CENTRALIZED AND DECENTRALIZED POLICE SYSTEMS:

A CROSS-NATIONAL MIXED-METHODS STUDY OF THE EFFECTS OF

POLICING STRUCTURES WITH LESSONS FOR THAILAND

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by

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

CENTRALIZED AND DECENTRALIZED POLICE SYSTEMS:

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and hereby certify that, in their opinion, it is worthy of acceptance.

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To the Lowatcharins

and the Kongudoms

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ABSTRACT

Policing encompasses a wide range of services, which can be assigned to different levels of governments. Because there are potential advantages and disadvantages related to each option, the decision to adopt a more centralized or decentralized system is an important policy issue for countries around the world. Since the 1990s, there have been calls for empirical studies of effects of the structural arrangements on police performance, but the literature lacks generalizable studies of the effects of police systems. The lack of standardized classification makes it difficult to examine empirically the effects of police systems.

The objectives of this study are threefold. First, to develop a typology of police systems by integrating theories of new institutionalism, decentralization, and fiscal federalism. Second, to empirically examine the effect of centralized and decentralized police systems on police performance and demand for police. Third, to provide an ex-ante analysis of the potential effects of Thailand's decentralization of police services and to derive policy implications.

This study constructs a new typology of police systems—i.e., the police decentralization index—that measures the varying degrees of police decentralization. The index is employed to examine the effects of police decentralization on citizen trust, demand for police, and crime rates by utilizing an unbalanced panel dataset from 2001 to 2012 for 72 countries.

Findings indicate that the structure of police systems is not significantly related to

citizen trust in the police. This finding is opposite of expectations given that new institutionalism argues that structure affects conduct and performance (North, 1990, 1991) and that decentralization is argued to move the government closer to the citizens and enhance relations between them (Oates, 1972, 1977, 1999; Pollitt, 2005).

The structure of police systems is inversely associated with demand for police: countries with a more decentralized police system tend to employ fewer police officers. Fiscal federalism argues that decentralized government is more responsive to citizen preferences and, thus, more efficient (Oates, 1972, 1977, 1999; Tiebout, 1956, 1961). This finding suggests preferences for police are lower in decentralized systems and is consistent with prior studies by Ostrom (1976), Ostrom and Parks (1973), and Ostrom and Smith (1976).

The effects of the structure of police systems on crime rates are mixed: decentralized police systems tend to have more homicides but fewer thefts and have no significant effects on robberies. These findings suggest that decentralized police systems may be more effective in preventing property crimes but not violent crimes. While the finding about homicides is opposite prior research in the United States by Ostrom and Smith (1976), the finding about thefts are consistent with that prior research.

Based on these findings, if Thailand were to adopt a more decentralized police system, there would be no changes in the level of citizen trust in the police and the robbery rate. The homicide rate would increase by 5.32 per 100,000 inhabitants, and the theft rate would decrease by 110 per 100,000 inhabitants. The demand for police would decrease by 29.83 officers per 100,000 inhabitants.

CHAPTER 1

INTRODUCTION

Context of Policing in Thailand

In 2000, when asked in a nationwide survey to rank the most corrupt public

institutions, Thailand's household heads rated the police and the politicians as the least

honest (Phongpaichit, Treerat, Chaiyapong, & Baker, 2000). More than a decade later,

the situation remained unchanged as the police and the politicians scored highest on the

perceived level of corruption (Hardoon & Heinrich, 2013). Corruption, however, is not

the only pervasive problem of the Thai police; other persistent problems include

inefficiency, ineffectiveness, unresponsiveness, lack of citizen engagement, lack of

resources, and lack of innovation (Temchavala & Kirdvichai, 2005). These problems

appear to be commonplace in police systems in developing and transitional countries

(Andvig & Fjeldstad, 2008; Pino & Wiatrowski, 2006).

