graphic representation of this relationship.

Figure 3: Relationship between government effectives and the rate of pretrial detention, moderated by the Corruption Perceptions Index
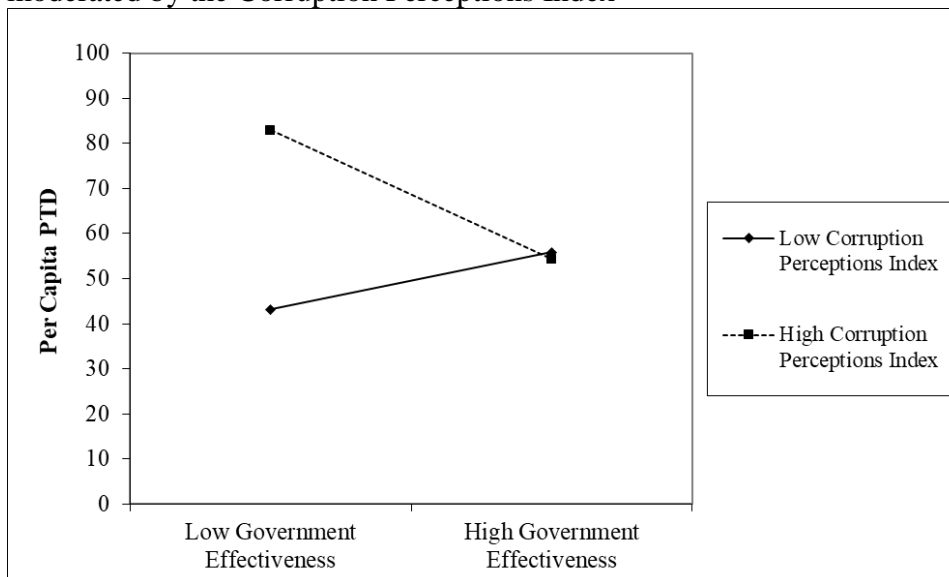
Note: These simple slopes (those at +1 and -1 SD) are not statistically different than zero, so caution is called for about making claims about countries that are "high" or "low" in the Corruption Perceptions Index independently, rather than simply making the observation that "high" and "low" countries may differ from *each other*. It is not unusual to find significant moderation (i.e., an interaction), but non-significant slopes within that interaction. This may be the case because the slopes are estimated at +1 and -1 SD, and these points may not be extreme enough away from the mean in order to be different than zero. The basic idea behind statistical moderation is that the moderator

changes or alters the relationship between X and Y. The +1 and -1 SD points are conventional but arbitrary points to assess change, and it may be possible, for example, that for +1.5 SD and -1.5 SD the slopes are significantly different than zero, because these points are more extremely oriented on the dimension of a moderator that does in fact change the relationship between X and Y. Additionally, moderation tests whether slopes are significantly different than *each other*, not whether they are different than zero. Thus, while two slopes can be quite different from each other (e.g., if one is -5, the other +4, which is -5 vs. 4, or different by a value of 9), the raw difference between each decomposed slope and zero (e.g., 5 vs. 0 and 4 vs. 0) will typically each be smaller values, which may not be "significantly" different than zero.

The relationship between state fragility as an indicator of state strength (as measured by the Fragile States Index) and the rate of pretrial detention is also significantly moderated by the Corruption Perceptions Index, $b = 9.674$, $SE = 3.320$, $\beta = .265$, $p < .01$ (Table 12). For countries that are relatively corrupt (low Corruption Perceptions Index), there is a relatively stronger negative relationship between state fragility and the rate of pretrial detention ($b = -21.45$, $p < .05$), compared to states that are relatively uncorrupt ($b = -2.10$, $p > .05$). In countries with a high perception of corruption the rate of pretrial detention is significantly lower in fragile states. As countries become more corrupt (lower Corruption Perceptions Index), the relationship between state fragility and the pretrial detention rate becomes more negative. That is, when countries are corrupt, more state fragility predicts significantly lower rates of pretrial detention. When countries are relatively uncorrupt, more state fragility predicts only very slightly lower rates of pretrial detention.

The relationship between public services as an indicator of state strength (as measured by the Public Services Indicator) and the rate of pretrial detention is also moderated by the Corruption Perceptions Index, $b = 11.511$, $SE = 3.918$, $\beta = .272$, $p < .01$ (Table 12). For countries that are relatively corrupt (low Corruption Perceptions Index), there is a negative relationship between the Public Services Indicator and the rate of pretrial detention ($b = -13.75$, $p < .05$), compared to countries that are relatively uncorrupt ($b = 9.28$). When countries are corrupt, better public services predicts lower rates of pretrial detention. When countries are relatively uncorrupt, better public services predicts higher rates of pretrial detention.

The control of corruption measure complements the Corruption Perceptions Index because it measures, inter alia, how much a state fights or curbs corruption. As with the Corruption Perceptions Index, higher values (for control of corruption) represent less corruption. The relationship between government effectiveness and the rate of pretrial detention is significantly moderated by control of corruption, $b = -10.372$, $SE = 3.319$, $\beta = -.241$, $p < .01$ (Table 12). For countries at the low end of the moderator (countries low in the control of corruption, which are likely more corrupt), the relationship between government effectiveness and the pretrial detention rate is positive ($b = 12.05$, $SE = 8.50$) compared to countries that are at the high end of the moderator (countries scoring high on control of corruption, which are likely less corrupt), which have a relatively negative slope ($b = -8.69$, $SE = 9.11$). That is, when countries are corrupt (scoring low on the control of corruption), more government effectiveness predicts higher rates of pretrial detention. When countries are relatively uncorrupt, more government effectiveness predicts lower rates of pretrial detention.

The relationship between state fragility (as measured by the Fragile States Index) and the rate of pretrial detention is significantly moderated by the control of corruption, $b = 10.033$, $SE = 3.209$, $\beta = .265$, $p < .01$ (Table 12). For countries that are relatively corrupt (low control of corruption score), there is a significant negative relationship between state fragility and the rate of pretrial detention ($b = -21.69$, $p < .05$), with greater state fragility resulting in lower rates of pretrial detention. By contrast, in countries that are relatively uncorrupt (high control of corruption), there is only an extremely modest negative relationship between state fragility and the rate of pretrial detention ($b = -1.63$).

The relationship between public services as an indicator of state strength (as measured by the Public Services Indicator) and the rate of pretrial detention is significantly moderated by the

Public Services Indicator, $b = 10.818$, $SE = 3.835$, $\beta = .249$, $p < .01$ (Table 12). For countries that

are relatively corrupt (low control of corruption score), there is a negative relationship between

the Public Services Indicator and the rate of pretrial detention ($b = -13.64$, $p <.05$), compared to

countries that are relatively uncorrupt ($b = 7.99$). When countries are corrupt, better public

services predicts lower rates of pretrial detention. When countries are relatively uncorrupt, better

public services result in higher rates of pretrial detention.

Proportion of prisoners in pretrial detention

The relationship between state fragility (as measured by the Fragile States Index) and the

proportion of prisoners in pretrial detention is moderated by the Corruption Perceptions Index, b

$= -.029$, $SE = .015$, $\beta = .265$, $p < .05$ (Table 12). For countries that are more corrupt (low

Corruption Perceptions Index), there is a relatively stronger positive relationship between state

fragility and the proportion of prisoners in pretrial detention ($b = .108$, $p <.01$), compared to

states that are relatively uncorrupt ($b = .051$). That is, when countries are corrupt, more state

fragility predicts a somewhat higher proportion of prisoners in pretrial detention. When countries

are relatively uncorrupt, more state fragility predicts hardly perceptible increases in the

proportion of prisoners in pretrial detention.

The relationship between government effectiveness and the proportion of prisoners in

pretrial detention is moderated by control of corruption, $b = .044$, $SE = .013$, $\beta = .242$, $p < .001$

(Table 12). For countries at the low end of the moderator (countries low in the control of

corruption, which are likely more corrupt), the relationship between government effectiveness

and the proportion of prisoners in pretrial detention is somewhat negative ($b = -.083$, $SE = .034$)

compared to countries at the high end of the moderator (countries scoring high on control of

corruption, which are likely less corrupt), which have an almost horizontal slope ($b = .003$, $SE =$

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.036). That is, when countries are corrupt (scoring low on the control of corruption), more government effectiveness predicts a lower proportion of prisoners in pretrial detention. When countries are relatively uncorrupt, more government effectiveness predicts virtually no change in the proportion of prisoners in pretrial detention.

The relationship between state fragility (as measured by the Fragile States Index) and the proportion of prisoners in pretrial detention is moderated by the control of corruption, $b = -.037$, $SE = .014$, $\beta = -.213$, $p < .01$ (Table 12). For countries that are relatively corrupt (low control of corruption score), there is a somewhat positive relationship between state fragility and the proportion of prisoners in pretrial detention ($b = .095$, $p < .01$), with greater state fragility resulting in a higher proportion of prisoners in pretrial detention. By contrast, in countries that are relatively uncorrupt (high control of corruption), there is only a very modest positive relationship between state fragility and the proportion of prisoners in pretrial detention ($b = .022$).

The relationship between public services as an indicator of state strength (as measured by the Public Services Indicator) and the proportion of prisoners in pretrial detention is significantly moderated by the Public Services Indicator, $b = 10.818$, $SE = 3.835$, $\beta = .249$, $p < .01$ (Table 12). For countries that are relatively corrupt (low control of corruption score), there is a positive relationship between the Public Services Indicator and the proportion of prisoners in pretrial detention ($b = .119$, $p < .001$), compared to countries that are relatively uncorrupt ($b = .033$). When countries are corrupt, better public services predict a higher proportion of prisoners in pretrial detention. When countries are relatively uncorrupt, better public services predict only a very slightly higher proportion of prisoners in pretrial detention.

Table 12: Moderation results for analysis 3a

	PTD rate			Proportion prisoners in PTD		
	B	SE	β	B	SE	β
Moderator = Corruption Perceptions Index						
Government Effectiveness	-10.276**	3.316	-.271	.022	.014	.127
Low M	6.28	9.01				
High M	-14.26	10.33				
Fragile States Index	9.674**	3.320	.265	-.029*	.015	-.171
Low M	-21.45*	7.85		.108**	.033	
High M	-2.10	8.83		.051	.039	
Public Services Indicator	11.511**	3.918	.272	-.031	.016	-.157
Low M	-13.75*	6.05				
High M	9.28	8.13				
Moderator = Control of Corruption						
Government Effectiveness	-10.372**	3.319	-.241	.044***	.013	.242
Low M	12.05	8.50		-.083*	.034	
High M	-8.69	9.11		.003	.036	
Fragile States Index	10.033**	3.209	.265	-.037**	.014	-.213
Low M	-21.69*	7.67		.095**	.032	
High M	-1.63	8.40		.022	.036	
Public Services Indicator	10.819**	3.835	.249	-.043**	.016	-.217
Low M	-13.64*	5.97		.119***	.024	
High M	7.99	8.15		.033	.033	

Note: * $p < .05$. ** $p < .01$. *** $p < .001$. Highlighting indicates simple slope effects where there is a significant interaction. Slopes are presented for scores that are at the low (-1 SD, "Low M") and high (+1 SD, "High M") end of the moderator.

Analysis 3b: Democratization and development, insecurity and pretrial detention

This analysis assessed whether democratization and development moderate the relationship between crime / the fear of crime and pretrial detention. The variables of the Democracy Index and the Human Development Index (HDI) were used to assess democratization and development, respectively. Homicide rate and fear of crime were used to assess crime and perceptions of crime / safety, respectively. Generally speaking, there is strong

evidence that democratization and development levels moderate the relationship between crime and the pretrial detention rate, but not between crime and the proportion of prisoners in pretrial detention.

Pretrial detention rate

The relationship between the homicide rate and the rate of pretrial detention is moderated by democracy (as measured by the Democracy Index), $b = 14.300$, $SE = 3.583$, $\beta = .317$, $p < .001$ (Table 13). For countries that are relatively democratic (scoring high on the Democracy Index), there is a strong positive relationship between the homicide rate and the rate of pretrial detention ($b = 28.27$, $p < .001$). There is an almost imperceptible negative relationship between the homicide rate and the rate of pretrial detention in countries which are relatively undemocratic ($b = -.33$). As countries become more democratic, the relationship between the homicide rate and the rate of pretrial detention becomes markedly more positive. That is, when countries are democratic, higher homicide rates predict higher rates of pretrial detention.

The relationship between feelings of safety and the rate of pretrial detention is moderated by democracy (as measured by the Democracy Index), $b = -10.256$, $SE = 3.245$, $\beta = -.255$, $p < .01$ (Table 13). For countries that are relatively democratic (scoring high on the Democracy Index), there is a strong negative relationship between feelings of safety and the rate of pretrial detention ($b = -27.17$, $p < .001$). This tendency holds for relatively undemocratic countries, but the negative relationship between feelings of safety and the rate of pretrial detention is more modest ($b = -6.66$). As countries become more democratic, the relationship between feelings of safety and the rate of pretrial detention becomes more negative. That is, when countries are democratic, higher feelings of safety predict lower rates of pretrial detention.

The relationship between the homicide rate and the rate of pretrial detention is moderated by development (as measured by the Human Development Index), $b = 14.289$, $SE = 3.456$, $\beta = .268$, $p < .001$ (Table 13). For countries that are relatively developed (scoring high on the HDI), there is a strong positive relationship between the homicide rate and the rate of pretrial detention ($b = 38.59$, $p < .001$). There is a more modest positive relationship between the homicide rate and the rate of pretrial detention in less developed countries ($b = 10.01$). As countries become more developed, the relationship between the homicide rate and the rate of pretrial detention becomes markedly more positive. That is, when countries are developed, higher homicide rates predict higher rates of pretrial detention.

The relationship between feelings of safety and the rate of pretrial detention is moderated by development (as measured by the HDI), $b = -8.399$, $SE = 3.740$, $\beta = -.174$, $p < .01$ (Table 13). For countries that are relatively developed (scoring high on the HDI), there is a strong negative relationship between feelings of safety and the rate of pretrial detention ($b = -29.29$, $p < .001$). This tendency also holds for less developed countries, but the negative relationship between feelings of safety and the rate of pretrial detention is more modest ($b = -12.49$, $p < .05$). As countries become more developed, the relationship between feelings of safety and the rate of pretrial detention becomes more negative. That is, in relatively developed countries, higher feelings of safety predict lower rates of pretrial detention.

Table 13: Moderation results for analysis 3b

	PTD rate			Proportion prisoners in PTD		
	B	*SE*	*β*	*B*	*SE*	*β*
Moderator = Democracy Index						
Homicide Rate	14.300***	3.583	.317	-.023	.019	-.103
Low M	-.33	5.75				
High M	28.27***	3.76				
Feeling safe	-10.256**	3.245	-.255	.022	.016	.115
Low M	-6.66	4.63				
High M	-27.17***	4.59				
Moderator = HDI						
Homicide Rate	14.289***	3.456	.268	.001	.018	.002
Low M	10.01	5.41				
High M	38.59***	3.93				
Feeling safe	-8.399**	3.740	-.174	.017	.018	.076
Low M	-12.49*	6.67				
High M	-29.29***	4.85				

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Highlighting indicates simple slope effects where there is a significant interaction. Slopes are presented for scores that are at the low (-1 SD, "Low M") and high (+1 SD, "High M") end of the moderator.

Analysis 3c: Democratization, development and pretrial detention

This analysis assessed whether democratization (as measured by the Democracy Index, and the Voice and Accountability Index) moderates the relationship between development (as measured by the Human Development Index, GDP per capita, government effectiveness, and the Public Services Indicator) and pretrial detention. There is compelling evidence that democratization moderates the relationship between development and pretrial detention. Development predicts higher rates of pretrial detention, particularly in countries that are relatively autocratic. Much like analysis 3b (above), the proportion of prisoners in pretrial detention showed relatively little support for the contention that democratization moderates the relationship between development and pretrial detention.

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Pretrial detention rate

The relationship between the Human Development Index and the rate of pretrial detention is moderated by democracy (as measured by the Democracy Index), $b = -11.276$, $SE = 3.377$, $\beta = -.269$, $p < .001$ (Table 14). For countries that are relatively democratic (scoring high on the Democracy Index), there is a negative relationship between HDI and the rate of pretrial detention ($b = -8.82$). For relatively undemocratic countries, there is a positive relationship between HDI and the rate of pretrial detention ($b = 13.73$, $p < .01$). As countries become more democratic, the relationship between development (HDI) and the rate of pretrial detention becomes negative. That is, when countries are democratic, more development predicts lower rates of pretrial detention. When countries are relatively undemocratic, more development suggests higher rates of pretrial detention.

The relationship between GDP per capita and the rate of pretrial detention is moderated by democracy (as measured by the Democracy Index), $b = -12.123$, $SE = 3.327$, $\beta = -.299$, $p < .001$ (Table 14). For countries that are relatively democratic (scoring high on the Democracy Index), there is a negative relationship between GDP per capita and the rate of pretrial detention ($b = -7.81$). For relatively undemocratic countries, there is a positive relationship between GDP per capita and the rate of pretrial detention ($b = 16.44$, $p < .01$). As countries become more democratic, the relationship between development (GDP per capita) and the rate of pretrial detention becomes negative. That is, when countries are democratic, more development predicts lower rates of pretrial detention. When countries are relatively undemocratic, more development suggests higher rates of pretrial detention.

The relationship between government effectiveness and the rate of pretrial detention is moderated by democracy (as measured by the Democracy Index), $b = -9.664$, $SE = 3.186$, $\beta = -$

.243, $p < .01$ (Table 14). For countries that are relatively democratic (scoring high on the Democracy Index), there is a negative relationship between government effectiveness and the rate of pretrial detention ($b = -14.76$, $p < .01$). For relatively undemocratic countries, there is a modest positive relationship between government effectiveness and the rate of pretrial detention ($b = 4.57$). As countries become more democratic, the relationship between government effectiveness and the rate of pretrial detention becomes negative. That is, when countries are democratic, more government effectiveness predicts lower rates of pretrial detention. When countries are relatively undemocratic, more government effectiveness suggests modestly higher rates of pretrial detention.

The relationship between public services (as measured by the Public Services Indicator) and the rate of pretrial detention is moderated by democracy (as measured by the Democracy Index), $b = 11.324$, $SE = 3.223$, $\beta = .282$, $p < .001$ (Table 14). For countries that are relatively democratic (scoring high on the Democracy Index), there is a positive relationship between good public services and the rate of pretrial detention ($b = 13.06$, $p < .05$). For relatively undemocratic countries, there is a negative relationship between good public services (i.e., scoring high on the Public Services Indicator) and the rate of pretrial detention ($b = -9.59$). That is, when countries are democratic, good public services predict higher rates of pretrial detention. When countries are relatively undemocratic, public services suggests lower rates of pretrial detention.

The relationship between the Human Development Index and the rate of pretrial detention is moderated by democracy (as measured by the Voice and Accountability Index), $b = -9.85$, $SE = 3.66$, $\beta = -.20$, $p < .01$ (Table 14). For countries that are relatively democratic (scoring high on the Voice and Accountability Index), there is a negative relationship between development (as measured by the HDI) and the rate of pretrial detention ($b = -5.29$). For

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relatively undemocratic countries, there is a positive relationship between development and the rate of pretrial detention ($b = 14.41$, $p < .01$). That is, when countries are democratic, development results in lower rates of pretrial detention. When countries are relatively undemocratic, development suggests higher rates of pretrial detention.

The relationship between Gross Domestic Product per capita and the rate of pretrial detention is moderated by democracy (as measured by the Voice and Accountability Index), $b = -9.29$, $SE = 3.92$, $\beta = -.18$, $p < .01$ (Table 14). For countries that are relatively democratic (scoring high on the Voice and Accountability Index), there is an almost imperceptible negative relationship between development (as measured by GDP per capita) and the rate of pretrial detention ($b = -1.05$). For relatively undemocratic countries, there is a positive relationship between development and the rate of pretrial detention ($b = 16.85$, $p < .01$). That is, when countries are democratic, development predicts basically no change to the rate of pretrial detention. When countries are relatively undemocratic, development suggests higher rates of pretrial detention.

The relationship between government effectiveness and the rate of pretrial detention is moderated by democracy (as measured by the Voice and Accountability Index), $b = -7.01$, $SE = 3.25$, $\beta = -.16$, $p < .05$ (Table 14). For countries that are relatively democratic (scoring high on the Voice and Accountability Index), there is a modest negative relationship between development (as measured by government effectiveness) and the rate of pretrial detention ($b = -6.83$). For relatively undemocratic countries, there is a modest positive relationship between development and the rate of pretrial detention ($b = 7.18$). That is, when countries are democratic, development results in modestly lower rates of pretrial detention. When countries are relatively undemocratic, development suggests modestly higher rates of pretrial detention.

The relationship between public services (as measured by the Public Services Indicator) and the rate of pretrial detention is moderated by democracy (as measured by the Voice and Accountability Index), $b = 10.00$, $SE = 3.61$, $\beta = .22$, $p < .01$ (Table 14). For countries that are relatively democratic, there is a positive relationship between development (as measured by public services) and the rate of pretrial detention ($b = 10.31$). For relatively undemocratic countries, there is a negative relationship between development and the rate of pretrial detention ($b = -9.69$). That is, when countries are democratic, development predicts higher rates of pretrial detention. When countries are relatively undemocratic, development suggests lower rates of pretrial detention.

Proportion of prisoners in pretrial detention

The relationship between government effectiveness and the proportion of prisoners in pretrial detention is moderated by democracy (as measured by the Voice and Accountability Index), $b = .034$, $SE = .014$, $\beta = .169$, $p < .05$ (Table 14). For countries that are relatively democratic (scoring high on the Voice and Accountability Index), there is a very modest negative relationship between development (as measured by government effectiveness) and the proportion of prisoners in pretrial detention ($b = -.043$, $p < .05$). For relatively undemocratic countries, there is also a modest negative relationship between development and the proportion of prisoners in pretrial detention ($b = -.111$, $p < .001$). That is, for both relatively democratic and undemocratic countries, development predicts very slight lower proportions of prisoners in pretrial detention, with relatively undemocratic countries reflecting somewhat lower proportions of prisoners in pretrial detention.