The modern history of policing in Thailand started in 1860 (Temchavala &

Kirdvichai, 2005; Thai Police Museum, 2013). Over the course of the years, there have

been thus far two major structural reforms. The first reform—after the 1932 democratic

revolution that put the end to absolute monarchy and introduced a parliamentary

democracy—integrated the various police agencies into the Ministry of Interior (Royal

Thai Police, 2011). The second one—in 1998-2004, based on the concepts of new public

management such as efficiency, effectiveness, and accountability—transferred the Royal

Thai Police (RTP, the national police agency) from the Ministry of Interior to be directly

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under the Prime Minister (Poothakool & Glendinning, 2013; Temchavala & Kirdvichai, 2005; Thai Police Museum, 2013). This reform was criticized as only putting old wine in new bottles as there were no major changes in governing structure, which has remained highly centralized since before the democratic revolution (Comprehensive Thai, 2013). Under the current structure, policing in Thailand can be found at the national, provincial, and local levels but all of them are controlled by and accountable to the RTP. More specifically, the RTP is geographically divided into nine police regions, 76 provincial-level police divisions, and 1,456 police stations (Royal Thai Police, 2013) with 213,664 police officers nationwide or approximately 328 police officers per 100,000 inhabitants (National Statistics Office, 2012).[1]

In the past few years, there have been calls for police reform from diverse interest groups. Among these calls, decentralization of policing to local governments is argued to be a potential solution to the police problems. For instance, supporters of the self-governing Chiang Mai movement proposed the Chiang Mai Metropolitan Bill, which includes a decentralized form of law enforcement services (Chanruang, 2011) and supporters of the Student and People Network for Thailand's Reform (STR) and the People's Democratic Reform Committee (PDRC) proposed a nationwide decentralized police system (Dailynews, 2014; PatNews, 2014).

These calls are not without any research-based support. A 2005 study on police organization reform commissioned by the Senate gives a similar recommendation, i.e., to decentralize police services and have popularly elected police representatives that

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[1] The US has approximately 248 police officers per 100,000 people (Bureau of Labor Statistics, 2014).

supervise local law enforcement (Temchavala & Kirdvichai, 2005). More specifically, the authors argue that, in order to be more efficient and accountable, (1) current functions and responsibilities in addition to law enforcement and crime prevention—e.g., fire police, railroad police, and forest police—should be devolved to other agencies, and (2) provincial police commissions—with popularly elected representatives—should be established.

In 2006, the Police Reform Committee (PRC) was appointed to develop a police system that was transparent, accountable, responsible, efficient, credible, and trustworthy (Poothakool & Glendinning, 2013). The PRC made a number of recommendations, including the decentralization of police services (Poothakool & Glendinning, 2013).[2] However, the recommendations upset the police, and the RTP appears to oppose strongly the idea of decentralizing the police. As a result, the PRC's proposal has not been implemented (Poothakool & Glendinning, 2013). In 2012, the then spokesman of the Royal Thai Police headquarters harshly criticized the police decentralization proponents, saying that: "Should the police be decentralized, the kingdom would be under fire!" (Prakai Saeng Dao Project, 2012, para. 6). The Chairman of the PRC himself later stated

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[2] The recommendations are: "I. Decentralize the RTP to metropolitan, provincial and other police bureaus, including devolved budgets, personnel administration, transfers and promotions; II. Create public participation in police administration through PPCs (Police Policy Committees); III. Monitor police performance and relations with the public through an ICC (Independent Committee of Complaints); IV. Transfer a range of non-police functions to other state agencies; V. Develop the investigations' system through a central investigative directorate; VI. Reorganize operations at the station level towards more autonomous, problem-focused, community-oriented policing and more representative local boards; VII. Develop police recruitment, education and training; VIII. Review police salaries and welfare as separate within the Civil Service; IX. Eliminate military ranks for non-commissioned officers (NCOs) and develop career progression in its place, related to civilianization of the force, and; X. Establish an office for justice system reform generally" (Poothakool & Glendinning, 2013, pp. 373-374).

that such reform failed due to political interventions and the police's resistance to changes (Dejkunjorn, 2013).

Centralized and Decentralized Policing

Decentralization refers to, in general, the transfer of authority, responsibility, and resources from a tier of government (e.g., central, federal, national, regional, state) to other entities, such as: (1) field units of the higher government ministries or agencies; (2) subordinate levels of government; (3) semi-autonomous public authorities or corporations; (4) area-wide, regional, or functional authorities; and (5) private, non-profit, or non-governmental organizations (Rondinelli, Nellis, & Cheema, 1983). The transfer of authority to field units (1 above) is the least extensive type of decentralization (Cohen & Peterson, 1997; Rondinelli et al., 1983; Schneider, 2003) as it merely shifts the administrative workload from the central government ministry headquarters to field offices located outside the national capital (Rondinelli, 1981). The current study focuses on decentralization of authority to subordinate levels of government (2 above) from the current structure of field units reporting to a national police authority (1 above). The study will not consider the other three types of decentralization.