Table 14: Moderation results for analysis 3c

	PTD rate			Proportion prisoners in PTD		
	B	*SE*	*β*	*B*	*SE*	*β*
Moderator = Democracy Index						
HDI	-11.276***	3.377	-.269	.007	.015	.036
Low M	13.73**	4.81				
High M	-8.82	5.67				
GDP per capita (ln)	-12.123***	3.327	-.299	.007	.015	.035
Low M	16.44**	5.30				
High M	-7.81	5.31				
Government Effectiveness	-9.664**	3.186	-.243	.023	.014	.115
Low M	4.57	6.31				
High M	-14.76**	5.30				
Public Services Indicator	11.324***	3.223	.282	-.019	.014	-.099
Low M	-9.59	5.02				
High M	13.06*	5.09				
Moderator = Voice and Accountability						
HDI	-9.85**	3.66	-0.20	.013	.016	.062
Low M	14.41**	5.06				
High M	-5.29	5.87				
GDP per capita (ln)	-9.29**	3.92	-0.18	.020	.017	.090
Low M	16.85**	5.57				
High M	-1.05	5.59				
Government Effectiveness	-7.01*	3.25	-0.16	.034*	.014	.169
Low M	7.18	5.92		-.111***	.025	
High M	-6.83	4.93		-.043*	.021	
Public Services Indicator	10.00**	3.61	0.22	-.015	.015	-.071
Low M	-9.69	5.15				
High M	10.31	5.81				

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Highlighting indicates simple slope effects where there is a significant interaction. Slopes are presented for scores that are at the low (-1 SD, "Low M") and high (+1 SD, "High M") end of the moderator.

CHAPTER 5: DISCUSSION

Introduction

Of the statistically significant simple correlations undertaken for this study, some two-thirds were in respect of correlations with the "proportion of prisoners in pretrial detention" serving as the dependent variable, suggesting that the "proportion" outcome measure is more responsive to broader national-level economic, political, and social developments.

The independent variables which had a moderate to strong correlation with the proportion of prisoners in pretrial detention dependent variable cover three broad themes: crime and insecurity, development, and good governance. This suggests that countries with low levels of crime, insecurity and disorder are less likely to detain defendants awaiting trial. Moreover, that countries with developed and functioning public services process pretrial detainees relatively quickly through the pretrial stage of the criminal justice process and ensure the conviction and incarceration of serious offenders. The independent variables which correlated most strongly with the rate of pretrial detention dependent variable were either measuring crime / insecurity or inequality.

Three categories of variables – covering public perceptions of safety and experiences with police, prison crowding, and public health expenditure – best predicted the proportion of prisoners in pretrial detention dependent variable, accounting for 23.2% of the variance in the outcome measure. "Development" is a common characteristic of these variables. Developed states have more resources for, inter alia, police and interventions which prevent crime and improve public safety, building prisons to ameliorate prison crowding levels, and paying for relatively generous public health systems. A combination of five independent variables best

predicted the pretrial detention rate dependent variable, accounting for 30.8% of the variance in the outcome measure. Namely, homicide rate, HDI, prison occupancy rate, public health expenditure, and police per capita. "Development" also appears to be a common characteristic of this grouping of variables. States at a relatively high level of development have the resources and capacity to identify, apprehend, and remand a relatively large proportion of suspected offenders into pretrial detention.

Relationships with individual independent variables

This study set out to better understand the relationships between economic, political, and social factors on the one hand, and national pretrial detention practices on the other. Moreover, whether – and to what extent – there is a relationship between certain specified independent variables and two pretrial detention-related dependent variables. The variables were selected to test a number of hypotheses around 15 themes which are discussed next.

Unemployment

The hypothesis that the pretrial detention rate would positively correlate with unemployment was not supported. While earlier cross-national studies (Killias, 1986; Chiricos & DeLone, 1992) found a statistical relationship between unemployment and incarceration rates, more recent analyses reveal a more ambiguous picture. Thus, no association between unemployment and incarceration rates were found in a cross-national study of 148 countries (Neapolitan, 2001), a review of 15 free-market democracies (Sutton, 2004), and an analysis of the 100 most affluent countries (Ruddell, 2005). The studies showing no association focused on richer countries which are disproportionately likely to have relatively developed social welfare systems which may moderate the impacts of social stress, including crime, and hence, imprisonment (Brisman, 2012).

In this study, a larger sample of countries, including most developing counties, was used to assess Rusche and Kirchheimer's (1939/2003) theory that punishment, especially mass imprisonment, is driven primarily by economic considerations, including the relative value of labor, whereby during times of labor surplus or high unemployment, incarceration rates tend to be high. Rusche and Kirchheimer's labor surplus theory is not supported when tested in respect of pretrial detention populations only. Moreover, Wacquant's (2009a; 2009b) materialist explanation for trends in penalization and incarceration which focused on developed countries, especially those with neo-liberal economic policies, does not hold when exploring a larger group of countries at various stages of development when explicitly focusing on pretrial detention rates.

The hypothesis that the proportion of prisoners in pretrial detention would not correlate with unemployment was supported. While a very modest negative correlation between the proportion of prisoners in pretrial detention and unemployment was found, this failed to reach statistical significance.

Both of the unemployment-related hypotheses had not been tested in such a large-scale cross-national study before using pretrial detention as the dependent variable. The findings suggest there is no meaningful association between unemployment and either the pretrial detention rate or the proportion of prisoners in pretrial detention. It would appear that Rusche and Kirchheimer's (1939/2003) and Wacquant's (2009a; 2009b) theories do not apply when tested against pretrial detention populations only.

Inequality

The hypothesis that the pretrial detention rate would positively correlate with economic inequality was supported. This finding contrasts with a number of cross-national studies which failed to find significant relationships between inequality and general imprisonment rates

(Greenberg, 1999; Neapolitan, 2001; Ruddell, 2005). Others, however, found inconsistent results (Wilkins & Pease, 1987; Jacobs & Kleban, 2003), while Krus and Hoehl (1994), found a strong correlation between incarceration rates and an index of unequal distribution of wealth in a study covering 30 countries.

The inconclusive empirical findings are counterbalanced by the theoretical literature's contention that imprisonment serves as a mechanism for controlling offenders and maintaining the legitimacy of the capitalist state during periods of rising and sustained economic inequality Wacquant (2000). Moreover, that the poor and unemployed, who are at the bottom of the social hierarchy, have a greater propensity to engage in criminal conduct and be subject to arrest and imprisonment compared to better-off members of society; a phenomenon which is exacerbated by inequality (Merton, 1938; Shaw & McKay, 1942; Hirschi, 1969; Agnew, 2006; Messner & Rosenfeld, 2006). This study supports the theoretical literature in respect of pretrial detention as a subset of the general incarcerated population, which stands to reason as pretrial detention is a consequence of both crime control policies and criminal conduct.

The hypothesis that inequality would not correlate with the proportion of prisoners in pretrial detention was not supported. Rather, a modest positive association was found, suggesting that the higher the level of economic inequality in a country, the higher the proportion of prisoners in pretrial detention. This may be because states' criminal justice apparatus is more adept at arresting and detaining persons than processing them through the criminal justice process and imposing custodial sentences on convicted offenders. That is, in highly unequal settings states place a larger number of persons in pretrial detention than impose custodial sentences on convicted offenders, thus increasing the proportion of prisoners in pretrial detention. Alternatively, the finding may suggest that either to control offenders and maintain

state legitimacy in the context of economic inequality (Wacquant, 2000), or because the poor are more likely to engage in "survival" type crime (e.g., theft of food and movable property, petty muggings) during periods of acute inequality, a relatively high proportion of persons arrested and detained are petty offenders of whom many are not prosecuted or, if prosecuted and convicted, do not receive a custodial sentence.

Social welfare

The hypothesis that the pretrial detention rate would negatively correlate with social welfare was not supported. The three independent variables used to test for social welfare (social assistance expenditure, education expenditure, and public health expenditure) all correlated negatively with the pretrial detention rate, but none reached statistical significance.

Past cross-national studies, focusing on developing countries using small sample sizes, found inconsistent relationships between welfare spending and general imprisonment. Some found a negative correlation between welfare spending and imprisonment rates (Jacobs & Kleban, 2003; Downes & Hansen, 2006; Lappi-Seppälä, 2007). Others found that welfare expenditure does not affect incarceration rates (Cavadino & Dignan, 2006; De Koster, van der Waal, Achterberg, & Houtman, 2008). On a theoretical level, Lappi-Seppälä (2007) felt that the relationship between state welfare payments and penal policy is attributable to greater feelings of social solidarity more widespread in welfare-oriented states. This is partly based on Durkheimian tradition that feelings of social solidarity found in "modern" and "industrial" societies are based on the dependence individuals have on each other in such societies. Lappi-Seppälä (2007) also surmised that established welfare states may be less punitive because of policy interventions such as promoting safeguards against social marginalization, thereby reducing the risk that socially and economically marginalized individuals engage in criminal conduct.

Consistent with some of the empirical studies dealing with general incarceration, but in contradiction to the theoretical literature, this study's findings do not support the contention that greater welfare expenditure predicts lower rates of pretrial detention. There are at least two possible explanations for the finding. First, the number of modern welfare states in the world is small. While some form of free universal education is common in most countries, state-sponsored public healthcare and social assistance is rare, especially in the developing world. It may be no coincidence that the social assistance expenditure variable, which was based on data from only 59 mainly developed countries, showed a stronger negative correlation with pretrial detention rates, compared to education expenditure (N=137) and public health expenditure (N=179). Second, in some countries, police operate in terms of "arrest quotas" whereby they are expected to arrest a certain number of people over a specified time period. Some of these arrests lead to remand hearings and judicial rulings of pretrial detention, so that irrespective of the level of state welfare expenditure, arrests and pretrial detentions remain relatively constant.

The hypothesis that the proportion of prisoners in pretrial detention would not correlate with social welfare was unsupported. All three of the aforementioned social welfare variables utilized indicated a statistically significant negative correlation. This is consistent with the above finding that inequality correlates with the proportion of prisoners in pretrial detention as welfare spending in respect of all three of the measures used can be expected to reduce levels of inequality. Moreover, as welfare spending – especially social assistance expenditure – is likely to reduce the incidence of relatively minor "survival" type crimes, it may be the case that, contrary to expectations, social welfare has a greater impact on reducing the number of pretrial detainees compared to the number of sentenced prisoners (thus reducing the proportion of prisoners in pretrial detention).

Modernization

The hypothesis that modernization, as measured by the Human Development Index (HDI) and urbanization levels, would positively correlate with the pretrial detention rate was generally supported. The finding supports Durkheim's (1947) analysis of the transition from traditional agrarian to modern societies and the modernization perspective on crime (Clinard & Abbott, 1973). A number of cross-national studies have been broadly supportive of modernization theory in the context of general imprisonment. Killias (1996) and Jacobs and Kleban (2003) found that more affluent nations with the resources to maintain extensive prison systems have higher incarceration rates. An exploration of cross-national patterns of punishment in 140 countries by Ruddell and Urbina (2004) found that high HDI scores were consistently associated with the use of imprisonment. This study's finding thus complements the literature in respect of a pretrial detention-specific analysis covering a large number of countries (N=176 for HDI, and N=198 for urbanization).

The premise of Durkheim's proposition appears to apply to pretrial detention as it does to incarceration generally. Countries' formal criminal justice institutions develop and grow as they modernize. This, in turn, brings about a higher number of arrests and the processing of arrestees through the pretrial justice system. That is, as countries modernize and become more developed, fewer criminal disputes are resolved informally. In a developing and largely non-urbanized country, a common assault or similar relatively minor crime is likely to be dealt with by the parties themselves or through a traditional justice mechanism. Even if the assault victim sought to report the matter to the police, the nearest police station may be far away (which the complainant may have to reach on foot or through the use of relatively expensive and erratic public transport) and the police may lack the resources to effectively investigate the matter to

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lead to an arrest and remand hearing. By contrast, modern states have the resources to effectively respond to crimes reported to its law enforcement agencies. In a developed country an assault is likely to involve the police who, for the complainant, would only be a phone call away. The police would have the resources to respond relatively quickly to the matter, likely leading to an expeditious arrest. Once arrested, the state should have the technical capacity to ascertain whether the suspect has prior convictions or arrest records which, in turn, would strengthen the prosecution's ability to request pretrial detention.

There was mixed support for the hypothesis that modernization is negatively correlated with the proportion of prisoners in pretrial detention. While the Human Development Index is negatively correlated with the proportion of prisoners in pretrial detention, there was no statistically significant correlation in respect of urbanization. Because modernization increases the prominence of formal criminal justice institutions it is reasonable to assume that modernization will exert upwards pressure on both the use of pretrial detention and general imprisonment. However, the impact of modernization may be more significant on sentenced prisoner numbers as formal justice systems require greater human and technical capacities to convict offenders compared to remanding suspected offenders to pretrial detention. That is, the ability and capacity to arrest and remand a suspect to pretrial detention will not differ as much between developing and developed countries compared to the capacity to hold trials and secure convictions. The level of incriminating evidence required to arrest and remand a suspect to pretrial detention is modest compared to the evidence needed to secure a conviction in court. Effective trials require trained judicial officers, prosecutors, defense lawyers, and police investigators with forensic capacities – all of which are in shorter supply in poorer, developing countries.

Regime type

The hypothesis that the pretrial detention rate would negatively correlate with stable democracy and civil liberties was not supported. Ruddell and Urbina's (2007) cross-national study of the 100 richest countries found that autocratic regimes tend to have higher incarceration rates compared to liberal democracies. This stands to reason as governments which perceive themselves to be vulnerable or lacking popular legitimacy are more likely to resort to punitive policies to maintain their positions of authority and power (Garland, 2001). Moreover, a disregard for civil liberties and due process – both hallmarks of liberal democracy – would suggest a greater propensity of autocratic states to arrest and detain a relatively large number of people, both to maintain political control and for more mundane law enforcement purposes. This study's hypothesis was based on the contention that if one assumes that autocratic states generally employ the "crime control model" as compared to the "due process model" (Packer, 1968), then autocratic regimes with relatively high incarceration rates should have high pretrial detention rates too.

It may, however, also be possible that autocratic regimes which employ the "crime control model" have, on average, relatively short durations of pretrial detention. In jurisdictions where due process is largely ignored or more honored in the breach than in the observance, it is likely that criminal investigations are perfunctory and short as the amount and quality of incriminating evidence required for a conviction is relatively modest. For similar reasons, trials in autocratic states will, on balance, be of relatively short duration as the often time-consuming trial processes typical in the "due process model" are rarer in jurisdictions focused on the swift processing of cases and meeting out punishment rather than avoiding the conviction of the innocent at all costs. Consequently, while autocracies or illiberal democracies may have large

numbers of arrests and pretrial detentions, the relatively short duration of the pretrial detention period may counterbalance the volume of detention-related cases when pretrial detention is measured as a rate of the general population. Moreover, in democracies public opinion and a free media shapes and informs policy priorities and outcomes. If the public seeks more penal severity and crime control policies, democracy may foster punitiveness and correlate with higher incarceration rates (Pratt, 2007) in respect of both pretrial detention and general imprisonment. A number of criminologists suggest that over the last few decades developed Western liberal democracies have shifted towards a more punitive and crime control paradigm to address and respond to growing public insecurity (Young, 1999; Garland, 2001; Simon, 2007).

The line of argument that more authoritarian regimes focus on expeditious case processing, conviction and punishment, suggests that such jurisdictions also have relatively small proportions of prisoners in pretrial detention. That is, in autocracies a relatively large proportion of pretrial detainees can be expected to be convicted and given custodial sentences. In an analysis of 111 countries Sung (2006) found a strong relationship between democracy and increased criminal case attrition, suggesting that in liberal democracies relatively few arrests lead to convictions and custodial sentences compared to more authoritarian regimes. Yet, this study's hypothesis, that stable democracy and civil liberties are negatively correlated with the proportion of prisoners in pretrial detention, found empirical support. That is, on balance, liberal democracies are likely to have a lower proportion of prisoners in pretrial detention (and, conversely, a higher proportion of prisoners as sentenced offenders) compared to authoritarian regimes. One plausible explanation may be that liberal democracies are more respectful of norms and standards which provide that pretrial detention be used as an exceptional measure only. That is, when someone is remanded to pretrial detention in a liberal democracy the chances are

relatively high that they will be convicted and given a custodial sentence compared to more authoritarian regimes where pretrial detention may be used more arbitrarily and as a form of punishment with a relatively high proportion of remandees not ultimately convicted and given a custodial sentence.

Development

The hypothesis that the pretrial detention rate would positively correlate with development received mixed support. There are modest but positive correlations for some of the measures of development used in this study and the pretrial detention rate. Namely, GDP per capita, prison occupancy rate, and police per capita. However, there is no significant correlation between either government effectiveness or the Public Services Indicator and the pretrial detention rate.

As this study found a positive correlation between another indicator of development, the Human Development Index, it is not surprising that a similar effect was found in respect of GDP per capita. In poorer and less developed countries, where state capacity is weak and criminal justice infrastructure limited, the rate of pretrial detention can be expected to be low. Unless caught in the act, relatively few persons suspected of having committed a crime are arrested in jurisdictions where the police lack the technical capacity to investigate crime and the resources to pursue and locate suspects. Moreover, in poorer countries where police pay may be low and erratic, and both internal and external police oversight mechanisms non-existent, police corruption may be relatively prevalent. Consequently, once arrested, corrupt officials often let arrestees and pretrial detainees go before they stand trial. Both these tendencies have a suppressing effect on the number and rate of pretrial detainees. As Schönteich (2014) points out, in middle- and high-income countries, the rate of pretrial detention can be expected to be

relatively high as such states have the capacity to arrest and detain a large proportion of persons suspected of having committed crimes.

The hypothesis that the proportion of prisoners in pretrial detention would negatively correlate with development was partially supported by this study. There is a negative correlation between the proportion of prisoners in pretrial detention and GDP per capita, government effectiveness, and state fragility. However, positive correlations were found for the prison occupancy rate and the Public Services Indicator. In respect of police per capita no significant correlation was found.

In less developed countries the proportion of prisoners in pretrial detention can be expected to be high as relatively few offenders are convicted because of the dearth of state capacity (i.e., too few courts, judges, prosecutors and investigators, and limited forensic capacity to undertake complex investigations) and official corruption. Moreover, because of a lethargic state apparatus, periods of pretrial detention tend to be long. Schönteich (2014) contends that in middle-income countries the proportion of prisoners in pretrial detention are likely to be more modest than in low-income countries as more cases go to trial because of states' greater investigative and prosecutorial capacity. In high-income developed countries the proportion of prisoners in pretrial detention can be expected to be low as there are sufficient court rooms, judges, prosecutors, and police investigators to ensure that trials are finalized relatively expeditiously. The average duration of pretrial detention therefore also tends to be short.

A lack of development and state resources can subtly influence the operations of criminal justice systems' pretrial practices in a number of ways. For example, many resource-poor jurisdiction do not have systems of personal or physical identification, rendering efforts to track persons released awaiting trial burdensome. Pretrial release is consequently an unappealing

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option for risk-adverse law enforcement officials and judicial officers. A scarcity of police vehicles to transport arrestees from police stations to courts for bail hearings can increase the average duration of detention and the proportion of prisoners in pretrial detention. Moreover, the unavailability of adequately resourced and effective alternatives to pretrial detention in resource-poor settings increases the likelihood that courts will remand defendants into pretrial detention.

Corruption

The hypothesis that the pretrial detention rate would negatively correlate with corruption was not supported – neither by the Corruption Perceptions Index nor by the measure of the control of corruption. Both correlations were small in size and not of statistical significance. This study's hypothesis was based on the presumption that periods of pretrial detention in corrupt settings are of relatively short duration as detainees bribe themselves "out" of custody which, in turn, reduces the overall number of pretrial detainees at any point in time (i.e., the pretrial detention rate). It is possible, and the finding may suggest this, that many detainees in corrupt settings lack the resources to come up with sufficient funds to offer a successful bribe, or that it takes detainees some time to contact and persuade relatives and friends to garner sufficient funds on their behalf. It is also possible that corruption drives particularly aggressive arrest practices as corrupt police can convert arrests into an income-generating activity. Such corruption-driven arrest dynamics are likely to result in a large volume of arrests and, down the line, pretrial detainees, which compensates for any corruption-related releases of detainees.

The hypothesis that the proportion of prisoners in pretrial detention would positively correlate with corruption was supported by the Corruption Perceptions Index and the control of corruption measure. The hypothesis was based on the assumption that in corrupt systems relatively few defendants stand trial to be prosecuted and face the risk of conviction and

imprisonment. That is, while corrupt systems may generate a large number of arrests and, as it would appear, a relatively high number of pretrial detainees, many such detainees will not stand trial as they successfully pay a bribe and are released prior to trial. Moreover, in a corrupt environment, where police arrest practices are driven by corruption, it is likely that the proportion of innocent persons, or persons who have committed petty crimes, being arrested is high. This is because corrupt police will tend to arrest opportunistically, focusing on persons who make easy targets and who have some money available to them (e.g., informal traders or sex workers) with less concern about arresting those who pose a risk to public safety. Many such arrestees, even if they do stand trial, are likely to be acquitted or, if convicted, receive a non-custodial sentence. This implies that corrupt systems will have a relatively modest number of convicted prisoners, suggesting a high proportion of prisoners who are in pretrial detention.

Political legitimacy

The hypothesis that the pretrial detention rate would negatively correlate with levels of political legitimacy found mixed results. While the judicial independence measure had a negative correlation with the pretrial detention rate, this was not the case with the rule of law measure.

In respect of overall incarceration rates (i.e., counting pretrial detainees and sentenced prisoners together), the literature suggests a negative correlation between political legitimacy and the pretrial detention rate. In a cross-national study of developed countries, Lappi-Seppälä (2007) found a strong inverse relationship between levels of imprisonment and political legitimacy, with low levels of political legitimacy suggesting tougher penal policies as states seek to demonstrate their control over public security. According to Garland (2001), governments which perceive themselves to be vulnerable or lacking popular legitimacy will tend to resort to expressive gestures and punitive responses. Tyler (2003) suggests that political legitimacy promotes norm-

compliance so that justice systems maintain order with relatively mild penal sanctions.

Because of the desire to use a large sample of countries, this study's measures of political legitimacy – judicial independence and rule of law – are somewhat imperfect. For example, in deeply divided and politically fractured societies, both these measures may be high, but for a significant proportion of the population the ruling party / political executive may enjoy low levels of political legitimacy. Conversely, it is possible that regimes with low levels of judicial independence and the rule of law may enjoy high popular levels of political legitimacy. The use of imperfect measures for the construct in question may have undermined the veracity of the finding. Another possibility is that pretrial detention is employed differently than (post-sentence) incarceration by regimes lacking political legitimacy. Governments enjoying low levels of political legitimacy may focus their efforts on ensuring the conviction and punishment of offenders (which explains the findings reported in the literature) rather than tough pretrial detention practices.

The hypothesis that the proportion of prisoners in pretrial detention would not correlate with political legitimacy found mixed results. The correlation between the proportion of prisoners in pretrial detention and judicial independence, while negative, was not statistically significant. There was a highly significant medium, negative correlation between rule of law and the proportion of prisoners in pretrial detention. This study's hypothesis was based on the assumption that the relative proportion of pretrial detainees to sentenced prisoners is not significantly affected by varying levels of political legitimacy. Namely, that regimes with low political legitimacy have punitive policies and practices in respect of both pretrial detention and sentencing. A plausible explanation for the finding may be that countries scoring poorly on a rule of law measure tend also to perform poorly on measures of democracy. Analogous to the above

discussion on "regime type", regimes disrespectful of the rule of law and judicial independence may be adroit at expeditiously processing cases through the criminal justice process to relatively quickly reach the conviction and sentencing stage. This would exert downward pressure on the number of pretrial detainees in relation to sentenced prisoners. Moreover, in countries scoring low on rule of law and judicial independence, a relatively large proportion of pretrial detainees are likely to be convicted and given custodial sentences.

Political trust

Neither of the hypotheses – that the pretrial detention rate and the proportion of prisoners in pretrial detention would negatively correlate with political trust – found statistically significant support. The hypotheses were based on the assumption that in jurisdictions with high levels of political trust, judicial officers would feel more comfortable releasing defendants awaiting trial as "wrong" decisions (i.e., where released defendants abscond or interfere with the criminal investigation) would not undermine the public's trust in the political regime generally and the judiciary in particular. Lappi-Seppälä (2007) posits that political trust and legitimacy are related. Namely, that declining trust and legitimacy can bring about tougher penal policies as governments seek to demonstrate their control over public security. This study's findings are all the more intriguing as the measure for political trust was simple yet robust. It is based on data produced by a Gallup World Poll (GWP) survey where respondents are asked, "In this country, do you have confidence in the national government?" The GWP is a cross-country household survey designed to be nationally representative. It is possible that judicial practice is, on balance, unaffected by the political trust enjoyed (or not) by the political executive. Or, that judicial practice is affected differently in different settings. As with political legitimacy, trust could have a similar relationship to pretrial detention practices as the rule of law measure discussed above,

whereby some relatively low-trust regimes are adroit at expeditiously processing defendants through the pretrial phase of the criminal justice process.

Crime

Both the hypothesis that the pretrial detention rate would positively correlate with crime, and that the proportion of prisoners in pretrial detention would positively correlate with crime, found support. The association between crime and general incarceration rates has been extensively explored with mixed and inconclusive results. A number of cross-national studies found no relationship between reported crime and imprisonment rates. For example, in a study of 20 developed countries, Greenberg (1999) found no significant relationship between crime rates and incarceration levels. Unlike most comparative studies on crime and imprisonment, Greenberg did not confine his analysis to homicide only. Other studies found an ambiguous relationship between crime and incarceration (Lappi-Seppälä, 2007), while one large cross-national study found that homicide rates – the measure of crime used in this study – were strongly associated with incarceration rates calculated as the sum of the sentenced prisoner and pretrial detainee rates (Ruddell, 2005). This study supports Ruddell's (2005) findings and strengthens the contention that recorded homicides in particular correlate positively with both pretrial detention and general imprisonment rates.

This study speculated that the relationship between crime and the number of pretrial detainees is less elastic than the relationship between crime and sentenced prisoner numbers. There are intervening bureaucratic and procedural factors in the criminal justice process – between the pretrial detention stage and the point at which defendants are convicted and given a custodial sentence – which disrupt the "pipeline" between arrest, pretrial detention, and the imposition of a custodial sentence. The criminal justice system is akin to a funnel, with a

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relatively large number of people stopped and questioned by the police, or charged with a crime and remanded to pretrial detention. However, many of those arrested or remanded are not prosecuted because, inter alia, the incriminating evidence is not compelling enough, state witnesses disappear or lose interest, or as a result of prosecutorial inefficiencies. Of those prosecuted, some will not be convicted. And, of those convicted, many will not receive a custodial sentence. This study's crime-related hypotheses were based on the assumption that high levels of crime will affect pretrial detention numbers more than the number of sentenced prisoners, at least in jurisdictions where case attrition rates are high. Intriguingly, this is not what was found, with crime correlating somewhat more strongly with the pretrial detention rate compared to the proportion of prisoners in pretrial detention.

Perceptions of crime / safety

The hypotheses that the pretrial detention rate would positively correlate with perceptions of crime / safety, and that the proportion of prisoners in pretrial detention would positively correlate with perceptions of crime / safety, were broadly supported. Actual levels of crime, or of recorded crime, are often not the same as subjective perceptions of crime or safety. People's perceptions of crime can be influenced by, inter alia, a variety of demographic factors (LaGrange & Ferraro, 1989) or the news they consume (Busselle, 2003). Popular perceptions of high crime and insecurity levels may, through public pressure, result in tougher and more punitive criminal justice policies and practices (Garland, 2000).

As with the above crime variables, the findings suggest that the relationship between perceptions of crime / safety and pretrial detention is less elastic compared to the relationship between perceptions of crime / safety and sentenced prisoner numbers. That is, high levels of perceptions of crime / safety affect pretrial detention numbers more than the number of

sentenced prisoners. As discussed above, this tendency may be especially pronounced in jurisdictions where case attrition rates are high. Indeed, this study found that perceptions of crime / safety correlated more strongly with the "proportion" of prisoners in pretrial detention dependent variable, compared to the pretrial detention "rate" dependent variable. Thus, higher proportions of prisoners in pretrial detention correspond with lower scores (*higher* perceptions of crime / safety) on the Law and Order Index, $r(131) = -.52$, $p < .001$, and the Safety and Security Index, $r(146) = -.44$, $p < .001$. Higher rates of pretrial detention correspond with lower scores (*higher* perceptions of crime / safety) on the Law and Order Index, $r(130) = -.34$, $p < .001$, and the percentage of the population feeling safe, $r(137) = -.38$, $p < .001$.

Ethnic heterogeneity

The hypothesis that the pretrial detention rate would positively correlate with ethnic diversity was not supported, while the hypothesis that the proportion of prisoners in pretrial detention would positively correlate with ethnic diversity was supported. Group and minority threat theories provide a theoretical framework for understanding cross-national patterns of punishment (Blumer, 1958; Blalock, 1967). National-level studies of Western democracies have found relationships between the size of minority populations and the use of formal social control or punishment (e.g., Wacquant, 1999; Beckett & Western, 2001; Jacobs & Carmichael, 2001). Cross-national studies have shown a relationship between population heterogeneity and punishment, with religious diversity positively associated with imprisonment rates (Ruddell & Urbina, 2004).

This study's ethnic heterogeneity hypotheses were based on the assumption that the group threat / ethnic heterogeneity dynamic would apply to pretrial detention practices as well. The evidence does not support this contention in respect of the pretrial detention rate. One reason

for this may be that the ethnic diversity data used in this study came from 2003 (Alesina et al., 2003) and are consequently dated compared to the pretrial detention data which are primarily from 2015-2016. The 2003 data were the mostly recently available ethnic diversity data for a large dataset of countries. Given the significant cross-national population movements over the last 15 years (Castles, de Haas, & Miller, 2014) it is possible that more recent ethnic diversity data would produce a different outcome to the analysis.

The data used by this study may also not be the ideal measure for testing minority group threat theory. Group threat theory postulates that prejudice and inter-group hostility are largely reactions to real or perceived threats by subordinate groups. Dominant groups seek to preserve their advantaged social position (through, inter alia, repressive penal policies targeted at minorities) and view encroachments on their privileges by minority groups as disrupting to the existing social order (Blumer, 1958). Moreover, that intergroup competition and hostility emerge from historically and collectively developed judgments about the positions in the social order that in-group members believe they should rightfully occupy relative to members of an out-group (Blalock, 1967). The data used in this study represent an index to reflect the probability that a randomly selected pair of individuals belong to different ethnic groups in a country (Alesina et al., 2003). Such data do not adequately reflect the complexity of inter-ethnic relations and the determination of an "in-group" to maintain its dominant position. While it is generally assumed that aggregate measures of group size tap into group power and associated levels of individual perceived threat, numbers alone may not reflect degrees of relative power or the amount of threat that may be perceived by a dominant group (Tittle & Curran, 1988). Possibly, because of this methodological simplification – using a numerical index reflecting ethnic diversity or the relative

size of minority group(s) – research findings on minority threat have not been consistent (e.g., Bridges & Crutchfield, 1988; Johnson et al., 2011).

The tendency of criminal justice systems to discard cases during the course of the criminal justice process (see "case attrition" discussion above), discriminatory practices against minority groups, or the targeting of minority groups by police for the purposes of arrest, may all disproportionately affect pretrial detention numbers in relation to the number of sentenced prisoners. Empirical studies have shown that compared to majority groups, members of minority groups are, on average, subject to greater police scrutiny such as stop-and-search (Sharad, Rao, & Shroff, 2010; Ferrandino, 2015) and arrest (Kane, 2003; Kane, Gustafson, & Bruell, 2010). Such tendencies and patterns help explain confirmation of the hypothesis that the proportion of prisoners in pretrial detention positively correlate with ethnic diversity.

Foreign nationals

The hypotheses that the pretrial detention rate and the proportion of prisoners in pretrial detention would both positively correlate with the proportion of foreign nationals in a country were not supported. The hypotheses were derived from imprisonment patterns found in European Union (EU) countries, where disaggregated data on prison inmates distinguishing between citizens and foreign nationals are generally available. In the majority of EU countries, foreign nationals are significantly overrepresented in national prison systems in comparison to their prevalence in the general national population (Aebi, Tiago, & Burkhardt, 2016).

Foreign nationals might reasonably be expected to be overrepresented among pretrial detention populations. On balance, non-nationals accused of crimes pose a greater flight risk being in possession of a foreign passport and having fewer local community ties compared to citizens. Foreign nationals – often disproportionately comprised of young men – may also have a

greater tendency to come into conflict with the law and be arrested and remanded to pretrial detention (Albrecht, 1997). Finally, and related to the group threat theories discussed above, there is the possibility of disparate and discriminatory treatment against foreign nationals by law enforcement agencies (Wacquant, 1999). These factors suggest that the proportion of foreign nationals in a population would correlate positively with the pretrial detention rate and proportion of prisoners in pretrial detention. The data analyzed in this study do, however, not bear this out. This may be because a significant proportion of foreign nationals are concentrated in a relatively small number of countries. For example, foreign national populations are likely to be relatively large within the EU, given freedom of movement rights within the EU, and large "guest worker" and migrant / refugee populations in some EU states. Moreover, in weak or dysfunctional states, where few people have access to proper or official identification, the ability of judicial officers to distinguish between citizens and foreign nationals may be limited. In countries where many do not have a formal address or salaried employment, the risk of someone who is released awaiting trial absconding or not being traceable by the police may not differ much between citizens and foreign nationals.

Public punitiveness

The hypothesis that the pretrial detention rate would positively correlate with public punitiveness was not supported by either of the measures used: the Voice and Accountability Index, and the Press Freedom Index. The hypothesis was based on the assumption that public punitiveness exerts some influence on penal policies and their application, in particular in situations where, as measured by the Voice and Accountability Index, the public can participate in selecting their government, there is a high degree of freedom of expression, and a free media. The latter variable is specifically measured by the Press Freedom Index. Policy makers have

strategic incentives to reflect changes in punitive attitudes of citizens in their policy decisions (Jennings et al., 2015). Studies have shown feedback processes between public preferences and policy consistent with the ideas behind penal populism (Soroka & Wlezien, 2010). One explanation for the finding is that countries which score high on the two indices are also places where levels of public punitiveness are not particularly pronounced. That is, in places where the political environment affords the public a relatively high degree of input on policy development, public demands for punitive criminal justice policies may be weak. This could be because in such places states tend to be strong and developed, so that a high proportion of offenders are caught and punished, while victims of crime benefit from widespread property and medical insurance thereby mitigating their losses.

The hypothesis that the proportion of prisoners in pretrial detention would positively correlate with public punitiveness received only very modest support. There was a small but significant correlation between the proportion of prisoners in pretrial detention and the Voice and Accountability Index, but no correlation between the proportion of prisoners in pretrial detention and the Press Freedom Index. Policy makers willing to accommodate public demands for greater punitiveness may find it relatively easy to change pretrial detention polices (e.g., through the promulgation of mandatory pretrial detention laws). Policy makers have limited influence over sentencing practices as judicial independence and judicial sentencing discretion act as barriers to executive or political interference in sentencing practices. On the other hand, arrest and charging practices, and prosecutorial requests for pretrial detention, are typically within the authority of the political executive and criminal justice policy makers. Pretrial detention practices may consequently be more responsive to public punitiveness compared to sentencing practices.

Legal system

The hypothesis that, compared to civil law countries, common law countries have lower pretrial detention rates was not supported by the analysis. Rather, the analysis found that common law countries have significantly higher pretrial detention rates than civil and mixed law countries, the latter two of which were not significantly different from each other. The hypothesis was based on the fact that in civil law regimes appeals may be taken both on the facts of a case and the law, and the appeal courts can open the record to receive new evidence (Messitte, 1999). During such appeal processes defendants continue to be classified as remandees or pretrial detainees, often described as prisoners without a final sentence (Morgenstern, 2009). The excessive duration of pretrial detention in civil law countries has also been commented on by van Caenegem (1999). By contrast, in common law countries appeals are relatively rare and prisoners are no longer classified as pretrial detainees once a guilty verdict has been made.

It would appear that the common – civil law distinction in respect of the pretrial detention rate follows a similar pattern to the general incarceration rate. According to the cross-national empirical literature, countries with common law systems have higher overall incarceration rates compared to countries with civil law systems (e.g., DeMichele, 2013; DeMichele, 2014; D'Amico & Williamson, 2015). In a cross-national analysis of 100 countries, Ruddell (2005) found that countries with civil legal origins had lower imprisonment rates compared to countries with common law origins. D'Amico and Williamson (2015) speculated that in civil law countries bureaucratic infrastructures allow for relatively affordable alternatives to incarceration such as day-fines, community service, seizure of property, drug rehabilitation and probation. It is

plausible that similar cost-effective alternatives to pretrial detention are relatively prevalent in civil law jurisdictions.

The hypothesis that, compared to civil law countries, common law countries have lower proportions of prisoners in pretrial detention was supported by this study. In particular, that mixed legal systems had marginally higher proportions of prisoners in pretrial detention than civil law systems, and significantly higher proportions of prisoners in pretrial detention than common law countries. This may be because common law trials are typically of relatively short duration, with emphasis on the oral testimony of witnesses. By contrast, in civil law systems, a series of court hearings may be held over an extended period with documents and documentary evidence playing a more important role than witness testimony (Daly, 1999). The relatively long duration of trials – during which time defendants are classified as pretrial detainees in both common and civil law systems – would explain the higher average proportion of prisoners in pretrial detention in civil law systems.

General findings

Of the simple correlations undertaken for this study, 29 were statistically significant ($p <$ .05). Of these, some two-thirds, or 20, were in respect of correlations with the "proportion of prisoners in pretrial detention" serving as the dependent variable, and nine in respect of correlations with the "rate of pretrial detention" as the dependent variable (Table 18). It would appear, therefore, that the independent variables chosen for this study correlated more in respect of the "proportion of prisoners in pretrial detention" dependent variable. This suggests that the "proportion" measure is more responsive or sensitive to broader economic, political, and social developments in a country. Moreover, four of the nine independent variables that correlated significantly with the "rate of pretrial detention" dependent variable did not exhibit a significant

correlation with the "proportion of prisoners in pretrial detention" dependent variable, while the

other five had very different correlation coefficients (r) compared to the "proportion of prisoners

in pretrial detention" (Table 15). As discussed in chapter 1, this suggests the study's dependent

variables reflect two distinct phenomena. The only independent variables which correlated at a

similar rate and direction in respect of both dependent variables had to do with crime and

insecurity: homicide rate, percent feeling safe, and the Law and Order Index. Given this, it

makes sense to review the study's findings separately for the two dependent variables.

Table 15: Independent variables with statistically significant correlations for the "rate of pretrial detention" variable and matching "proportion of prisoners in pretrial detention" variable

Variable	Proportion prisoners in PTD	PTD rate
Homicide Rate (ln)	.309***	.416***
Gini Index	.261**	.401***
Prison Occupancy Rate	---	.387***
Percent Feeling Safe	-.338***	-.384***
Law and Order Index	-.518***	-.344***
Judicial Independence	---	-.286***
Police per Capita	---	.222*
Democracy Index	---	-.204*
GDP per Capita	-.314***	.178*

Correlations between the outcome measures and independent variables: * $p < .05$. ** $p < .01$. *** $p < .001$.

Proportion of prisoners in pretrial detention

The independent variables which correlated most strongly ($r > .40$) with the proportion of

prisoners in pretrial detention dependent variable were either measuring an aspect of personal

safety such as victimization and popular perception of safety (Law and Order Index; Safety and

Security Index), or an aspect of development, in particular the presence of basic state functions

including the state's ability to protect its citizens through perceived effective policing (Public

Services Indicator) (Table 18). There are 14 independent variables which had a moderate to

strong correlation ($r > .30$) with the proportion of prisoners in pretrial detention dependent

variable. These can be broadly divided into three themes or categories: crime and insecurity, development, and good governance (Table 16).

Table 16: Independent variables with moderate to strong correlations ($r > .30$) with the "proportion of prisoners in pretrial detention" dependent variable, by theme

Crime and Insecurity	Development	Good Governance
Law and Order Index	Fragile States Index	Public Services Indicator
Safety and Security Index	Human Development Index	Rule of Law
Percent Feeling Safe	Public Health Expenditure	Corruption Perceptions Index
Global Peace Index	GDP per Capita	Government Effectiveness
Political Stability and Absence of Violence		
Homicide Rate		

Generally, the higher the level of crime and fear of crime (as measured by the Law and Order Index, the Safety and Security Index, the "percent feeling safe" measure, and the homicide rate), the higher the proportion of prisoners in pretrial detention. Moreover, the higher the level of conflict, disharmony, and political instability in a country, the higher the proportion of prisoners in pretrial detention. Somewhat relatedly, the more fragile a state (which is, inter alia, measured by domestic security threats and crime; within-country divisions along ethnic, religious, and class lines; and economic decline and uneven economic development), the higher the proportion of prisoners in pretrial detention. Other broad indicators of development – HDI, public health expenditure, and GDP per capita – similarly correlate with pretrial detention. Namely, lower levels of HDI, public health expenditure, and per capita GDP tend to predict higher proportions of prisoners in pretrial detention. Three of the four good governance indicators complement these findings, with lower measures of rule of law and government effectiveness, and higher perceptions of corruption, predicting higher proportions of prisoners in pretrial detention. Only the Public Services Indicator appears to contradict this pattern. Namely, a higher availability of basic state functions, including the provision of essential services and the state's ability to protect its citizens from violence through perceived effective policing, predict

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higher proportions of prisoners in pretrial detention. This appears to contradict the findings of the "government effectiveness" indicator which, inter alia, measures perceptions of the quality of public services.

Overall, it appears that the nexus of security, development, and good governance predict lower proportions of prisoners in pretrial detention. This stands to reason. Countries with low levels of crime, insecurity, and disorder have less need to detain defendants awaiting trial out of a concern they will abscond or commit crimes upon their release. Countries with developed public services, including effective criminal justice institutions, are, on balance, able to process pretrial detainees quickly through the pretrial stage of the criminal justice process and generally ensure the conviction and incarceration of serious offenders. The duration of pretrial duration is therefore relatively short, while low levels of corruption and fidelity to the rule of law should ensure that pretrial detention is used as an exceptional measure of last resort after a range of alternatives have been carefully considered.

Pretrial detention rate

The independent variables which correlated most strongly with the pretrial detention rate dependent variable ($r > .40$) were either measuring crime (the homicide rate) or inequality (Gini index) (Table 18). There are five independent variables which had a moderate to strong correlation ($r > .30$) with the pretrial detention rate. These can be broadly divided into two themes or categories: crime and insecurity, and inequality (Table 17).

Table 17: Independent variables with moderate to strong correlations ($r > .30$) with the pretrial detention rate, by theme

Crime and Insecurity	Inequality
Homicide Rate	Gini Index
Prison Occupancy Rate	
Percent Feeling Safe	
Law and Order Index	

The crime and insecurity category is not surprising. It stands to reason that the higher the level of crime and/or public feelings of insecurity, the more the police is likely to arrest suspected offenders, some of whom will be remanded to pretrial detention. This also explains the high correlation between the prison occupancy rate and the rate of pretrial detention. Both measures are influenced by the number of arrests and remands into pretrial detention.

Table 18: Variables with Pearson Correlation (r) of ±.52 to ±.15 (highest to lowest) for $p < .05$

r	Variable	Proportion prisoners in PTD	PTD rate
> .50	Law and Order Index	-.518*** (•)	
> .40 ≤ .50	Public Services Indicator	.443***	
	Safety and Security Index	-.442*** (•)	
	Homicide Rate		.416***
	Gini Index		.401***
> .35 ≤ .40	Prison Occupancy Rate		.387***
	Percent Feeling Safe		-.384*** (•)
	Fragile States Index	.372*** (•)	
	Human Development Index	-.360***	
> .30 ≤ .35	Rule of Law	-.349***	
	Law and Order Index		-.344***
	Public Health Expenditure	-.342***	
	Percent Feeling Safe	-.338***	
	Global Peace Index	.336***	
	Corruption Perceptions Index	-.333*** (•)	
	Political Stability & Absence of Violence	-.328***	
	GDP per Capita	-.314***	
	Government Effectiveness	-.313***	
	Homicide Rate	.309***	
> .25 ≤ .30	Control of Corruption	-.295*** (•)	
	Social Assistance Expenditure	-.290*	
	Judicial Independence		-.286***
	Education Expenditure	-.265**	
	Ethnic Diversity	.264***	
	Gini Index	.261**	
> .20 ≤ .25	Police per Capita		.222*
	Democracy Index		-.204*
> .15 ≤ .20	GDP per Capita		.178*
	Voice & Accountability Index	-.162*	

Correlations between the outcome measures and independent variables: * $p < .05$. ** $p < .01$. *** $p < .001$.
Scales oriented in opposite directions of the construct are highlighted with (•).