As in many other countries, movements toward political, fiscal, and administrative decentralization emerged in Thailand in the 1980s (Dufhues, Theesfeld, Buchenrieder, & Munkung, 2011; Nagai, Mektrairat, & Funatsu, 2008). However, it was not until the late 1990s—after a series of decentralization law enactments—that substantial changes have been implemented in Thailand. A total of 238 public services— e.g., transportation infrastructures, utilities, sport and recreation services, planning, investment promotion, natural resource conservation, etc.—have been transferred from

national government agencies to local governments (Chardchawarn, 2010; Dufhues et al., 2011; Haque, 2010; Kokpol, 2012). However, no police services have been transferred, nor are there plans to do so.

What is sometimes lost in the debate, which focuses on decentralization vs. centralization is the more nuanced question: Which police services would be improved if decentralized, and which would not? This question, a normative question of which public services should be assigned to centralized government and which to decentralized government, is quintessential to the theory of fiscal federalism (Anderson, 2010; Oates, 1972, 1999). The traditional theory of fiscal federalism addresses the vertical structure of the public sector to "understand which functions and instruments are best centralized and which are best placed in the sphere of decentralized levels of government" (Oates, 1999, p. 1120). A police system encompasses a wide range of services—from stopping traffic offenses to suppressing national drug dealing networks—that might be assigned to different levels of governments for best results.

According to Kurtz (1995), "The question of centralized versus decentralized police organization is perhaps the most important police decision facing the nations of the worlds" (p. 90) because there are potential advantages and disadvantages related to each option. Police systems in Brazil and Venezuela were decentralized in 1988 and 1999 respectively (S. Johnson, Forman, & Bliss, 2012) and Mexico moved toward more centralized policing in 2010 (Esparza, 2012). The Philippines decentralized some administrative and political powers to local governments in the early 1990s (Das, 2006). Additionally, South Korea is considering moving toward decentralized policing (Park & Johnstone, 2013).

Based on structural arrangements and service assignments, the police services are classified into two major systems: centralized and decentralized (Bayley, 1992; Kurtz, 1995; Terrill, 2009; UNAFEI, 2003). A centralized or national police system refers to a police system in which the national government is responsible for all law enforcement. Examples of countries that use this system are Ireland and Thailand. A decentralized police system refers to a police system in which responsibility for law enforcement is shared by various levels of government with specific assignments of duties and defined coordination, for example, the US system.

In 1992, Bayley noted that the study of the effects of institutional arrangements—i.e., centralized vs. decentralized policing—on police performance was in its infancy; there were descriptive case studies, but few comparative studies. Bayley called for more empirical examinations of the effects of police institutional arrangements. Specifically, Bayley proposed that institutional arrangements should be added to statistical models as an independent variable. While there is now a number of cross-national, comparative studies on the subject matter, most of the works are descriptive in nature, provide normative arguments, and/or emphasize two or a small set of countries (e.g., de Millard & Savage, 2012; Park & Johnstone, 2013; Reichel, 2013; Reiss, 1995; Terrill, 2013; UNAFEI, 2003).

More than two decades later, the situation seems unchanged as the literature of comparative police studies still lacks generalizable studies of the effects of police systems. Indeed, there are two interrelated issues about the study of police systems. First, the classifications used in the policing literature are neither standardized nor based on a theoretical framework related to decentralization of public goods and services.

Second, the lack of standardized classification makes it difficult to conduct comparative cross-national, quantitative studies of the effects of police systems.

Research Objectives

To address the aforementioned issues in Thailand and in the literature of policing, the objectives of this study are threefold. First, to develop a typology of police systems by integrating theories and frameworks found in the literatures of new institutionalism, decentralization, and fiscal federalism. Second, to examine the effect of centralized and decentralized police systems on police performance by means of empirical analyses. Third, to provide an ex-ante analysis of the potential effects of Thailand's decentralization of police services and to derive policy implications from the analysis.

Outline of the Study

The three objectives not only set the agenda for the current study but also require a specific research methodology. Mixed methods research allows the researcher to collect and analyze rigorously both qualitative and quantitative data (Creswell & Plano Clark, 2011). The current study employs an exploratory mixed methods design that comprises three phases relative to the three objectives. The first phase is an exploration of a typology of the police systems found in countries around the world and synthesizing empirical studies related to police systems via document analysis. The second phase is an empirical quantitative examination of the relationship between police systems and police performance and demand for police by means of statistical techniques. Findings from the first and second phases are then synthesized to address the third objective. Figure 1.1 exhibits an outline of this study, highlighting the theoretical and methodological frameworks as related to the findings and outcomes.

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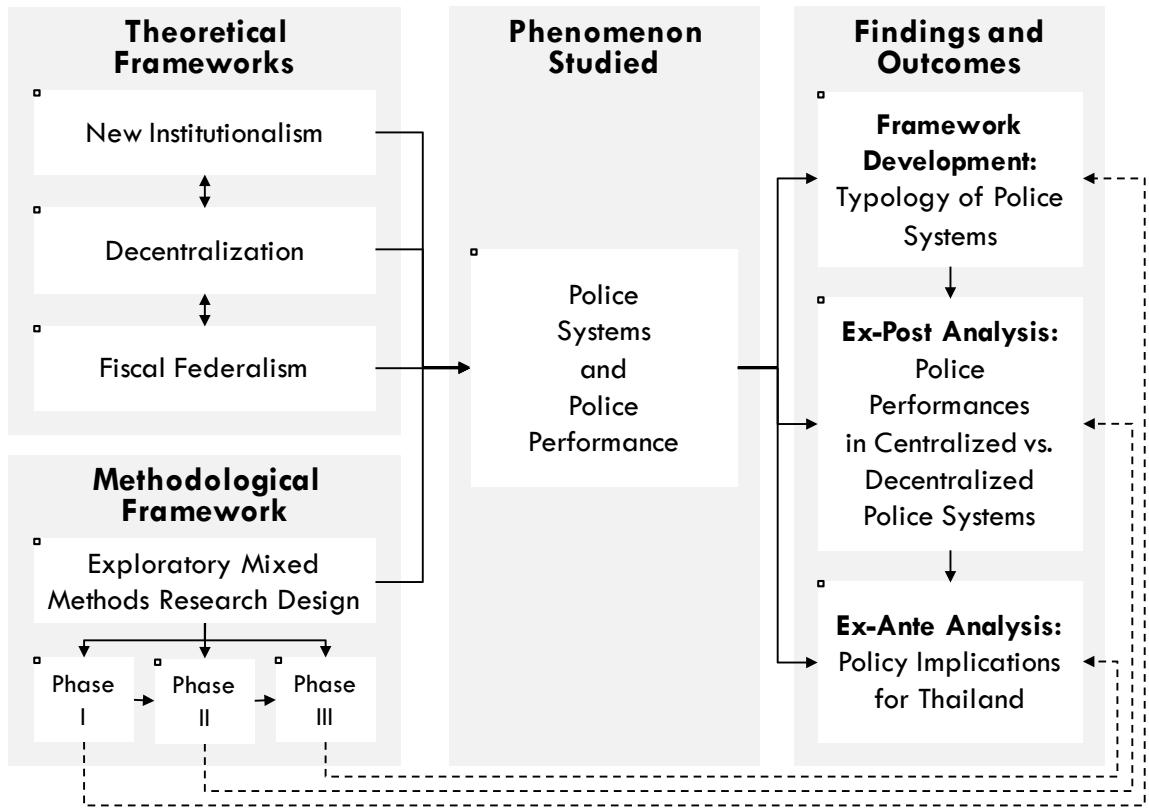
Figure 1.1. Outline of the current study.

The organization of the current study is as follows. Chapter 2 reviews three major

theories related to the subject matter—i.e., new institutionalism, decentralization and

fiscal federalism—and develops a theoretical framework that guides the analysis and

interpretation. Chapter 3 elaborates research questions, hypotheses, and methods

employed in the study, connecting the developed theoretical framework and police

systems. Chapter 4 develops a typology of the police systems and analyzes the existing

empirical studies related to the police systems. Chapter 5 is a cross-national, empirical

analysis of the effects of police systems on police performance using random effects

estimation. Chapter 6 discusses findings from the empirical analyses. Chapter 7

provides an ex-ante analysis of the case of Thailand as well as discussions about policy

implications and recommendations for further research.