Relationships with combinations of independent variables

To answer this study's overall research question, two subsidiary questions were posed. The first one, discussed above, focused on the relationship between the individual independent variables (taken separately) and each of the dependent variables. The second question asked what combination of the independent variables demonstrates the most robust relationship between the independent variable(s) and each of the dependent variables.

Proportion of prisoners in pretrial detention

A combination of three independent variables best predicted the proportion of prisoners in pretrial detention dependent variable. The Law and Order Index is the strongest predictor, followed by the prison occupancy rate, and public health expenditure. Collectively these three variables account for 23.2% of the variance in the proportion of prisoners in pretrial detention.

The Law and Order Index measures public perceptions of safety and public experiences with crime and police in 135 countries (i.e., a substantial number of less-developed countries are not included in the survey). It is a composite index created from a combination of questions focused on respondents' opinions on confidence in the police, perceptions of safety, and victimization in respect of property and violent crime. The prison occupancy rate is calculated as the number of inmates in custody as a percentage of a country's official prison capacity. The definition of overcrowding is not globally consistent and depends on a mix of national-level normative, factual, and cultural factors. Public health expenditure reflects current and capital spending on health from central and local government budgets, external borrowing, grants, and health insurance funds expressed as a proportion of GDP.

"Development" is a common characteristic of all three variables. On balance, more developed states, with better resourced police forces and money to fund interventions which both

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prevent crime and make people feel safer (e.g., adequate street lighting, CCTV, well-kept public spaces), also have the funds to build additional prison space when prison crowding levels get too high, and to pay for relatively generous public health systems.

Pretrial detention rate

A combination of five independent variables best predicted the pretrial detention rate dependent variable. Namely, homicide rate, HDI, prison occupancy rate, public health expenditure, and police per capita. Collectively these five variables account for 30.8% of the variance of the pretrial detention rate. "Development" understood in a broad sense again appears to be a common characteristic of the variables, with the exception of homicide rate. Two of the variables are the same as with the predictive model for the proportion of prisoners in pretrial detention (prison occupancy rate and public health expenditure), suggesting that these play an important role predicting both dependent variables. Significantly, HDI is the second most predictive variable, suggesting that development measured in the context of life expectancy, formal education, and gross national income per capita predicts higher rates of pretrial detention. That is, once states have the wherewithal to ensure their citizens can lead long lives (good public health services), receive adequate formal education, and have a decent standard of living, they also, on balance, are likely to have the resources and capacity to identify, apprehend, and remand a relatively large proportion of suspected offenders. Less developed countries typically lack such a capacity.

Moderator analyses

To further interrogate the overall research question on relationships that may exist between economic, political, and social factors, and national pretrial detention practices, a

number of moderator analyses were undertaken. In particular, the following moderating effects were explored:

- whether corruption moderates the relationship between state strength and pretrial detention;
- whether democratization and development moderate the relationship between crime and pretrial detention; and
- whether democratization moderates the relationship between development and pretrial detention.

The moderation effects when the dependent variable is the "rate of pretrial detention" is discussed first, followed by the moderation effects with the "proportion of prisoners in pretrial detention" as the dependent variable.

Corruption, state strength and pretrial detention (rate)

The first moderator analysis sought to establish whether corruption moderates the relationship between state strength and pretrial detention. Three measures of state strength were used: Government effectiveness, Fragile States Index, and Public Services Indicator.

In countries where there is a high perception of corruption, more government effectiveness (i.e., stronger states) predicts higher rates of pretrial detention, compared to countries with a low perception of corruption, where more government effectiveness predicts lower rates of pretrial detention. That is, high perceptions of corruption only correlate with high pretrial detention rates if the government is relative effective. This is an interesting finding as the presumption could easily be that corruption drives the excessive use of pretrial detention in places where governments are weak and ineffective. The government effectiveness measure captures a large sample of countries (N = 197). It is possible that countries at the bottom of the

government effectiveness list have state institutions which are so weak and absent outside of major urban centers that corrupt officials are too sparse to significantly influence the pretrial detention rate in places where the government effectiveness score is very low. The finding that in places with low perceptions of corruption, more government effectiveness correlates with lower rates of pretrial detention is also, at first glance, confounding. This finding may be because the government effectiveness indicator also measures the quality of state services and their degree of independence from political pressures. In places where government effectiveness is high, low perceptions of corruption may produce criminal justice institutions which use arrest and pretrial detention sparingly and in accordance with international standards and norms.

In countries where there is either a high or low perception of corruption, less state fragility (i.e., stronger states) predicts higher rates of pretrial detention. In countries with low perceptions of corruption, the lower the level of state fragility the higher the rate of pretrial detention. That is, less state fragility generally predicts a higher rate of pretrial detention, likely for the reasons given in the above paragraph on government effectiveness.

In countries where there is a higher perception of corruption, better public services (i.e., stronger states) predict lower rates of pretrial detention, while in countries with a low perception of corruption, better public services predict higher rates of pretrial detention. This goes counter to the findings with the "government effectiveness" variable discussed above. This may be because the Public Services Indicator also measures the state's ability to protect its citizens from violence through perceived effective policing. In such settings high perceptions of corruption may not imply a particularly corrupt police agency, so that corruption does not affect arrest and pretrial detention numbers in a negative way.

The findings are similar when the Corruptions Perceptions Index moderator is swapped with the "control of corruption" moderator. This is reassuring as both moderators seek to reflect or measure similar phenomena, and suggests that the moderating effect of corruption – as derived from public and expert perception surveys – is fairly robust and that this study's aforementioned moderator analyses are broadly valid.

Democratization and development, insecurity and pretrial detention (rate)

The second moderator analysis sought to establish whether democratization and development moderate the relationship between crime / insecurity and pretrial detention. The Democracy Index and the Human Development Index were used to assess democratization and development, respectively. There is strong evidence that democratization and development moderate the relationship between crime and the pretrial detention rate.

In countries scoring high on the Democracy Index, high levels of recorded homicide predict high rates of pretrial detention, while in countries scoring low on the Democracy Index, high levels of recorded homicide predict no relationship with the pretrial detention rate. This is an interesting finding and suggests that "more" democracy (i.e., free and fair elections, political participation, political pluralism) may be more responsive to high levels of serious crime by arresting and detaining a larger number of people. Conversely, countries which are not very democratic or in authoritarian states, high levels of serious crime may have no impact on arrest and detention practices as the executive has no particular (electoral) incentive to engage with public demands for a tough and visible response to insecurity.

In countries scoring high on the Democracy Index, greater feelings of insecurity predict higher rates of pretrial detention, while in countries scoring low on the Democracy Index, lower feelings of insecurity (i.e., higher feelings of safety) predict modestly high pretrial detention

rates. These findings are similar to the above which use recorded homicides as the measure of insecurity. That is, in "more" democratic countries either high levels of recorded homicide or high levels of feelings of insecurity predict relatively high rates of pretrial detention. This again suggests that more democratic countries (as measured by the Democracy Index) tend to have governments which are more responsive to high levels of serious crime and/or public insecurity in respect of arrest and pretrial detention practices when compared to less democratic or authoritarian states. Interestingly, when using feelings of insecurity as the measure of crime / insecurity, lower feelings of security predict higher rates of pretrial detention even in less democratic states. It would appear, therefore, that less democratic or authoritarian countries are more responsive to general feelings of insecurity compared to recorded homicide rates.

In countries scoring high on the HDI, high levels of recorded homicide predict high rates of pretrial detention, while in countries scoring low on the HDI, high recorded homicide rates also predict high pretrial detention rates. The relationship between high homicide rates and high pretrial detention rates is, however, stronger in respect of countries scoring high on the HDI. That is, high levels of homicide predict high pretrial detention rates irrespective of whether a country scores high on the HDI, although the relationship is stronger for countries scoring high on the HDI. It is possible that countries scoring high on the HDI – which have, on balance, long life expectancy, high levels of formal education, and high living standards – have a citizenry which is more sensitive and responsive to homicides. In places where most people are assured of a long, healthy and prosperous life, having that life cut short through a violent act may be subjectively more horrific than in places where non-natural fatalities are generally high for a variety of reasons. In countries scoring high on the HDI, high levels of feelings of insecurity predict high rates of pretrial detention, while in countries scoring low on the HDI, high levels of

feelings of insecurity also predict high pretrial detention rates. This pattern is the same as when the feelings of insecurity measure is swapped with the recorded homicide rate.

Democratization, development and pretrial detention (rate)

The third moderator analysis sought to ascertain whether democratization moderates the relationship between development and pretrial detention. For the democracy moderator two variables were used: Democracy Index, and Voice and Accountability Index. For development, four variables were tested: HDI, GDP per capita, government effectiveness, and Public Services Indicator.

In countries scoring low on the Democracy Index, high levels of development (as measured by the HDI) predict high rates of pretrial detention, while countries scoring high on the Democracy Index, high levels of development predict low rates of pretrial detention. While development as measured by the HDI tends to be positively but modestly correlated with the pretrial detention rate (see above), this relationship is affected by the level or degree of democracy and tends to apply more in respect of countries which are less democratic. This suggests that countries which are doing well economically and are fairly developed as reflected by the HDI (high life expectancy, widespread formal education, and high standard of living) but which are not overly democratic should, on balance, expect to experience high rates of pretrial detention. Similarly, economically successful and developed countries with higher levels of democratization should expect lower rates of pretrial detention. This may be because democracy entails fidelity to the rule of law, due process, and an emphasis on the presumption of innocence, which limits the use of pretrial detention. The same pattern applies when GDP per capita or government effectiveness are used as the measure of development instead of the HDI. Namely, in respect of countries scoring low on the Democracy Index, high levels of development (as

measured by GDP per capita / government effectiveness) predict high rates of pretrial detention, while in countries scoring high on the Democracy Index, high levels of development predict relatively low rates of pretrial detention. When using the Public Services Indicator as the measure of development, the aforementioned pattern reverses. That is, in countries scoring low on the Democracy Index, high levels of development (as measured by the Public Services Indicator) predict low rates of pretrial detention, while in countries scoring high on the Democracy Index, high levels of development predict high rates of pretrial detention.

Similar patterns emerge when swapping the Democracy Index with the Voice and Accountability Index as the moderator. Thus, in countries scoring low on the Voice and Accountability Index, high levels of development (as measured by the HDI) predict high rates of pretrial detention, while in countries scoring high on the Voice and Accountability Index, high levels of development predict low rates of pretrial detention. The pattern also holds when using GDP per capita and government effectiveness as measures of development. The Voice and Accountability Index measures key aspects of democracy, such as the extent to which a country's citizens can participate in selecting their government, as well as freedom of expression and association, and a free media. It is thus not surprising that the moderation effect of the Voice and Accountability Index is similar to that of the Democracy Index. Moreover, as with the Democracy Index, the pattern reverses for the Voice and Accountability Index when using the Public Services Indicator as the measure for development.

Corruption, state strength and pretrial detention (proportion)

Unlike the simple correlation analyses, where the majority of statistically significant correlations were in respect of the "proportion of prisoners in pretrial detention" serving as the dependent variable, with the moderator analyses most significant moderations were in respect of

the "rate of pretrial detention" as the dependent variable. This subsection discusses the moderator analyses findings in respect of the relatively small number of significant moderations when using the "proportion of prisoners in pretrial detention" as the dependent variable.

This first "proportion" moderator analysis sought to establish whether corruption (as measured by the Corruption Perceptions Index and "control of corruption") moderates the relationship between state strength and the proportion of prisoners in pretrial detention. Three measures of state strength were used: Government effectiveness, Fragile States Index, and Public Services Indicator.

In countries where there is a high perception of corruption, a stronger state (i.e., less state fragility) predicts a higher proportion of prisoners in pretrial detention. The same holds, albeit at less intensity, in respect of countries where perceptions of corruption are low. That is, in countries with high perceptions of corruption there is a more positive association between state fragility and the proportion of prisoners who are pretrial detainees compared to states with low perceptions of corruption. In weaker states, corruption may result in a relatively large number of people being arrested and remanded to pretrial detention as arresting officers, prosecutors, and judges seek to extract bribes from arrestees and detainees. In such a scenario many people are likely to be arrested and detained arbitrarily or on flimsy grounds as the purpose of the arrest or detention is not primarily to ensure a fair trial where the guilty are convicted and punished, but to generate bribes. In such jurisdictions trials would be relatively rare, which bolsters the relative number of pretrial detainees compared to convicted offenders, increasing the proportion of prisoners in pretrial detention.

In countries where there is little control of corruption (i.e., where corruption is high), more government effectiveness predicts a lower proportion of prisoners in pretrial detention,

while in countries with more control of corruption (where corruption is relatively low), more government effectiveness does not predict any effect on the proportion of prisoners in pretrial detention. This suggests that government effectiveness reduces the proportion of prisoners in pretrial detention where corruption is relatively high. While corrupt systems may generate a lot of arrests and detentions to extract bribes from arrestees and defendants, effective government institutions may ensure that the average duration of pretrial detention is short or that pretrial detainees who are unable to pay a bribe are identified and released relatively expeditiously. By contrast, in low-corruption settings, where arrests and pretrial detention is presumably used more rationally and sparingly, the proportion of prisoners in pretrial detention does not change significantly irrespective of whether there is a high degree of government effectiveness or not.

In countries with little control of corruption, a weaker state (i.e., a high level of state fragility) predicts a higher proportion of prisoners in pretrial detention, while countries which control corruption, more state fragility has no discernible impact on the proportion of prisoners in pretrial detention. This finding is similar to the one where government effectiveness is used as a measure of state strength. As discussed above, this may be because corrupt regimes generate a disproportionate number of pretrial detainees as opposed to convicted prisoners, a pattern which is exacerbated by weak state institutions which, through bureaucratic weaknesses and inefficiencies, prolong the average duration of pretrial detention.

When using the Public Services Indicator as a measure of state strength, the pattern is somewhat reversed. Namely, in countries with little control of corruption, a stronger state (i.e., better public services) predicts a higher proportion of prisoners in pretrial detention, while in countries which control corruption, a stronger state predicts a slightly higher proportion of prisoners in pretrial detention. It would appear that good public services predict a higher

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proportion of prisoners in pretrial detention in contexts where corruption is high, maybe because good public services imply a relatively large number of police officers who generate many corruption-related arrests and, down the criminal justice chain, pretrial detentions.

Democratization, development and pretrial detention (proportion)

This moderator analysis sought to ascertain whether democratization moderates the relationship between development and the proportion of prisoners in pretrial detention. For the democracy moderator two variables were used: Democracy Index, and Voice and Accountability Index. For development, four variables were tested: HDI, GDP per capita, government effectiveness, and Public Services Indicator. When using the proportion of prisoners in pretrial detention as the dependent variable, only one development variable (government effectiveness) was significantly moderated by one of the moderators (Voice and Accountability Index).

In countries scoring high on the Voice and Accountability Index, more government effectiveness predicts a modestly lower proportion of prisoners in pretrial detention, while in countries scoring low on the Voice and Accountability Index, more government effectiveness predicts a lower proportion of prisoners in pretrial detention. It may be that in countries where citizen participation is high in respect of selecting a government (through, inter alia, a free media and widespread freedom of expression), governments are more responsive to investing in functioning and effective criminal justice systems which, on balance, increase the number of successful investigations and prosecutions, thereby increasing the number of convicted prisoners in relation to the number of pretrial detainees.

Policy implications

There is a significant positive relationship between crime and public perceptions of crime, and both the pretrial detention rate and the proportion of prisoners in pretrial detention. Policy makers who respond to rising levels of crime by investing more resources in the criminal justice system, would be well advised to focus on effective alternatives to pretrial detention and prison-related investments in infrastructure and personnel catering to pretrial detainees to accommodate a likely higher proportion of prisoners who are in pretrial detention.

Pretrial detainees are often confined in harsher conditions than sentenced prisoners (Rodley, 2000; Nowak, 2007). Prison administrators regard their main mandate as the custody and rehabilitation of convicted prisoners and see pretrial detainees as a group whose imprisonment is temporary and somewhat incidental to their work. As a result, pretrial detainees are typically not provided with educational, vocational, and related work opportunities. In some jurisdictions there is a reluctance to provide treatment for communicable diseases that requires a sustained period of therapy for people in pretrial detention, whose custody is seen as temporary, even if "temporary" turns out to be of long duration. Given these tendencies, which are particularly lamentable given that pretrial detainees are considered innocent and have not been convicted of a crime (and, indeed, many of whom will end up not being prosecuted or acquitted), it is important that any anticipated increases in both the absolute number and proportion of prisoners in pretrial detention be accommodated through sufficient capital and human resource investments by the state.

A number of indicators of modernization and development correlate positively with the pretrial detention rate. As countries modernize and grow economically, they develop the capacity to arrest and remand a larger number of people into pretrial detention. This tendency may be

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accentuated in places where economic development abets growing inequality, with inequality

being positively correlated with both the rate and proportion of prisoners in pretrial detention.

These patterns hold important lessons for domestic policy makers and international rule of law

and development assistance providers.

Domestically, policy makers should pursue policies which reduce inequality. This is both

a noble aim in its own right, but should also assist with reducing the number of pretrial detainees

and the proportion of prisoners in pretrial detention. For example, strengthening the social safety

net to assist the unemployed and poor in times of need should reduce certain forms of crime

which fuels arrest and pretrial detention rates. Increased social welfare spending has been shown

to correlate negatively with the proportion of prisoners in pretrial detention. That is, countries

spending a larger proportion of their budgets on social welfare tend to have lower proportions of

prisoners in pretrial detention.

There is a danger that modernizing and economically developing states, especially in

places where crime is high or increasing, disproportionately focus their criminal justice

investments on policing. Compared to judicial officers and prosecutors (who have to undergo

lengthy graduate studies in law), new police can be recruited relatively quickly. Police are also

the most visible component of the criminal justice system and thus allow governments to

demonstrate their commitment to upholding order and combating crime. However, a

disproportionate focus on police risks creating a bottleneck in the pretrial justice process. More

police will generate arrests which the system is unable to process expeditiously if sufficient

investments are not also made in court rooms, prosecutors' offices, and judges who can deal with

pretrial hearings. Given these patterns, policy makers in modernizing states should ensure that

justice sector investments are sufficiently spread across the entire criminal justice system.

Development more generally appears to be an issue not easily divorced from pretrial detention. There is a substantial body of empirical evidence that the excessive use of pretrial detention undermines socio-economic development and aggravates individual and household poverty (OSJI, 2011b; Muntingh & Redpath, 2018). Moreover, in fragile communities the impact of pretrial detention – lost earnings, broken homes, and the incarceration of adult breadwinners and caregivers – aggravates some of the underlying causes of crime. The development – pretrial detention nexus has received international political recognition with the adoption, in 2015, of the 2030 Agenda for Sustainable Development by the United Nations General Assembly, which seeks to reduce the proportion of prisoners in pretrial detention. It would be prudent of policy makers to include pretrial detention-related issues in their national development agendas. In practical terms, states need to devote sufficient resources to feed and clothe pretrial detainees under their control and provide detainees with adequate medical care. Moreover, particular care should be taken to avoid detaining household breadwinners and caregivers. International development funders and technical assistance providers (e.g., World Bank, International Monetary Fund, US Agency for International Development, the UK's Department for International Development) should not neglect supporting criminal justice institutions, especially those that deal with the pretrial justice stage of the criminal justice process.

Corruption is positively correlated with the proportion of prisoners in pretrial detention. Pretrial detention and corruption are often mutually reinforcing phenomena. A criminal justice system that overuses pretrial detention is susceptible to corruption, and an environment marked by corruption will likely lead to the excessive use of pretrial detention. Corruption is disproportionately prevalent during the pretrial phase of the criminal justice process because it

receives less scrutiny and is subject to more discretion than subsequent stages of the justice process, and often involves lower-paid and mostly junior actors in the system (OSJI, 2010). To minimize corruption, the amount of discretion afforded to police and prosecutors in particular should be limited. Both police and prosecutors' offices should have clear guidelines and/or internal instructions setting out, inter alia, under which conditions defendants are to be given police bail, or when prosecutors should seek pretrial detention. Internal and external accountability mechanisms (e.g., internal affairs units, police oversight bodies, prosecution service inspectorates) should be adequately funded and allocate sufficient personnel and resources to investigate corruption-related conduct during the pretrial phase of the criminal justice process. Moreover, police, prosecutors, and judicial officers working on pretrial issues (bail applications, remand and first-appearance hearings, etc.) should include more senior and experienced personnel to avoid pretrial justice-related activities falling disproportionately within the purview of junior and lower-paid officials.

Overall, the nexus of security, development, and good governance predict lower proportions of prisoners in pretrial detention. Or, conversely, countries lacking in these areas should, on balance, expect relatively high proportions of prisoners in pretrial detention. Weak states are particularly susceptible to experiencing higher proportions of prisoners in pretrial detention when official corruption is high. In such places, policy makers should, as discussed above, focus on combating corruption within the criminal justice system and seek to improve their general governance processes.

Policy makers, as well as international rule of law and development assistance providers, should be cognizant of the possible moderating effect of democratization processes on pretrial detention numbers. This study's finding that "more" democracy or higher levels of

democratization combined with higher levels of homicide or feelings of insecurity predict higher rates of pretrial detention, is particularly salient as the process of democratization – the transitionary period from authoritarianism to democracy – tends to produce higher levels of social disorder, including violent crime (Shaw, 2002; LaFree & Tseloni, 2006). This suggests that security sector reform initiatives in transitional societies include elements which seek to limit the use of pretrial detention (e.g., through the creation, in law and practice, of alternatives to pretrial detention) and create sufficient investments in prisons and remand centers to accommodate growing numbers of pretrial detainees. In less democratic states, modernization, economic growth, and development predict high rates of pretrial detention. The growth of populist authoritarianism in the West, and the popularity of the Chinese "development model" which sacrifices democratic practices in the interest of social stability and economic growth (Halper, 2010; Li, 2015), may succeed in pushing back and supplanting Western-style liberal democracy in various parts of the world. This may boost pretrial detention numbers in authoritarian or quasi-authoritarian states which grow their economies, promote domestic development, and build stronger state infrastructures.

Future research

An important area of future research is to explicitly explore causal relationships between this study's independent and dependent variables. The present study identified numerous correlational relationships, but a dearth of time-series data did not permit statistical analyses whether any of the independent variables cause or influence one or both of the dependent pretrial-detention related variables. Such an analysis would be of considerable utility to policy makers. If, for example, it were possible to predict that an increase in a country's Human Development Index or GDP per capita will, on average, result in a reduction in the proportion of

prisoners in pretrial detention, and an increase in the pretrial detention rate, this would helpfully

contribute to our understanding of factors which influence (and not only correlate with) pretrial

detention numbers.