CHAPTER 2

THEORETICAL FRAMEWORK

This study examines how structural arrangements affect individual's behavior and

performance using a combination of three theories that primarily focus on governmental

structures: new institutionalism, decentralization and fiscal federalism. This chapter

provides a review of each of the three theories and develops a conceptual framework for

the study of the decentralization of police systems.

New Institutionalism

Institutionalism Defined

Institutionalism argues that institutional arrangements or structures affect an

individual's decision-making, behavior and performance. Study of institutions traces

back to antiquity but it was around the nineteenth century that a systematic study of

institutions emerged (Barkanov, 2007; Ménard & Shirley, 2008; Peters, 1999) commonly

using inductive, legal, historical, and comparative methods (Barkanov, 2007, 2014;

Bevir, 2007, 2010). An interdisciplinary approach, institutionalism is a framework used

by economists, political scientists, sociologists, anthropologists, and psychologists

(Barkanov, 2007). Although the main emphasis on institutions' roles is similar, there are

variations among disciplines, especially as how to define institutions. Because

decentralization of police services is an institutional change it is expected to affect police

behavior and performance. Thus, institutional analysis may provide insights into

potential changes in the behavior and performance of police systems.

Evolution of Institutional Thought

The evolution of institutionalism is generally divided into two major periods and hence the names old and new institutionalisms (Bevir, 2010; Ménard & Shirley, 2008; Peters, 1999).

Old Institutionalism. Originating from economics, political science, and sociology, institutionalism developed during the late nineteenth century and the first half of the early twentieth century. It emphasized formal structures and rules. In the 1960s and 1970s it was challenged by newer approaches, such as structural functionalism, systems theory (Barkanov, 2007), behavioralism, rational choice theory, and neoliberalism (Bevir, 2010). These approaches focus on actual activities, individuals' preferences and interests, markets, and networks, which were not emphasized in intuitionalism (Bevir, 2010). Proponents of these approaches attempted to create universal theories that "explain social action with relatively little reference to specific institutional settings" (Bevir, 2007, p. 373). The word "old" was added as a modifier with the rise of "new" institutionalism.

New Institutionalism. New institutionalism refers to the resurgence of the institutionalist approach from around the 1970s and the 1980s in response to criticisms by behavioralists, rational choice theorists, and neoliberalists, which proponents of institutionalism, in general, welcomed and incorporated into their approach (Bevir, 2010). While there is a common emphasis on the importance of institutions, new institutionalism is a family of approaches that encompass a variety of schools of thought (Bevir, 2010; Hall & Taylor, 1996; Nitta, 2007). Commonly found in the literature are four schools of thought, whose differences rest on disciplinary backgrounds and foci: new institutional

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economics (Ménard & Shirley, 2008), rational choice institutionalism, historical

institutionalism, and sociological institutionalism (Bevir, 2010; Hall & Taylor, 1996). As

March and Olsen (2006) note, the differences among the schools of thought are in the

way "they understand (a) the nature of institutions, as the organized setting within which

modern political actors most typically act; (b) the processes that translate structures and

rules into political impacts; and (c) the processes that translate human behavior into

structures and rules and establish, sustain, transform, or eliminate institutions" (p. 4).

Other disciplines would talk about actors in other arenas not just the political.

Specifically, in economics, new institutional economists do not reject the

neoclassical economic premise of rationality but argue that individuals' rationality is

bounded by institutional contexts that constrain their decision-making (North, 1990,

1991; Ostrom, 1990, 2007; Williamson, 1995, 2000). Coase's (1937, 1960) arguments

about transaction costs are generally considered the foundation of new institutional

economics. Coase (1984) argues that "what distinguishes the modern institutional

economists is not that they speak about institutions...but that they use standard economic

theory to analyze the working of these institutions and to discover the part they play in

the operations of the economy" (p. 230).[3] North (1990) defines institutions as "the rules

of the game in a society or, more formally, [they] are the humanly devised constraints

that shape human interaction. In consequence, they structure incentives in human

exchange, whether political, social, or economic. Institutional change shapes the way

societies evolve through time and hence is the key to understanding historical change"

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[3] Influential figures of new institutional economics include Kenneth Arrow (1987),
Douglas North (1990, 1991), Elinor Ostrom (1990, 2007), and Oliver Williamson (1975,
1985, 2000, 1995).

(p.3). Institutions "can be both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)" (North, 1991, p. 97). This definition of institutions will guide the analyses and interpretation in the current study.