For example, as a lower-middle income economy, Nigeria may have predictable pretrial

detention patterns using an economic and human development framework. Nigeria, the most

populous country in Africa with 180 million inhabitants, had 45,000 pretrial detainees in 2016 or

25 per 100,000 of the general population. This is a low pretrial detention rate and some 32%

below the global average. However, 72% of all prisoners in Nigeria were pretrial detainees in

2016, more than twice the global average. Given Nigeria's volatile political situation, a relatively

corrupt police force, and a criminal justice bureaucracy which has traditionally been weak in

implementing laws and policies designed to reduce the number of pretrial detainees, it is difficult

to predict how the country's pretrial detention numbers will change on the basis of "micro"

interventions alone (e.g., changes in police arrest policies, expanding the provision of legal

assistance for defendants, or law reforms to increase the statutorily available alternatives to

pretrial detention). If, however, we knew the general impact that development, economic growth,

and Nigeria's transition to an upper-middle income economy may have on the country's pretrial

detention numbers, policy makers would have access to a more accurate and long-term predictive

tool to forecast likely pretrial detention trends in Nigeria. This would be helpful to Nigerian

policy makers and governmental planners. Namely, to anticipate in an informed manner that with

a growing economy, the country's pretrial detention rate (and the absolute number of pretrial

detainees) will likely grow, but that the number of pretrial detainees as a proportion of the

overall prison population will likely decline. In practical terms, there would be a need to mitigate

the expected upward pressure on the absolute number of pretrial detainees by, inter alia, making

legislative and institutional provisions for alternatives to pretrial detention, improving the state's ability to identify defendants who can be released awaiting trial without undue risk to public safety or the administration of justice and, potentially, plan and budget for more prison infrastructure and staff. At the same time, governmental planners can expect a decline in the proportion of prison spaces needed for pretrial detainees.

It would be informative to build on the findings of this study, and explore to what extent particular aspects of security, development, and good governance affect pretrial detention numbers. All these themes correlated with the proportion of prisoners in pretrial detention and, to a lesser extent, the pretrial detention rate. One way of doing so would be to identify clearer or more explicit independent variables. Instead of using complex indices to represent, or serve as a proxy for a construct such as modernization, a future study could use more discrete measures which are easier to interpret and consequently of greater practical utility to policy makers. For example, instead of using the Public Services Indicator (an index which aggregates the presence of basic state functions that serve the public) as a general measure of governance, a future study could focus on a particular aspect of public service provision. This may entail exploring the relationship between prosecutor numbers or the proportion of the national budget allocated to the prosecution service, and the two pretrial detention-related dependent variables. Such an explicit focus on prosecutors is more likely to answer whether, and what, impact more prosecutors or greater state investment in prosecution services has on either or both of the dependent variables. This, in turn, would allow policy makers to make more informed decisions about spending on prosecution services if their aim is to, inter alia, change either of the two dependent variables.

Another potentially useful approach future studies could adopt is to shift the focus from macro-level independent variables (as this study has generally done) to variables which are

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easier to control and influence by policy makers. For example, at the macro level high levels of crime and public insecurity, dysfunctional state institutions, public corruption, and societal inequality all correlate with the pretrial detention outcome measures in some way. Such macro-level factors undoubtedly affect pretrial detention policy and practice in myriad ways. However, many of these macro-level factors are hard to control or change even by the most reform-minded governments. For example, levels of crime and public insecurity are strongly influenced by changing age demographics in a society. Young people, especially young males in their mid-to-late teens, are typically at significantly greater risk of committing violent street-level crimes than their older counterparts (Newburn, 1997). Thus, countries with youthful populations tend to experience relatively high levels of violence, including violent crime. Initiatives can be undertaken to mitigate this tendency, but, everything else remaining equal, age demographics will influence violent crime rates. Moreover, while young people tend to be disproportionately responsible for many forms of violent crime, older people are generally more fearful of crime (Ferraro & LaGrange, 1987). Thus, age demographics also play a role in the average level of fear of crime present in a society.

    In addition to being difficult to control, the relationship between macro-level factors and actual pretrial detention policy and practice is not always very clear. There are too many intervening variables, such as a country's political system and the responsiveness of policy makers to public concerns, the extent to which the public uses informal or traditional justice mechanisms rather than formal state-centric ones, and the role the media plays in instilling and aggravating public fear of crime, which can affect the strength of the relationship between macro-level factors and pretrial detention practices. Macro-level factors may consequently be too

broad a lens through which to identify practical recommendations for improving pretrial detention policy and practice.

At the opposite end of the spectrum, when considering ways to alter the use of pretrial detention, are micro-level factors which are either very specific or unique to a particular jurisdiction. For example, in the U.S. bail bond agents often act as a surety and pledge money or property as bail for the appearance of defendants in court. Bond agents generally charge a fee or a certain percentage of the total amount of the bail. If a defendant fails to appear in court, the bond agent is allowed by law or contractual arrangement to bring the defendant into police custody to recover the money paid out under the bond, often through the use of a bounty hunter. Virtually no country in the world has a formal private bail bonding industry and the practice of bounty hunting is illegal in most jurisdictions (Devine, 1991). Exploring the impact of the bail bonding industry on pretrial detention numbers consequently serves no cross-national comparative purpose.

Future research should consequently focus on intermediate-level factors which are not so general or complex as to be overly daunting to reformers, but also not so detailed and particular as to be relevant to a few jurisdictions only. Rather, such intermediate-level factors should allow for the development (and eventual testing) of interventions which address identifiable problems with pretrial detention practices as they occur in many jurisdictions worldwide. These may include, explicit laws and policies which seek to reduce the excessive use or duration of pretrial detention (e.g., laws which provide for a range of alternatives to pretrial detention, or set an upper time limit on the maximum legally permitted duration of pretrial detention); coordination mechanisms to improve the efficiency of pretrial justice processes and reduce bottlenecks between the various agencies responsible for processing arrestees and pretrial detainees through

the criminal justice process; or, decriminalizing certain petty and victimless crimes to prevent persons transgressing such laws from being arrested and potentially remanded into pretrial detention in the first place.

CHAPTER 6: CONCLUSION

Between a quarter and a third of all prisoners around the world are pretrial detainees, probably more if detainees confined in police lockups are included in the final tally. Many detainees spend months and even years in pretrial detention before their trials are finalized or charges dismissed. The widespread use of pretrial detention subverts the universally accepted right to be presumed innocent until proven guilty, and can be a humanitarian calamity for detainees and their families.

To better understand global pretrial detention patterns, this study set out to identify economic, political, and social factors associated with two key measures of pretrial detention. Namely, the number of pretrial detainees as a rate of the general population, and as a proportion of the overall prison population. This study further sought to explore what combination of factors are most strongly associated with the aforementioned outcome measures.

There is a substantial body of literature dealing with global imprisonment patterns generally. However, no large scale cross-national studies exist which focus explicitly on pretrial detention. Comparative pretrial detention studies either explore a particular country (e.g., a comparison of the federal states of the U.S.), or a relatively small number of primarily affluent and developed countries. This is a significant gap in the research literature given the substantial contribution pretrial detention makes to overall imprisonment levels and its multifaceted humanitarian consequences. This study addresses this gap by focusing exclusively on pretrial detention using a cross-national sample of almost 200 countries, including the majority of the world's developing states.

The study found that a number of economic, political, and social factors which correlate with general imprisonment, relate differently with the two pretrial detention outcome measures.

This suggests that general incarceration dynamics often affect and interact with pretrial detention differently. Consequently, studies – such as this one – which explicitly explore cross-national pretrial detention correlates make an important contribution to the broader field of imprisonment and punishment studies, while deepening our understanding of the "macro" environment – economic, political, and social developments – and national-level pretrial detention practices. This can serve as a useful stepping-stone for those who wish to develop and refine the theoretical literature dealing with the drivers and correlates of pretrial detention.

In particular, this study found that issues centered on crime and insecurity, development, and good governance relate fairly strongly with the proportion of prisoners in pretrial detention dependent variable. The good governance – development nexus is a particularly interesting finding, suggesting that these two interconnected concepts relate with national-level pretrial detention practices, especially the relationship between the number of pretrial detainees and sentenced prisoners. This potentially holds important policy considerations for developing countries where development intersects with modernization and democratic transitions – both factors which relate with pretrial detention practices, albeit differently in respect of the study's two pretrial detention measures.

The relationship between pretrial detention and development appears to be mutually reinforcing. Pretrial detention undermines development by disrupting employment and education. Detainees' families suffer from lost income and a variety of expenses to support their detained relatives. In fragile communities the impact of pretrial detention such as lost earnings, broken homes, and the incarceration of adult caregivers, aggravate some of the underlying causes of crime. At the same time, a lack of development, and associated phenomena such as bad

governance and insecurity and crime, predict high levels of pretrial detention, especially in respect of the number of pretrial detainees as a proportion of the overall prison population.

While the inclusion of pretrial detention as an indicator of the rule of law and access to justice in the 2030 Agenda for Sustainable Development is laudable, two challenges remain. First, the risk that pretrial detention as a developmental issue is obscured by the numerous Sustainable Development Goals (SDGs) and their 169 associated targets and 230 indicators. Second, the SDG-related indicator on pretrial detention (measuring the proportion of prisoners in pretrial detention) on its own is of limited veracity. The indicator is, for example, influenced by changes in the number of sentenced prisoners. If the number of sentenced prisoners increases and the number of pretrial detainees remains the same, the indicator will show a decline in the proportion of pretrial detainees even though the criminal justice system as a whole may have become more punitive, and regardless of the fairness of the procedure leading to conviction. The "proportion" indicator also reveals little about the average duration of pretrial detention or whether pretrial detention is used excessively. In short, the SDG-related pretrial detention indicator is limited in its ability to provide an objective sense of improvement in national pretrial detention practices in the context of development and the rule of law. This study demonstrates that pretrial detention is an important development issue which deserves ongoing attention by states and international organizations tasked with implementing the 2030 Sustainable Development Agenda, and that the "proportion" indicator on its own provides an incomplete picture of the relationship between development issues and pretrial detention.

Interventions to reduce the use and extent of pretrial detention have been successfully tested and institutionalized worldwide. Even in settings where governance is poor and insecurity high, low-cost interventions can successfully reduce the number and proportion of persons in

pretrial detention. The challenge is to sustain such interventions in settings where governance

and state institutions are weak and dysfunctional. National reformers and, where appropriate,

their international partners, need to build legitimate institutions that can provide an acceptable

level of citizen security, justice, and economic wellbeing. Transforming institutions is a

challenging endeavor, especially where these are beset by corruption and in the context of fragile

states and in post-conflict settings.

The rule of law, government effectiveness, low corruption, and strong protection of

human rights correlate with a lower risk of conflict and criminal violence and, hence, more stable

and effective institutions (World Development Report, 2011). In its 2011 World Development

Report, the World Bank suggests that an important starting point to fix broken institutions is to

restore public confidence in government processes more generally, and individual state

institutions in particular. Nevertheless, the process of reform itself may entail security hazards.

Research (Collier, Hoeffler, & Söderbom, 2008) suggests that a shift from authoritarian rule

toward democracy is associated with a greater likelihood of instability and criminal violence, as

witnessed in places such as Mexico, the Russian Federation, and South Africa over the last

decades. Taking on too many reforms too quickly can risk backlash and undermine institutional

credibility. As the 2011 World Development Report points out:

> Rapid reforms make it difficult for actors in the post-conflict society to make
>
> credible commitments with each other, since they do not know how the reforms
>
> will affect the "balance of power." Elections, often seen as "winner takes all"
>
> events in fragile states, can evoke powerful reactions from those who lose. And
>
> if disadvantaged groups or regions are empowered by reform, existing power-
>
> holders must lose some power as a result. Economic restructuring changes the

balance of economic access and opportunity. Anti-corruption efforts attack

entrenched interests, sometimes very powerful ones. (p. 101)

Reforming state institutions in the development context is thus typically not a short,

linear process. Countries often go through multiple transitions over a period of decades before

achieving an acceptable level of institutional resilience. In the criminal justice sphere,

coordination across justice agencies is critical. Collaboration between police, prosecutions, court

administrators, the judiciary, and prisons is important if inefficiencies and bottlenecks in the

pretrial phase of the justice process are to be identified and addressed.

The engagement of international donors and agencies in security and justice service

provision is relatively new. It was only in the late 1990s that a number of significant bilateral

donors began integrating security into development programming (Ball, 1998; Harborne,

Dorotinsky, & Bisca, 2017). Nevertheless, external financing of the security sector by

development actors remains modest. According to the Organization for Economic Cooperation

and Development (OECD, 2015), aid to the security sector comprises a small amount of all

sector-allocated aid (some 1.4% for security and 3.1% for related justice). While international

development actors are beginning to appreciate the importance of criminal justice reform in the

development context, more research is needed to better understand the interdependent

relationships between development and pretrial detention dynamics to provide guidance to the

development sector and criminal justice policy makers seeking to ameliorate the harmful effect

the one has on the other.

A dearth of historical data prevented the investigation of causal relationships between the

study's independent and dependent variables. This is a noteworthy gap in our knowledge base on

pretrial detention and will hopefully be the focus of future research as more time-series pretrial

detention data become available. Moreover, the inclusion of pretrial detainees kept at police stations in future pretrial detention studies would improve the veracity of cross-national patterns and correlates of pretrial detention, especially in countries where a significant number of detainees are kept in police cells.

Appendix 1: Operationalization of hypotheses

Hypothesis	Construct	Variable	Source
H1a: Unemployment levels are *positively* correlated with pretrial detention *rates*. H1b: Unemployment levels do *not correlate* significantly with the *proportion* of prisoners in pretrial detention.	Unemployment	- Persons unemployed as proportion of total labor force	International Labor Organization
H2a: Economic inequality is *positively* correlated with pretrial detention *rates*. H2b: Economic inequality does *not correlate* significantly with the *proportion* of prisoners in pretrial detention.	Inequality	- Gini index	World Bank
H3a: State welfare expenditure is *negatively* correlated with pretrial detention *rates*. H3b State welfare expenditure does *not correlate* significantly with the *proportion* of prisoners in pretrial detention.	Social welfare	- Social assistance expenditure - Education expenditure - Public health expenditure	World Bank UNDP UNDP
H4a: A country's level of modernization is *positively* correlated with pretrial detention *rates*. H4b: A country's level of modernization is *negatively correlated* with the *proportion* of prisoners in pretrial detention.	Modernization	- Human Development Index - Urbanization rate	UNDP World Bank
H5a: Established political rights and civil liberties are *negatively* correlated with pretrial detention *rates*. H5b: Established political rights and civil liberties are *negatively* correlated with the *proportion* of prisoners in pretrial detention.	Regime type	- Democracy Index - Political Stability & Absence of Violence index	EIU World Bank
H6a: Countries' levels of development are *positively* correlated with pretrial detention *rates*. H6b: Countries' levels of development are *negatively* correlated with the *proportion* of prisoners in pretrial detention.	Development	- Government Effectiveness Index - Per capita GDP - Prison occupancy rate - Fragile States Index - Public Services Indicator - Police per capita	World Bank World Bank ICPR Fund for Peace Fund for Peace Country sources
H7a: Levels of official corruption are *negatively* correlated with pretrial detention *rates*. H7b: Levels of official corruption are *positively* correlated with the *proportion* of prisoners in pretrial detention.	Corruption	- Corruption Perceptions Index - Control of Corruption	Transparency Int. World Bank
H8a: Levels of state political legitimacy are *negatively* correlated with pretrial detention *rates*.	Political legitimacy	- Rule of Law Index - Judicial independence	World Bank Dataverse

H8b: Levels of state political legitimacy do *not correlate* significantly with the *proportion* of prisoners in pretrial detention.			
H9a: Levels of political trust are *negatively* correlated with pretrial detention *rates*. H9b: Levels of political trust are *negatively* correlated with the *proportion* of prisoners in pretrial detention.	Political trust	- Proportion respondents expressing confidence in national government	Gallup
H10a: Levels of recorded crime are *positively* correlated with pretrial detention *rates*. H10b: Levels of recorded crime are *positively* correlated with the *proportion* of prisoners in pretrial detention.	Crime	- Homicide rate	UNODC
H11a: Perceptions of crime / safety are *positively* correlated with pretrial detention *rates*. H11b: Perceptions of crime / safety are *positively* correlated with the *proportion* of prisoners in pretrial detention.	Perceptions of crime / safety	- Global Peace Index - Law & Order Index - Safety & Security Index - Perceptions of safety	EIU Gallup Legatum Inst. UNDP
H12a: Levels of ethnic diversity are *positively* correlated with pretrial detention *rates*. H12b: Levels of ethnic diversity are *positively* associated with the *proportion* of prisoners in pretrial detention.	Ethnic heterogeneity	- Ethnic fractionalization measure	Alesina et al. (2003)
H13a: The proportion of foreign nationals in national populations are *positively* correlated with pretrial detention *rates*. H13b: The proportion of foreign nationals in national populations are *positively* correlated with the *proportion* of prisoners in pretrial detention.	Foreign nationals	- Percent population immigrants	UNDP
H14a: Levels of public punitiveness are *positively* correlated with pretrial detention *rates*. H14b: Levels of public punitiveness are *positively* correlated with the *proportion* of prisoners in pretrial detention.	Public punitiveness	- Voice & Accountability Index - Press Freedom Index	World Bank RWB
H15a: Compared to civil law countries, common law countries have *lower* pretrial detention *rates*. H15b: Compared to civil law countries, common law countries have *lower proportions* of prisoners in pretrial detention.	Legal system	- Civil, Common, & Mixed systems	JuriGlobe

EIU: Economist Intelligence Unit.

ICPR: Institute for Criminal Policy Research.

RWB: Reporters Without Borders.

Appendix 2: Data sources for dependent and independent variables

Variable	Source
PTD rate, Proportion prisoners in PTD	World Prison Brief: http://prisonstudies.org/sites/default/files/resources/downloads/world_prison_population_list_11th_edition_0.pdf.
Unemployment	World Bank: http://data.worldbank.org/indicator/SL.UEM.TOTL.ZS%20. Metadata: http://databank.worldbank.org/data/reports.aspx?source=2&type=metadata&series=SL.UEM.TOTL.ZS. Original source: International Labour Organization, ILOSTAT database: http://www.ilo.org/ilostat/faces/oracle/webcenter/portalapp/pagehierarchy/Page3.jspx?MBI_ID=2&_afrLoop=1269770574702&_afrWindowMode=0&_afrWindowId=w2napkbdq_1#!%40%40%3F_afrWindowId%3Dw2napkbdq_1%26_afrLoop%3D1269770574702%26MBI_ID%3D2%26_afrWindowMode%3D0%26_adf.ctrl-state%3Dw2napkbdq_45.
GINI index	World Bank: https://data.worldbank.org/indicator/SI.POV.GINI. Metadata: http://databank.worldbank.org/data/reports.aspx?source=2&type=metadata&series=SI.POV.GINI.
Social welfare	World Bank: http://datatopics.worldbank.org/aspire/indicator/social-expenditure.
Education expenditure	2016 UNDP Human Development Report: http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf.
Public health expenditure	2016 UNDP Human Development Report: http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf.
Human Development Index (HDI)	United Nations Development Programme: http://hdr.undp.org/en/composite/HDI.
Urbanization	World Bank: https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS. Original source: United Nations Population Division: https://esa.un.org/unpd/wup/CD-ROM/.
Democracy Index	Economist Intelligence Unit: https://www.eiu.com/public/topical_report.aspx?campaignid=DemocracyIndex2016.
Political Stability & Absence of Violence	Worldwide Governance Indicators (WGI) / World Bank: http://info.worldbank.org/governance/wgi/index.aspx#doc.
GDP per capita	World Bank: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD. Metadata: http://databank.worldbank.org/data/reports.aspx?source=2&type=metadata&series=NY.GDP.PCAP.CD.
Government effectiveness	Worldwide Governance Indicators (WGI) / World Bank: http://info.worldbank.org/governance/wgi/index.aspx#doc.
Prison occupancy rate	World Prison Brief (WPB), Institute for Criminal Policy Research: http://www.prisonstudies.org/highest-to-lowest/occupancy-level?field_region_taxonomy_tid=All.
Fragile States Index	Fund for Peace (FFP): http://fundforpeace.org/fsi/indicators/. Data: http://fundforpeace.org/fsi/excel/.
Public Services Indicator	Fund for Peace (FFP): http://fundforpeace.org/fsi/indicators/p2/. Data: http://fundforpeace.org/fsi/excel/.
Police per capita	https://en.wikipedia.org/wiki/List_of_countries_and_dependencies_by_number_of_police_officers.

Corruption Perceptions Index	Transparency International: https://www.transparency.org/news/feature/corruption_perceptions_index_2016.
Control of corruption	Worldwide Governance Indicators (WGI), World Bank: http://info.worldbank.org/governance/wgi/index.aspx#home.
Rule of law	Worldwide Governance Indicators (WGI), World Bank: http://info.worldbank.org/governance/wgi/index.aspx#doc.
Judicial independence	Harvard Dataverse: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/L716E8.
Trust in national government	UNDP 2016 Human Development Report: http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf.
Homicide rate	UNODC: https://data.unodc.org/#state:0.
Level of peace / insecurity	Global Peace Index, Institute for Economics & Peace: http://visionofhumanity.org/app/uploads/2017/06/GPI17-Report.pdf.
Law and Order Index	Gallup 2017: Global Law and Order report, Law & Order Index Score: http://www.gallup.com/reports/214607/gallup-global-law-order-report-2017.aspx?ays=n.
Safety and Security Index	Safety and Security Index, Legatum Prosperity Index: http://www.prosperity.com/rankings.
Percent feeling safe	UNDP 2016 Human Development Report: http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf.
Ethnic fractionalization	Macro Data Guide: http://www.nsd.uib.no/macrodataguide/set.html?id=16&sub=1.
Stock of immigrant population	UNDP 2016 Human Development Report: http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf. Original source: UN Department of Economic and Social Affairs: http://www.un.org/en/development/desa/population/migration/data/estimates2/estimates15.shtml.
Legal systems classification	JuriGlobe, University of Ottawa: http://www.juriglobe.ca/eng/sys-juri/index-alpha.php.
Voice & Accountability Index	Worldwide Governance Indicators (WGI), World Bank: http://info.worldbank.org/governance/wgi/index.aspx#doc.
Press Freedom Index	Reporters Without Borders: https://en.wikipedia.org/wiki/Press_Freedom_Index.

Appendix 3: Histograms and distribution curves

Figure 1: Histograms and distribution curves for dependent variables.
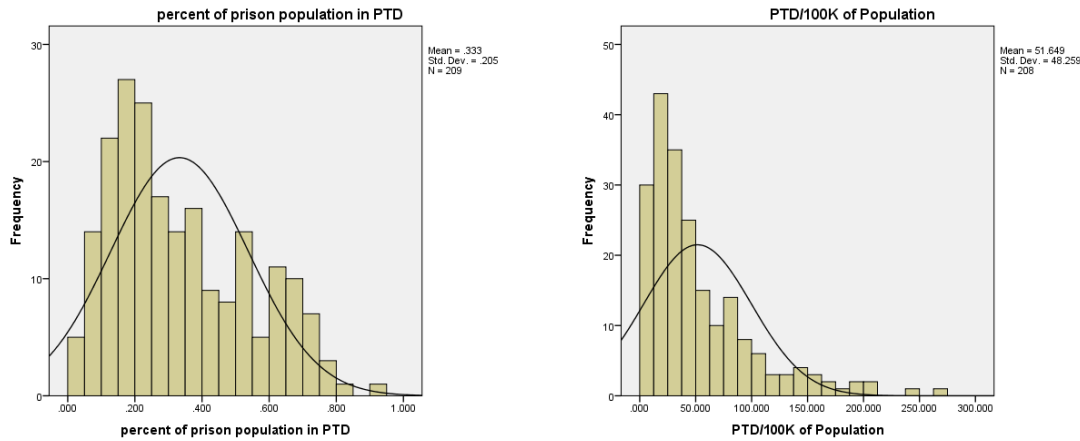
Figure 2: Histograms and distribution curves for economic independent variables.

3.4.2 Education Expenditure

Mean = 4.62
Std. Dev. = 1.689
N = 140

3.4.3 Public Health Expenditure

Mean = 4.16
Std. Dev. = 2.508
N = 183

4.1 HDI

Mean = .702
Std. Dev. = .155
N = 180

4.2 Urbanization

Mean = 59.987
Std. Dev. = 24.428
N = 202
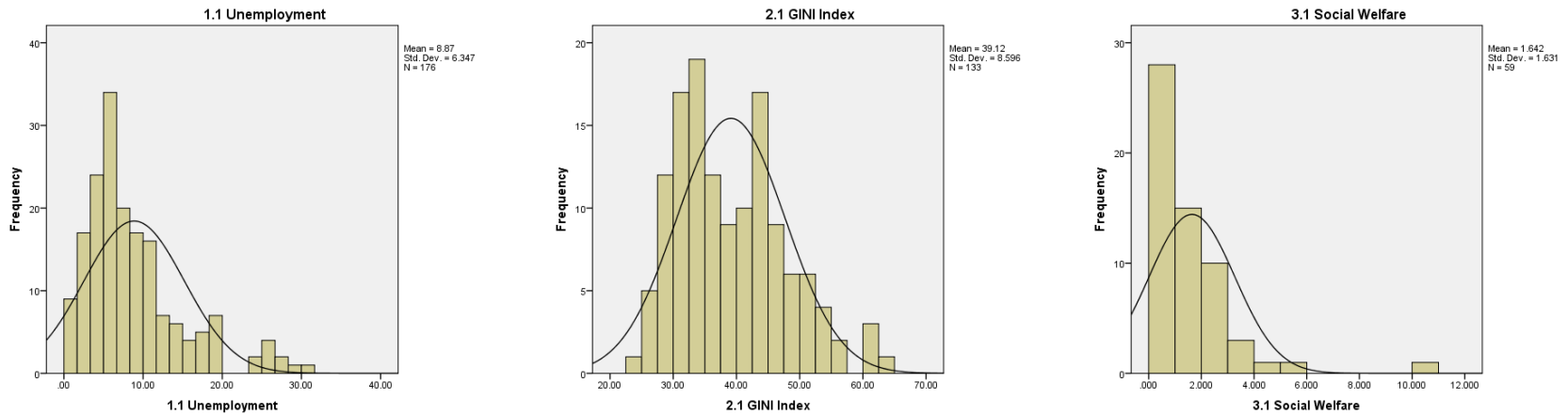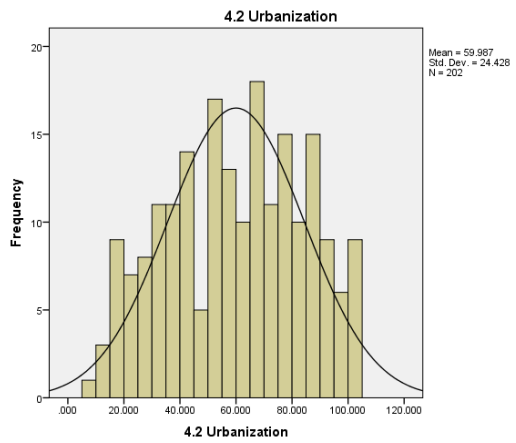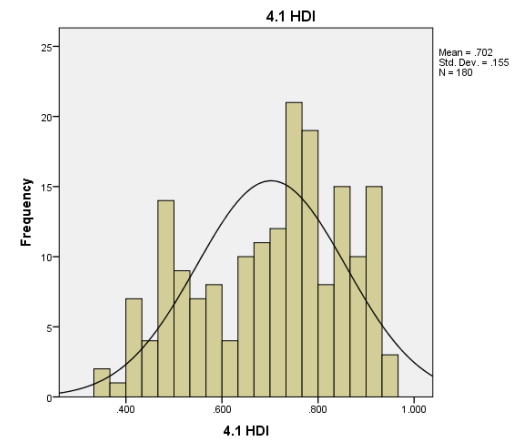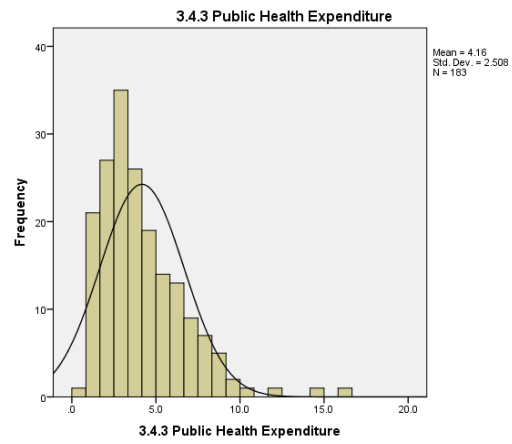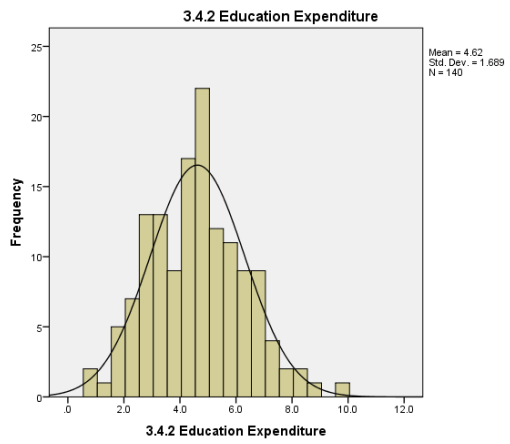
Figure 3: Histograms and distribution curves for political independent variables.
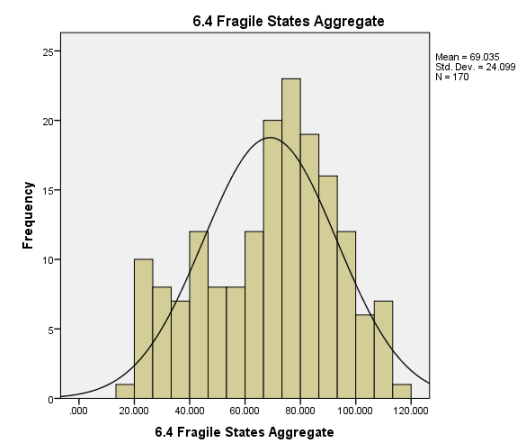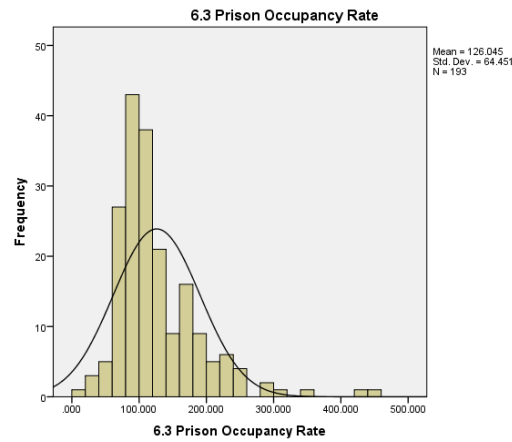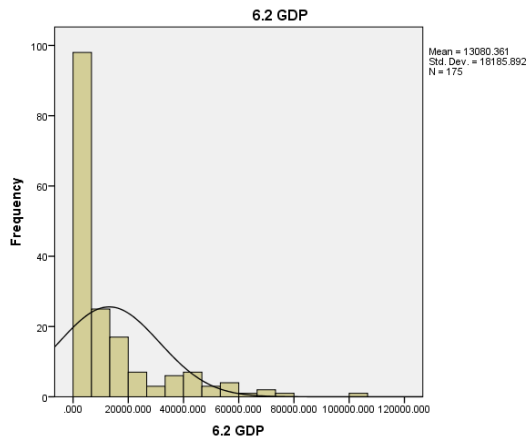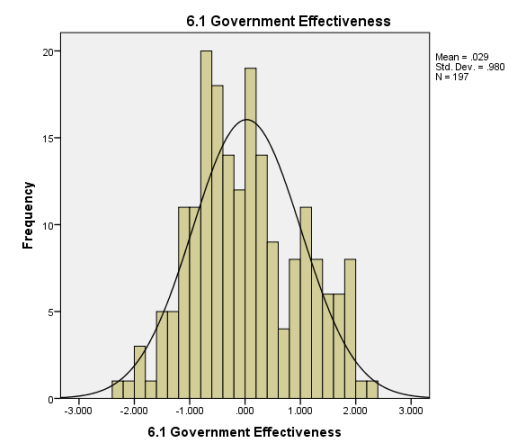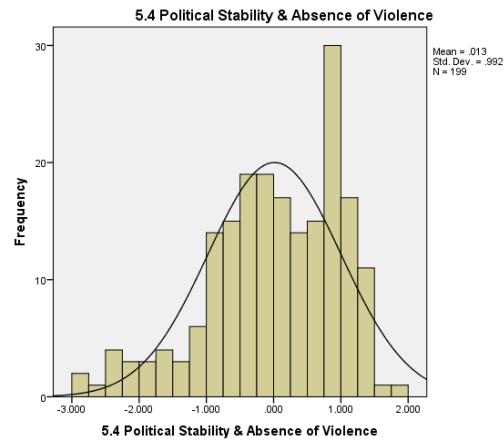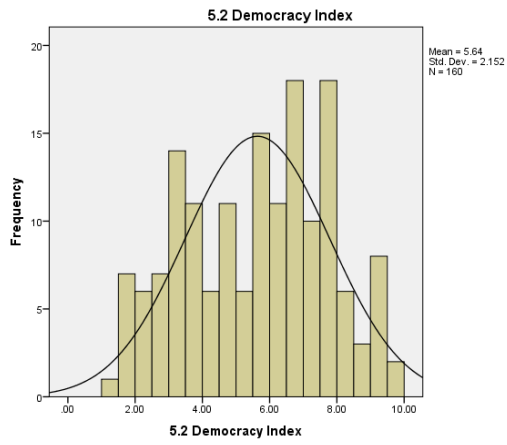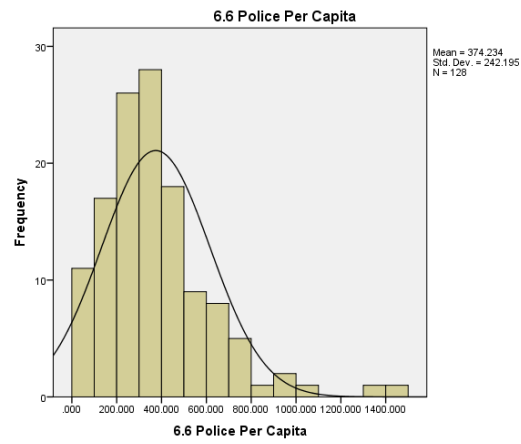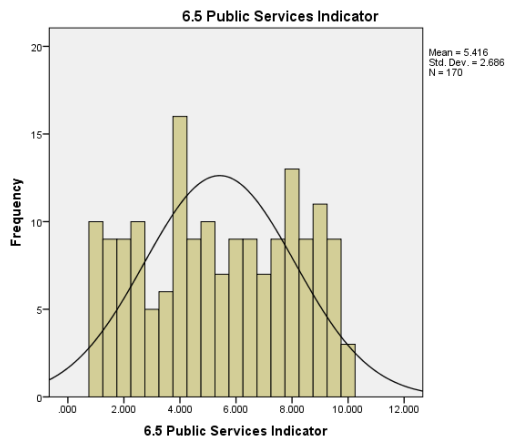
Figure 4: Histograms and distribution curves for social independent variables.

8.3 Judicial independence

Mean = 48.741
Std. Dev. = 17.828
N = 135

8.4 Trust in national government

Mean = 47.348
Std. Dev. = 18.301
N = 135

9.1 No. & rate of intentional homicide

Mean = 7.581
Std. Dev. = 10.885
N = 184

9.2 Level of peace / insecurity

Mean = 2.085
Std. Dev. = .508
N = 155

9.3 Law & Order Index

Mean = 76.090
Std. Dev. = 10.227
N = 133

9.4 Safety And Security Sub-Index

Mean = 66.107
Std. Dev. = 11.566
N = 149

9.5 Percent feeling safe

Mean = 61.629
Std. Dev. = 15.382
N = 140

10.1.1 Fractionalization - ethnic diversity

Mean = .470
Std. Dev. = .258
N = 147

10.3 Stock of immigrants (% of population)

Mean = 9.685
Std. Dev. = 14.784
N = 186

13.1 Voice & Accountability

Mean = .050
Std. Dev. = .963
N = 193

13.2 Press Freedom Index

Mean = 33.390
Std. Dev. = 15.337
N = 169

Figure 5: Histograms and distribution curves for pre- and post-log transformed independent variables.

10.3 Stock Of Immigrants (% Of Population)

Mean = 9.685
Std. Dev. = 14.784
N = 186

10.3 Stock Of Immigrants (% Of Population) (LN)

Mean = 1.29
Std. Dev. = 1.531
N = 186
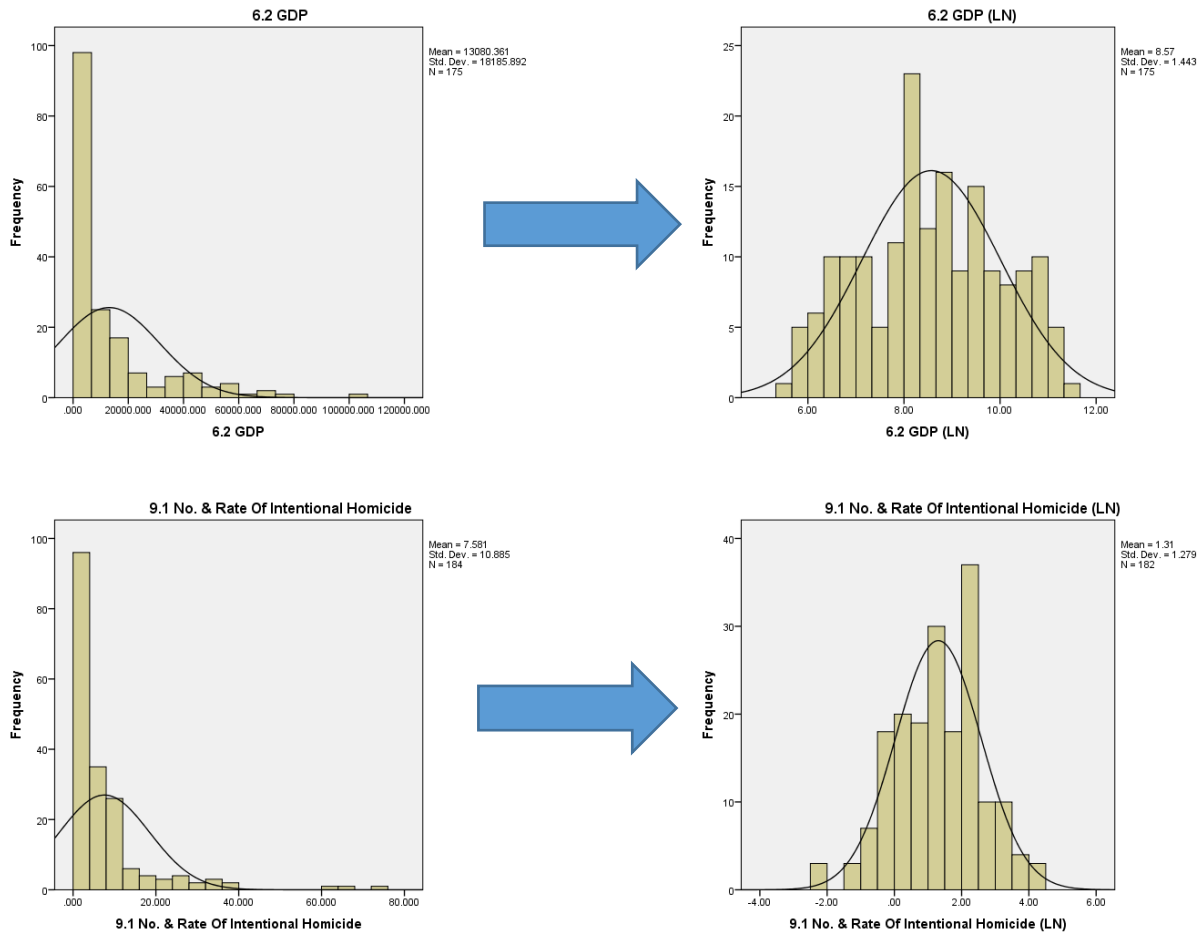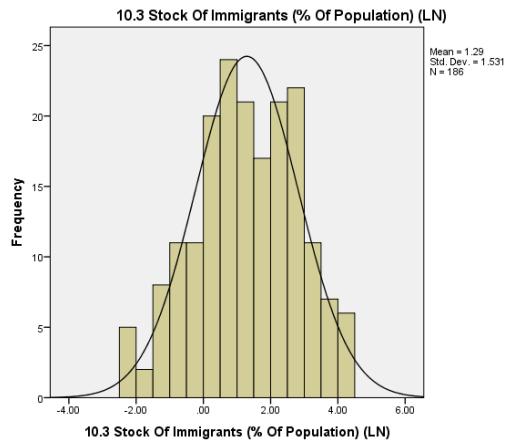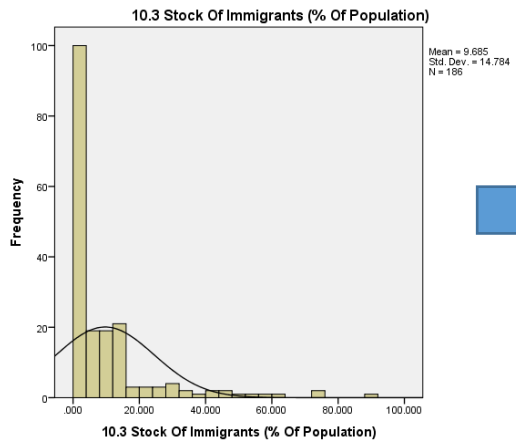
Appendix 4: Tables of moderator analyses results

Analysis 3a

PTD regressed on government effectiveness with moderators

	PTD rate			Proportion prisoners in PTD		
	b	*SE*	*β*	*b*	*SE*	*β*
Moderator = Corruption Perceptions Index						
Constant	59.092***	4.541		.326***	.019	
Government Effectiveness	-3.988	9.113	-.090	-.120	.038	-.596
Corruption Perceptions Index	9.572	9.669	.213	.033	.041	.162
Interaction	-10.276**	3.316	-.271	.022	.014	.127
Moderator = Control of Corruption						
(Constant)	61.522***	4.523		.296***	.018	
Government Effectiveness	1.679	8.169	.035	-.040	.032	-.196
Control of Corruption	6.082	8.406	.125	-.042	.034	-.207
Interaction	-10.372**	3.319	-.241	.044***	.013	.242

*Note. * p < .05. ** p < .01. *** p < .001.*

PTD regressed on Fragile States Index with moderators

	PTD rate			Proportion prisoners in PTD		
	b	*SE*	*β*	*b*	*SE*	*β*
Moderator = Corruption Perceptions Index						
(Constant)	57.397***	4.595		.329***	.020	
Fragile States Index	-11.781	7.665	-.272	.080	.034	.396
Corruption Perceptions Index	-4.933	8.321	-.112	-.012	.037	-.057
Interaction	9.674**	3.320	.265	-.029*	.015	-.171
Moderator = Control of Corruption						
(Constant)	58.350***	4.628		.314***	.020	
Fragile States Index	-11.658	7.328	-.259	.059	.031	.290
Control of Corruption	-4.725	7.642	-.106	-.034	.033	-.168
Interaction	10.033**	3.209	.265	-.037	.014	-.213

*Note. * p < .05. ** p < .01. *** p < .001.*

PTD regressed on Public Services Indicator with moderators

	PTD rate			Proportion prisoners in PTD		
	b	*SE*	*β*	*b*	*SE*	*β*
Moderator = Corruption Perceptions Index						
(Constant)	58.426***	4.727		.329***	.020	
Public Services Indicator	-2.234	6.002	-.051	.092***	.025	.459
Corruption Perceptions Index	3.601	6.740	.082	-.006	.029	-.028
Interaction	11.511**	3.918	.272	-.031	.016	-.157
Moderator = Control of Corruption						
(Constant)	59.000***	4.830		.313***	.020	
Public Services Indicator	-2.826	6.028	-.063	.076**	.025	.375
Control of Corruption	2.455	6.476	.055	-.023	.026	-.116
Interaction	10.819**	3.835	.249	-.043**	.016	-.217

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Analysis 3b

PTD regressed on homicide rate with moderators

	PTD rate			Proportion prisoners in PTD		
	b	*SE*	*β*	*b*	*SE*	*β*
Moderator = Democracy Index						
(Constant)	52.041***	2.963		.349***	.016	
Homicide Rate (ln)	13.971***	3.282	.336	.071***	.018	.344
Democracy Index	11.864***	3.048	.288	-.025	.016	-.122
Interaction	14.300***	3.583	.317	-.023	.019	-.103
Moderator = HDI						
(Constant)	56.392***	3.099		.339***	.016	
Homicide Rate (ln)	24.304***	3.233	.531	.037**	.017	.182
HDI	21.022***	3.102	.456	-.058***	.016	-.289
Interaction	14.289***	3.456	.268	.001	.018	.002

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

PTD regressed on fear of crime with moderators

	PTD rate			Proportion prisoners in PTD		
	b	SE	β	b	SE	β
Moderator = Democracy Index						
(Constant)	49.268***	3.258		.338***	.016	
Percent Feeling Safe	-16.918***	3.275	-.403	-.065***	.016	-.329
Democracy Index	9.633**	3.549	.222	-.021	.018	-.102
Interaction	-10.256**	3.245	-.255	.022	.016	.115
Moderator = HDI						
(Constant)	50.638***	3.563		.338***	.017	
Percent Feeling Safe	-20.895***	3.725	-.484	-.040*	.018	-.201
HDI	14.512***	3.829	.324	-.061***	.019	-.294
Interaction	-8.399*	3.740	-.174	.017	.018	.076

Note. * p < .05. ** p < .01. *** p < .001.

Analysis 3c

PTD regressed on HDI with moderators

	PTD rate			Proportion prisoners in PTD		
	b	SE	β	b	SE	β
Moderator = Democracy Index						
(Constant)	54.071***	3.779		.345***	.018	
HDI	2.450	4.028	.061	-.094***	.019	-.478
Democracy Index	4.313	4.206	.105	.021	.020	.102
Interaction	-11.276***	3.377	-.269	.007	.015	.036
Moderator = Voice and Accountability						
(Constant)	55.33***	3.87		.336***	.017	
HDI	4.56	4.08	0.10	-.079***	.018	-.385
Voice & Accountability	3.79	4.07	0.08	.011	.018	.055
Interaction	-9.85**	3.66	-0.20	.013	.016	.062

Note. * p < .05. ** p < .01. *** p < .001.

PTD regressed on GDP per capita with moderators

	PTD rate			Proportion prisoners in PTD		
	b	SE	β	b	SE	β
Moderator = Democracy Index						
(Constant)	55.170***	3.867		.341***	.019	
GDP per capita (ln)	4.318	4.131	.109	-.080***	.020	-.416
Democracy Index	4.736	4.474	.112	.019	.021	.093
Interaction	-12.123***	3.327	-.299	.007	.015	.035
Moderator = Voice and Accountability						
(Constant)	54.67***	3.91		.323***	.017	
GDP per capita (ln)	8.37	4.12	0.18	-.064***	.018	-.319
Voice & Accountability	2.18	4.44	0.04	-.003	.019	-.012
Interaction	-9.29**	3.92	-0.18	.020	.017	.090

Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

PTD regressed on government effectiveness with moderators

	PTD rate			Proportion prisoners in PTD		
	b	SE	β	b	SE	β
Moderator = Democracy Index						
(Constant)	54.066***	3.972		.327***	.018	
Government Effectiveness	-5.095	4.881	-.126	-.132***	.022	-.654
Democracy Index	8.673	4.875	.211	.057*	.022	.279
Interaction	-9.664**	3.186	-.243	.023	.014	.115
Moderator = Voice and Accountability						
(Constant)	54.19***	3.85		.311***	.017	
Government Effectiveness	0.17	4.37	0.00	-.077***	.019	-.379
Voice & Accountability	3.66	4.35	0.08	.013	.019	.062
Interaction	-7.01*	3.25	-0.16	.034*	.014	.169

Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

PTD regressed on Public Services Indicator with moderators

	PTD rate			Proportion prisoners in PTD		
	b	*SE*	*β*	*b*	*SE*	*β*
Moderator = Democracy Index						
(Constant)	54.134***	3.675		.341***	.017	
Public Services Indicator	1.732	3.894	.043	.104***	.018	.520
Democracy Index	7.427	4.038	.180	.019	.018	.093
Interaction	11.324***	3.223	.282	-.019	.014	-.099
Moderator = Voice and Accountability						
(Constant)	56.28***	3.99		.344***	.017	
Public Services Indicator	0.31	4.13	0.01	.102***	.017	.506
Voice & Accountability	6.76	4.23	0.15	.023	.017	.115
Interaction	10.00**	3.61	0.22	-.015	.015	-.071

Note. * *p* < .05. ** *p* < .01. *** *p* < .001

Appendix 5: Figures of moderator analyses results

Analysis 3a moderator results

	PTD rate	*Proportion prisoners in PTD*

Moderator = Corruption Perceptions Index

Government Effectiveness

**

Fragile States Index

**

Public Services Indicator

Per Capita PTD (y-axis, 0–100)
Low Public Services Indicator — High Public Services Indicator
Legend: Low Corruption Perceptions Index / High Corruption Perceptions Index
**

Percent Prison PTD (y-axis, 0–1)
Low Public Services Indicator — High Public Services Indicator
Legend: Low Corruption Perceptions Index / High Corruption Perceptions Index

Moderator = Control of Corruption

Government Effectiveness

Per Capita PTD (y-axis, 0–100)
Low Government Effectiveness — High Government Effectiveness
Legend: Low Control of Corruption / High Control of Corruption
**

Percent Prison PTD (y-axis, 0–1)
Low Government Effectiveness — High Government Effectiveness
Legend: Low Control of Corruption / High Control of Corruption
*

Fragile States Index

Per Capita PTD (y-axis, 0–100)
Low Fragile States Aggregate — High Fragile States Aggregate
Legend: Low Control of Corruption / High Control of Corruption
**

Percent Prison PTD (y-axis, 0–1)
Low Fragile States Aggregate — High Fragile States Aggregate
Legend: Low Control of Corruption / High Control of Corruption

Public Services Indicator

**

Note. Asterisks below each graph indicate the level of significance of the interaction between predictor and moderator.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Analysis 3b moderator results

	PTD rate	*Proportion prisoners in PTD*

Moderator = Democracy Index

Homicide Rate (ln)

**

Fear of Crime (% Feeling Safe)

**

Homicide Rate (ln)

**
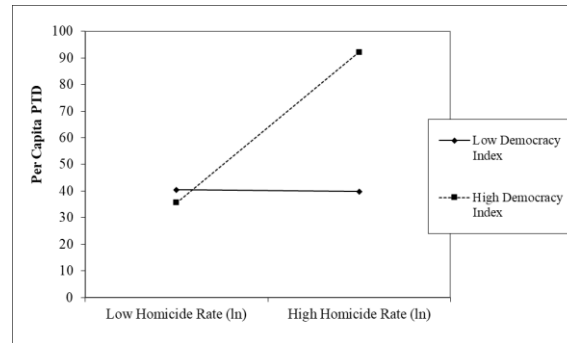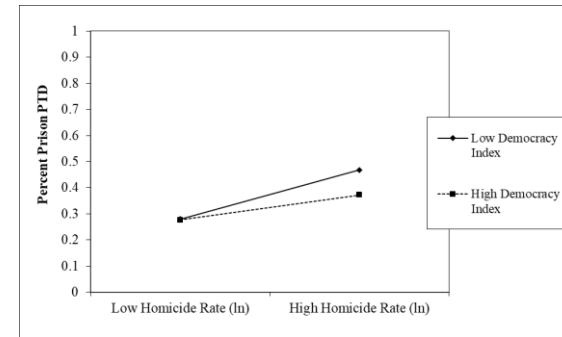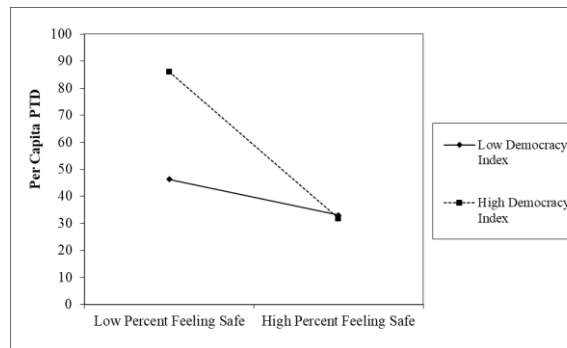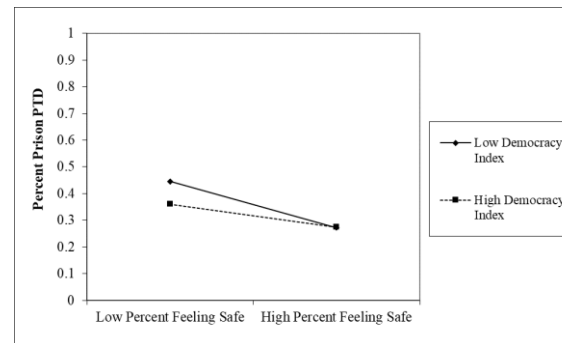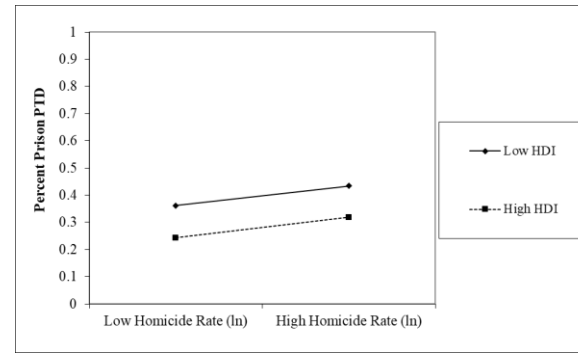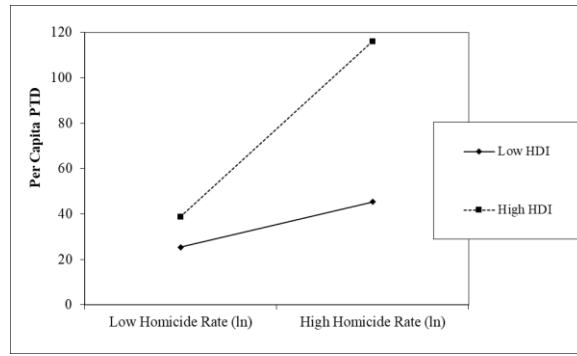
Fear of Crime (% Feeling Safe)

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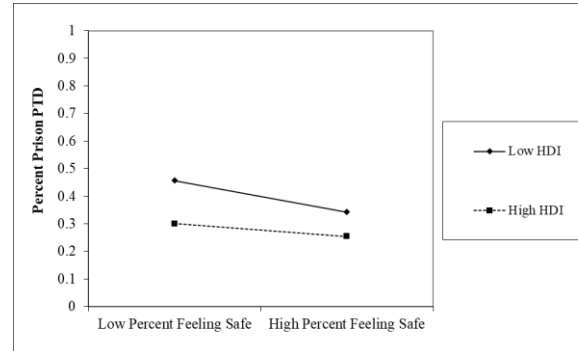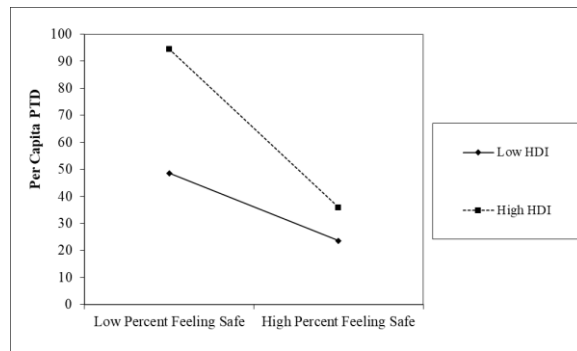
Note. Asterisks below each graph indicate the level of significance of the interaction between predictor and moderator.

* *p* < .05. ** *p* < .01. *** *p* < .001.

Analysis 3c Moderator results

	PTD rate	*Proportion prisoners in PTD*

Moderator = Democracy Index

HDI

***

GDP per capita (ln)

***

Government Effectiveness

**
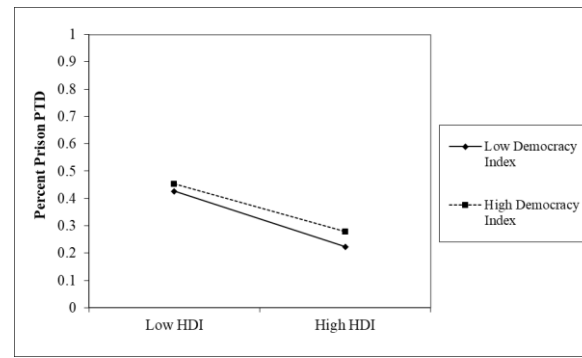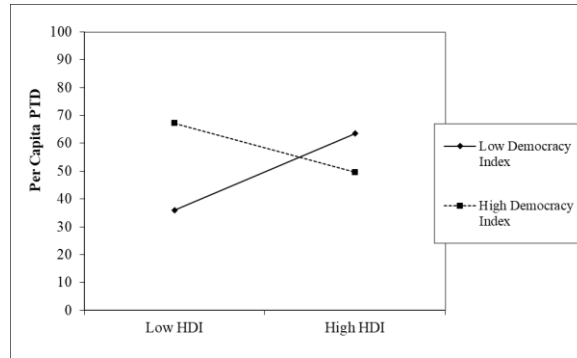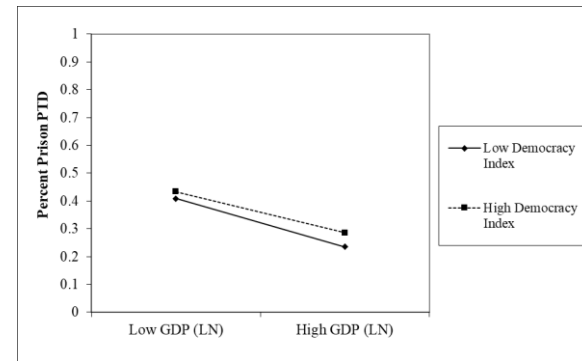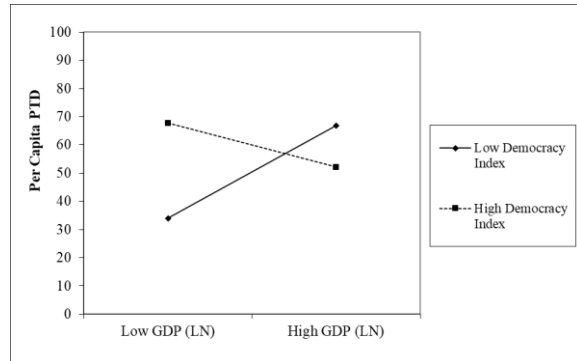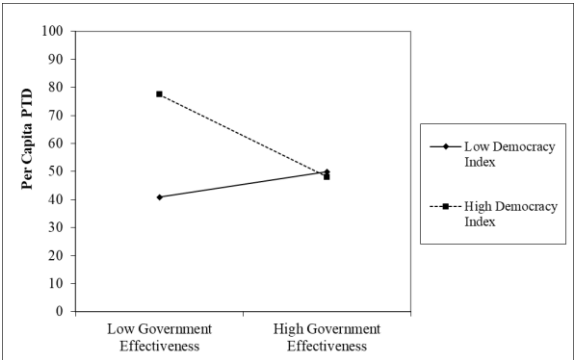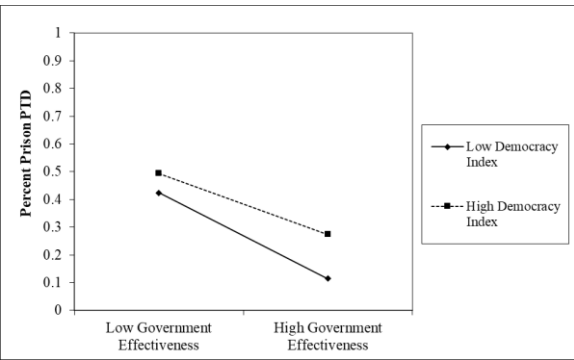
Public Services Indicator

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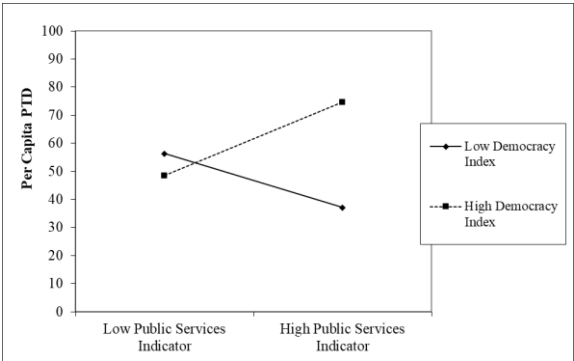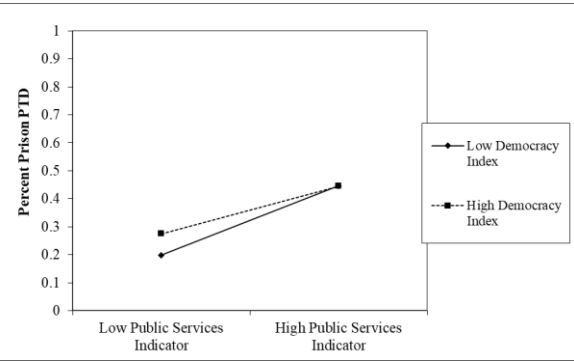
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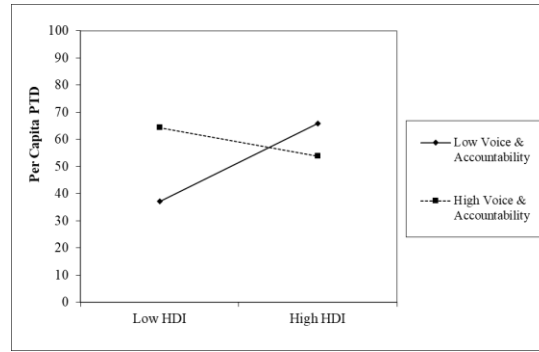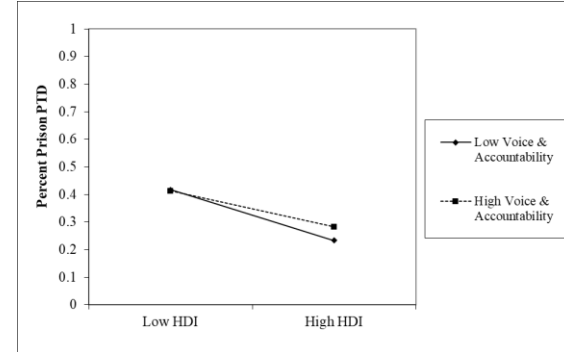
HDI

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GDP per capita (ln)
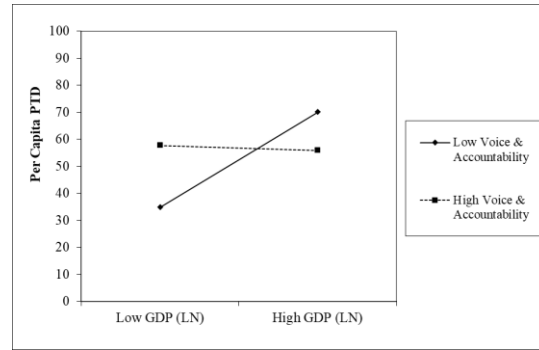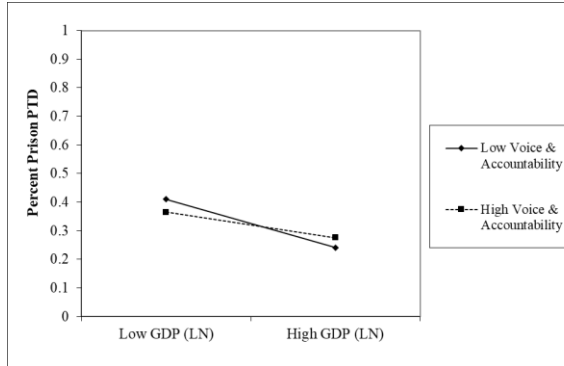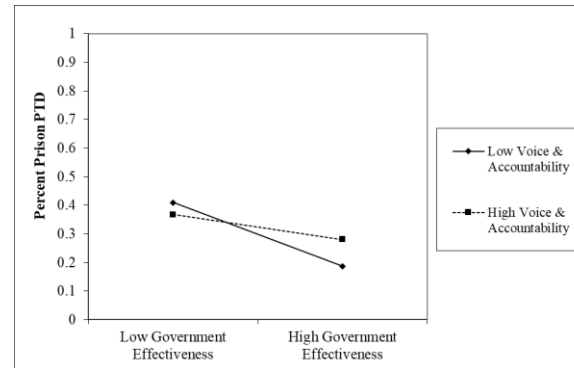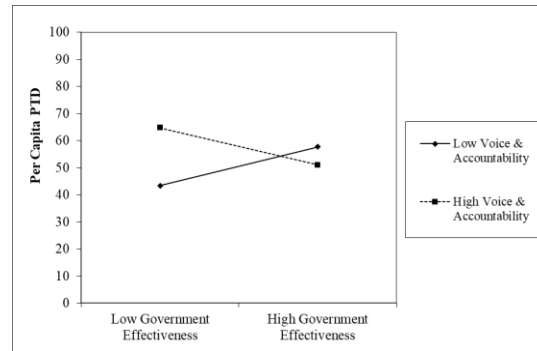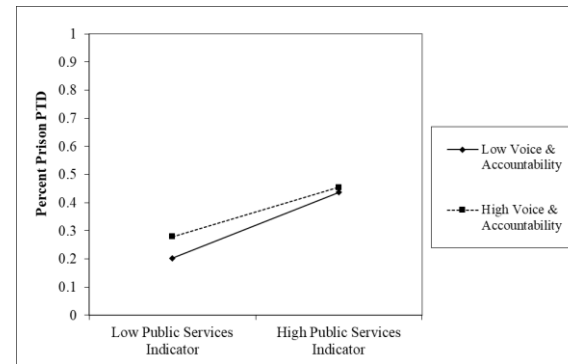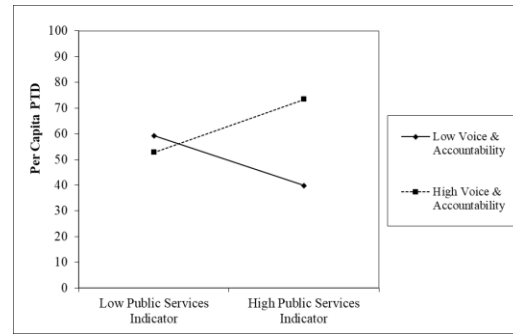
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Government Effectiveness

Public Services Indicator

Note. Asterisks below each graph indicate the level of significance of the interaction between predictor and moderator.

* p < .05. ** p < .01. *** p < .001.

Appendix 6: Summary of moderator analyses results

Q1: Does corruption moderate the relationship between state strength and pretrial detention?
M: Corruption Perceptions Index; Control of Corruption.
IVs: Government effectiveness; Fragile States Index; Public Services Indicator.

Proportion prisoners in pretrial detention

Moderator	IV	Interpretation
Corruption Perceptions Index	Fragile States Index	High perception of corruption, more fragile states -> somewhat more PTD.
		Low perception of corruption, more fragile states -> (slightly) more PTD.
Control of Corruption	Government effectiveness	Countries that highly control corruption, government effectiveness -> no effect on PTD.
		Countries that do not control corruption, government effectiveness -> less PTD.
	Fragile States Index	Countries that highly control corruption, state fragility -> no effect on PTD.
		Countries that do not control corruption, the more fragile the state -> more PTD.
	Public Services Indicator	Countries that highly control corruption, more basic public services -> (slightly) more PTD.
		Countries that do not control corruption, more basic public services -> more PTD.

Pretrial detention rate per 100,000 general population

Moderator	IV	Interpretation
Corruption Perceptions Index	Government effectiveness	High perception of corruption, more government effectiveness -> more PTD.
		Low perception of corruption, more government effectiveness -> less PTD.
	Fragile States Index	High perception of corruption, the more fragile the state -> (significantly) less PTD (or less fragile states -> more PTD).
		Low perception of corruption, the more fragile the state -> (slightly) less PTD.
	Public Services Indicator	High perception of corruption, more basic public services -> (significantly) less PTD.
		Low perception of corruption, more basic public services -> (significantly) more PTD.
Control of Corruption	Government effectiveness	Countries that highly control corruption, more government effectiveness -> less PTD.
		Countries that do not control corruption, more government effectiveness -> more PTD.
	Fragile States Index	Countries that highly control corruption, state fragility -> very slight less PTD.
		Countries that do not control corruption, the more fragile the state -> (significantly) less PTD.
	Public Services Indicator	Countries that highly control corruption, more basic public services -> more PTD.
		Countries that do not control corruption, more basic public services -> less PTD.

Q2: Does democratization and development level moderate the relationship between crime and pretrial detention?
M: Democracy Index; HDI; Urbanization.
IVs: Homicide rate; Fear of crime.

Proportion prisoners in pretrial detention: Nothing with Sig. <0.05.

Pretrial detention rate per 100,000 general population

Moderator	IV	Interpretation
Democracy Index	Homicide rate (LN)	Countries scoring well on Democracy Index, more homicide -> (significant) more PTD.
		Countries scoring badly on Democracy Index, more homicide -> no effect on PTD.
	Feeling safe	Countries more democratic, greater feeling of safety -> (significant) less PTD.
		Countries less democratic, greater feeling of safety -> (slightly) less PTD.
HDI	Homicide rate (LN)	For countries with high HDI, more homicide -> (significantly) more PTD.
		For countries with low HDI, more homicide -> (modestly) more PTD.
	Feeling safe	For countries with high HDI, greater feeling of safety -> (significantly) less PTD.
		For countries with low HDI, greater feeling of safety -> (modestly) less PTD.

Q3: Does democratization moderate the relationship between development and pretrial detention?
M: Democracy Index; Voice and Accountability Index.
IVs: HDI; GDP per capita; Government effectiveness; Public Services Indicator.

Proportion prisoners in pretrial detention

Moderator	IV	Interpretation
Voice & Accountability Index	Government effectiveness	Countries with high 'voice & accountability', more government effectiveness -> (slightly) less PTD.
		Countries with low 'voice & accountability', more government effectiveness -> (slightly) less PTD.

Pretrial detention rate per 100,000 general population

Moderator	IV	Interpretation
Democracy Index	HDI	Countries scoring badly on democracy Index, higher HDI -> more PTD.
		Countries scoring well on Democracy Index, higher HDI -> less PTD.
Democracy Index	GDP per capita	Countries scoring badly on Democracy Index, higher GDP -> more PTD.
		Countries scoring well on Democracy Index, higher GDP -> less PTD.
Democracy Index	Government effectiveness	Countries scoring badly on Democracy Index, higher government effectiveness -> slightly more PTD.
		Countries scoring well on Democracy Index, higher government effectiveness -> less PTD.
Democracy Index	Public Services Indicator (PSI)	Countries scoring badly on Democracy Index, higher PSI -> less PTD.
		Countries scoring well on Democracy Index, higher PSI -> more PTD.
Voice & Accountability Index	HDI	Countries with low 'voice & accountability', higher HDI -> more PTD.
		Countries with high 'voice & accountability', higher HDI -> less PTD.
Voice & Accountability Index	GDP per capita	Countries with low 'voice & accountability', higher GDP -> more PTD.
		Countries with high 'voice & accountability', higher GDP -> no change in PTD.
Voice & Accountability Index	Government effectiveness	Countries with low 'voice & accountability', more government effectiveness -> more PTD.
		Countries with high 'voice & accountability', more government effectiveness -> less PTD.
Voice & Accountability Index	Public Services Indicator	Countries with low 'voice & accountability', more basic public services -> less PTD.
		Countries with high 'voice & accountability', more basic public services -> more PTD.

Appendix 7: Availability of data for independent variables, by country

Country	PTD rate	Proportion prisoners in PTD	Unemployment	Gini Index	Social Welfare	Education Expenditure	Public Health Expenditure	Human Development Index	Urbanization	Democracy Index	Political Stability & Absence of Violence	Government Effectiveness	GDP per capita (ln)	Prison Occupancy Rate	Fragile States Index	Public Services Indicator	Police per capita	Corruption Perceptions Index	Control of Corruption	Rule of Law	Judicial Independence	Trust in National Government	Homicide Rate (ln)	Level of Peace / Insecurity	Law & Order Index	Safety and Security Index	Percent Feeling Safe	Fractionalization - Ethnic Diversity	Stock of Immigrants (% of Population) (ln)	Legal System Classification	Voice and Accountability Index	Press Freedom Index
Afghanistan	x	x	x			x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x		x	x
Albania	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Algeria	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	x	x	x	x	x	x
American Samoa	x	x						x		x	x		x						x	x										x		
Andorra	x	x				x	x	x	x		x	x		x				x		x	x								x		x	x
Angola	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x		x	x	x	x	x	x	x
Anguilla	x	x								x	x								x	x										x		
Antigua and Barbuda	x	x				x	x	x		x	x	x	x	x	x	x		x	x				x							x	x	x
Argentina	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Armenia	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Aruba	x	x						x		x	x		x						x	x										x		x
Australia	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x		x	x	x	x	x
Austria	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Azerbaijan	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bahamas	x	x	x			x	x	x		x	x	x	x	x	x	x	x	x	x			x							x	x	x	x
Bahrain	x	x	x			x	x	x	x	x	x	x	x	x			x	x			x	x		x	x	x	x	x	x	x	x	x
Bangladesh	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Barbados	x	x	x			x	x	x	x		x	x	x	x	x	x	x	x	x			x						x	x	x	x	x
Belarus	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Belgium	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Belize	x	x	x			x	x	x	x		x	x	x	x	x	x	x		x	x	x	x			x	x		x	x	x	x	x
Benin	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bermuda	x	x						x		x	x		x					x		x	x									x		
Bolivia	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	x	x	x	x			x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x			x	x	x	x	x
Bosnia and Herzegovina: Rep. Srpska	x	x												x																		
Botswana	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Brazil	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Brunei	x	x	x			x	x	x	x		x	x	x	x	x	x	x	x	x				x					x	x	x	x	x
Bulgaria	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Burkina Faso	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x		x	x	x	x
Burundi	x	x	x			x	x	x	x	x	x	x	x	x	x	x		x	x	x			x	x		x		x	x	x	x	x
Cambodia	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x			x	x	x	x	x	x	x	x	x	x
Cameroon	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Canada	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cape Verde	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x			x						x	x	x	x
Cayman Islands	x	x						x		x	x		x						x		x								x	x		
Central African Rep.		x	x	x	x	x	x	x	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x		x	x	x	x
Chad	x	x	x	x		x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x			x	x	x	x
Chile	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
China			x	x			x	x	x	x	x	x	x	x		x	x	x	x	x	x	x		x	x		x	x	x	x	x	x

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Colombia                      x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Comoros                       x x x     x x x x x x x x x x x x x x x x x x     x x     x x x x
Congo (Brazzaville)           x x x x   x x x x x x x x     x x     x x x x x x x x x x x x x x x x
Cook Islands                  x x                                                             x
Costa Rica                    x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Cote d'Ivoire                 x x x x   x x x x x x x x x x     x x x x x x x x x x     x x x x x
Croatia                       x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Curacao                       x x           x
Cyprus                        x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Czech Republic                x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Democratic Republic of Congo  x x x x   x x x x x x x x     x x     x x     x x x x x x x x x x x x
Denmark                       x x x x   x x x x x x x x x x x x x x x x x     x x x x x x x x x x
Djibouti                      x x x x x x x x x x x x     x x x     x x x x x x x     x x x x x x x
Dominica                      x x         x x x     x x x x       x x x x       x         x x x
Dominican Republic            x x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Ecuador                       x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Egypt                         x x x       x x x x x x x     x x     x x x x x x x x x x x x x x x
El Salvador                   x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Estonia                       x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Ethiopia                      x x x x x x   x x x x x x     x x     x x x x x x x x x x x x x x x x
Faeroe Islands                x x                             x                               x
Fiji                          x x x x x x x x x x x x x x x x x     x x         x         x x x x x
Finland                       x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
France                        x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
French Polynesia              x x x         x                 x                             x
Gabon                         x x x       x x x x x x x x     x x     x x x x x x x x x x x x x x x
Gambia                        x x x     x x x x x x x x x x x x x x x     x x         x x x x x x
Georgia                       x x x x x x x x x x x x x x x x     x x x x x x x x x x x x x x x x x
Germany                       x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Ghana                         x x x     x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Gibraltar (UK)                x x           x           x                                     x
Greece                        x x x x     x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Greenland                     x x           x     x x     x         x x                     x x
Grenada                       x x     x   x x x     x x x x x x x x x x       x         x x x
Guam                          x x x       x     x x     x         x x                       x
Guatemala                     x x x x x x x x x x x x x x x x x     x x x x x x x x x x x x x x x x
Guernsey (UK)                 x x                         x
Guinea                        x x x x   x x x x x x x x x x x x x x x x x x x x     x x x x x x
Guyana                        x x x     x x x x x x x x x x x x     x x x       x x   x     x x x x x
Haiti                         x x x x   x x x x x x x x x x x x x x x x x x x x x     x x x x x x
Honduras                      x x x x x x x x x x x x x x x     x x x x x x x x x x x x x x x x
Hong Kong                     x x x       x   x x x x x x x x         x x x x x x x x     x x x     x x x
Hungary                       x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Iceland                       x x x x   x x x x x x x x x x x x x x x x x x x x x x     x x x x
India                         x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Indonesia                     x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Iran                          x x x x   x x x x x x x x x x     x x x x x x x x     x x x x x x
Iraq                          x x x       x x x x x x x x x     x x x x x x x x x x x     x x x x
Ireland                       x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Isle of Man (UK)              x x           x           x         x                         x
Israel                        x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Italy                         x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Jamaica                       x x x     x x x x x x x x x x x x x x x x x x x x x x x       x x x x x
Japan                         x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Jersey (UK)                   x x                         x
Jordan                        x x x       x x x x x x x x x x x x x x x         x x x x x x x x x x x
Kazakhstan                    x x x x x   x x x x x x x x x x x x     x x x x x x x x x x x x x x x x
Kenya                         x x x     x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Kiribati                      x x         x x x     x x x x       x     x x       x             x x x
Kosovo                        x x     x x           x x x x       x x x       x x               x x
Kuwait                        x x x       x x x x x x     x x x x x x x       x x       x     x x x x x
Kyrgyzstan                    x x x x x x x x x x x x x x x x     x x x x x x x x x x x x x x x x x
Laos                          x x x x   x x x x x x x x     x x     x x x       x x       x x x x x x
Latvia                        x x x x     x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
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Lebanon                        x x x     x x x x x x x x x x x   x x x x x x x x x x x x x x x
Lesotho                        x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x
Liberia                        x x x x   x x x x x x x x x x x x x x x x x x x x x   x x x x x
Libya                          x x x     x x x x x x   x x x   x x x     x x     x   x x x x x
Liechtenstein                  x x       x   x x   x x   x       x   x x       x         x x x x x
Lithuania                      x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x
Luxembourg                     x x x x   x x x x x x x x x x x x x x x x x   x x x   x x x x x
Macau (China)                  x x x         x   x x x x       x     x x               x x
Macedonia                      x x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x
Madagascar                     x x x x   x x x x x x x x x x     x x x x x x x x x x x x x x x
Malawi                         x x x x x x x x x x x x x x x     x x x x x x x x x x x x x x x
Malaysia                       x x x x   x x x x x x x x x x x x x x x x x x x   x x x x x x x
Mali                           x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x
Malta                          x x x     x x x x x x x x x x x x x x x x x   x x x   x x x x x
Marshall Islands               x x         x     x   x x x x       x   x x     x       x x x
Martinique                     x x                   x x   x       x x                 x
Mauritania                     x x x x   x x x x x x x x x x x   x x x x x x x x x x x x x x x
Mauritius                      x x x x   x x x x x x x x x x x   x x x x x x x x x x x x x x x
Mayotte (France)               x x                           x                         x
Mexico                         x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Micronesia                     x x   x     x x x     x x x x x x x   x x       x       x x x
Moldova                        x x x x x x x x x x x x x x x x x   x x x x x x x x x x x x x x
Monaco                         x x       x x   x   x       x     x           x x x
Mongolia                       x x x x   x x x x x x x x x x x x   x x x x x x x x x x x x x x
Montenegro                     x x x x   x x x x x x x x x x x x x x x x x x x x x x   x x x x
Morocco                        x x x   x   x x x x x x x x x x x   x x x x x x   x x x x x x x x
Mozambique                     x x x x   x x x x x x x x x x x   x x x x x x x   x   x x x x x
Myanmar                        x x x     x x x x x x x x x x x x x   x x x   x x x   x x x x
Namibia                        x x x x x x x x x x x x x x x   x x x x x x x   x x x x x x x x
Nauru                          x x         x     x   x x x x       x   x x     x       x x x
Nepal                          x x x x   x x x x x x x x x x x   x x x x x x x x x x x x x x x
Netherlands                    x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x
New Caledonia (Fr)             x x x             x           x       x                   x
New Zealand                    x x x     x x x x x x x x x x x x x x x x x x x x x x x x x x x
Nicaragua                      x x x x x x x x x x x x x x x x x   x x x x x x x x x x x x x x
Niger                          x x x x   x x x x x x x x x x x x x x x x x x x x x   x     x x x
Nigeria                        x x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x
Norway                         x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x
Oman                           x x x     x x x x x x x x   x x   x x x     x x     x   x x x x x
Pakistan                       x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Palau                          x x         x x x     x x x x       x   x x     x       x x x
Panama                         x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x
Papua New Guinea               x x x x     x x x x x x   x x x x x x       x x         x x x x x
Paraguay                       x x x x   x x x x x x x x x x x   x x x x x x x x x x x x x x x
Peru                           x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Philippines                    x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Poland                         x x x x   x x x x x x x x x x x x x x x x x x x x x x x x x x x
Portugal                       x x x     x x x x x x x x x x x x x x x x x x x x x x x x x x x
Puerto Rico                    x x x         x   x x   x       x x                     x x
Qatar                          x x x     x x x x x x x x   x x   x x x     x x   x x   x x x x x
Romania                        x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Russian Federation             x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
Rwanda                             x x   x x x x x x x x x x x x   x x x     x x x x x x x x x x
Saint Kitts and Nevis          x x         x x x     x x x x       x   x x     x         x x x
Saint Lucia                    x x x     x x x x x   x x x x     x x x x     x         x x x
Saint Vincent and Grenadines   x x x     x x x x   x x x x     x x x x     x         x x x
Samoa                          x x x x     x x x   x x x x x x x   x x     x         x x x x
San Marino                     x x       x x   x   x       x   x                     x x x
Sao Tome and Principe          x x x x   x x x x   x x x x x x   x x x     x         x x x
Saudi Arabia                   x x x     x x x x x x x   x x   x x x       x x   x     x x     x x
Senegal                        x x x x x x x x x x x x x x x x   x x x x x x x x x x x x x x x x
Serbia                         x x x x x x x x x x x x x x x x x x x x x x x x x x x   x x x x
Seychelles                     x x   x   x x x x   x x x x x x     x x       x       x x x x x
Sierra Leone                   x x x x   x x x x x x x x x x x   x x x x x x x x x   x x x x x
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Country																																										
Singapore	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Sint Maarten	x	x					x					x			x																x												
Slovakia	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Slovenia	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Solomon Islands	x	x	x			x	x	x	x		x	x	x	x	x	x	x	x	x	x										x	x	x											
South Africa	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									
South Korea	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
South Sudan	x	x		x		x	x	x	x		x	x			x	x	x	x	x	x	x	x	x	x				x			x	x											
Spain	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Sri Lanka	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x												
Sudan	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x		x	x	x	x		x	x		x	x		x	x	x	x											
Suriname	x	x	x			x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x	x		x	x	x	x	x												
Swaziland	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x												
Sweden	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Switzerland	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Syria	x	x	x			x	x	x	x	x	x		x	x	x		x	x	x		x	x		x	x	x	x	x	x														
Taiwan	x	x					x	x	x		x				x	x	x			x	x		x	x	x	x	x																
Tajikistan	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x			x	x	x	x	x	x	x	x	x	x										
Tanzania	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Thailand	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									
Timor-Leste	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x		x	x	x		x	x					x	x	x	x												
Togo	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Tonga	x	x	x	x		x	x	x		x	x	x	x		x		x	x		x				x	x	x	x																
Trinidad and Tobago	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x												
Tunisia	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Turkey	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									
Turkmenistan	x	x	x			x	x	x	x	x	x	x	x	x	x	x		x	x	x			x	x	x		x	x	x	x	x	x											
Tuvalu			x				x		x			x	x	x			x			x	x			x						x	x	x											
Uganda	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Ukraine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
United Arab Emirates	x	x	x			x	x	x	x	x	x	x	x	x	x	x		x	x	x			x	x		x	x	x	x	x	x												
United Kingdom		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
United States	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Uruguay	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Uzbekistan	x	x	x			x	x	x	x	x	x	x	x	x	x		x	x	x			x	x	x		x	x	x	x	x	x												
Vanuatu	x	x	x	x		x	x	x	x		x	x	x	x		x		x	x		x				x	x	x																
Venezuela	x	x	x			x		x	x	x	x		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x												
Vietnam	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x											
Virgin Is. (UK)	x	x					x					x													x																		
Virgin Is. (US)	x	x	x				x		x	x		x					x	x							x																		
Yemen	x	x	x			x	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Zambia	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										
Zimbabwe	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x										

Note. "x" indicates available data for the given variable.

Appendix 8: Description of terms

Accused person: A person who has been formally charged with an offense(s). Also known as a "defendant".

Alternatives to pretrial detention: Any form of pretrial release in which the defendant is required to comply with specific conditions set by the court, which can be financial, non-financial, or both. Examples include an undertaking by the defendant not to interfere with the investigation or not to make contact with witnesses in his or her case; depositing a sum of money with the court (also known as "money bail"); regular reporting to the police or prosecutor's office; electronic monitoring; or house arrest.

Arrestee: A person who has been placed under arrest by police but not yet charged with an offense(s). Also known as a "suspect".

Bail: The process of releasing a defendant from state custody with the understanding that the defendant will return for his / her trial and required court appearances. The release can be conditional – see "alternatives to pretrial detention". While generally a judicial function, some jurisdictions provide for "police bail" whereby police officers of a certain rank can release arrestees on bail prior to their first court appearance.

Civil law: A legal system with a highly structured code of rules and codified statutes. In a civil law system, the judge's role is to establish the facts of the case and to apply the provisions of the applicable code. Civil law is derived from Roman law, and is generally followed in the countries of continental Europe, their former colonies, and in much of Asia (outside of south Asia) and Latin America. Civil law often functions as an inquisitorial system where the court is actively involved in investigating the facts of the case, with judicial officers taking an active role in preparing evidence, questioning witnesses, and finding the truth.

Common law: A legal system that gives significant precedential weight to judicial decisions based on custom and precedent. Common law systems originated during the Middle Ages in England, and from there spread to the colonies of the British Empire. Common law typically functions as an adversarial system, a contest between two opposing parties before a judicial officer who moderates as an impartial referee.

Convicted prisoner: A person who is in prison as a result of being convicted of an offense(s).

Defendant: A person who has been formally charged with an offense(s). Also known as an "accused" or "accused person".

Judicial officer: A person with the responsibilities and powers to facilitate, arbitrate, preside over, and make decisions and directions in regard to the application of the law. Judicial officers are often categorized as judges or magistrates.

Jurisdiction: The geographical area over which a state institution (e.g., police, prosecutor's office, court) has formal authority.

Lock-up: A place of confinement where arrestees are held prior to their first court hearing. These are characteristically holding cells at police stations or a local jail.

Pretrial detainee: A defendant who is awaiting trial or the finalization of trial while in detention. Also known as "remand prisoner", "remandee", "awaiting trial detainee", "untried prisoner", "unconvicted prisoner", and "unsentenced prisoner".

Pretrial detention: The custody status of a defendant who is awaiting trial or the finalization of trial while in detention. The detention can be intentional (i.e., where a judicial officer remands a defendant to pretrial detention) or unintentional (e.g., where a judicial officer

grants a defendant money bail but the latter is unable to deposit the requisite amount with the court).

Pretrial release / detention decision: A court's determination whether a defendant will be at liberty or held in detention until the disposition of his or her case.

Remand facility / center: An institution to which defendants are sent while awaiting trial or the finalization of their trial, typically by being remanded to pretrial detention by a judicial authority.

Remandee: A defendant who has been formally remanded to pretrial detention by a judicial authority.

Sentenced prisoner: A convicted person who is in prison serving the sentence imposed on him or her by a judicial authority.

Unsentenced prisoner: An incarcerated defendant awaiting trial or the finalization of his / her trial.

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