Influence of Institutions on Individuals' Behavior

Institutions influence individuals' behavior (North, 1990, 1991). From an economic point of view, individuals need information when they are making decision about any given issue but they rarely have complete information. Making decision with incomplete information increases risk and this is where institutions come into play. According to North (1990):

> Institutions exist to reduce the uncertainties involved in human interaction.
> These uncertainties arise as a consequence of both the complexity of the
> problems to be solved and the problem-solving software (to use a
> computer analogy) possessed by the individual. There is nothing in the
> above statement that implies that the institutions are efficient. (p. 25)

That is, in order to make any informed decision, individuals decipher essential information from their surroundings, social values and norms, laws and regulations, organizational structures and politics, and so on. As individuals find that information given by an institution helps reduce their risk and increase their utility, they keep relying on that institution and act accordingly. Thus, institutions not only reduce individuals' uncertainties and risks but also shape individuals' behavior and performance (North, 1990). Different institutions have different influences on individuals and an institutional change changes individuals' behavior and performance.

The New Institutionalism and Decentralization

The new institutionalist approach in the study of decentralization is employed to explain decentralized governing mechanisms (Bartley, Anderson, Jagger, & Van Laerhoven, 2008; Ostrom, 1990), to assess the values and implementation of decentralization (Hadiz, 2004) or to estimate the outcomes of decentralization (Ostrom, 1990; Voigt & Blume, 2012). The new institutionalist approach contributes to the current study in two ways. First, it provides a broader theoretical explanation of how centralization and decentralization, as institutional variants may affect police performance and outcomes. That is, a decentralized police system denotes a different set of institutional or structural arrangements, both formal and informal, relative to that of centralized police system and as a result may experience different police performance. Second, it provides insight on how other institutions—e.g., culture, politics, economic structure—affect the implementation of decentralized or centralized police systems. This is specifically crucial to the comparative analyses of police systems in different countries.

Decentralization

Since the 1980s, even unitary states that have a tradition of centralist government have participated in the movement toward decentralization (J. Ahmad, Devarajan, Khemani, & Shah, 2006; Bardhan, 2002; Bardhan & Mookherjee, 2006; Dafflon, 2006). China and Indonesia, for instance, have gradually transferred a substantial degree of authority and responsibility to subnational governments (E. Ahmad & Brosio, 2006a). International organizations, such as the World Bank and the International Monetary Fund (IMF), have played an important role in promoting and assisting decentralization reforms, particularly, in developing countries (Cheema & Rondinelli, 2007a).

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The evolution of the concept of decentralization comprises three waves (Cheema & Rondinelli, 2007a) in parallel with global phenomena and development of public administration thought. The first wave took place in the 1970s and the 1980s amidst the decline of central economic planning and management. Governments of both more and less developed countries began to decentralize hierarchical bureaucracies in order to achieve more efficient and inclusive public service delivery (Cheema & Rondinelli, 2007a). So far the evidence on whether decentralization achieves these outcomes is mixed (Cheema & Rondinelli, 2007a, 2007b; Neudofer & Neudorfer, 2015; Voigt & Blume, 2012).

The second wave occurred in the mid-1980s. A large number of countries, especially in Central and Eastern Europe, Latin America, and East Asia turned to decentralization in hopes of restoring market economies, creating or strengthening democracy, and promoting good governance (Cheema & Rondinelli, 2007a). International organizations, such as the World Bank and the IMF, played an important role in promoting and assisting decentralization reforms, particularly, in transitional and developing countries (Cheema & Rondinelli, 2007a; Saito, 2011).

The third wave began in the 1990s in response to the new public management school of thought, which shifts the role of government from directly delivering services to overseeing service provision (Cheema & Rondinelli, 2007a). Decentralization was posited as the means to achieve new management practices and diverse goals posed by new public management, e.g., mission-driven and citizens' needs-based management, teamwork, and wider public participation. Central governments are encouraged by decentralization proponents to transfer their responsibility to not only lower levels of

governmental but also to private sector or civil society organizations for more efficient or effective service provision (Cheema & Rondinelli, 2007a).

Economically, decentralization is argued to reduce costs and improve outputs of public service delivery (J. Ahmad et al., 2006; B. C. Smith, 1985) and to increase responsiveness to local citizens' preferences (Oates, 1972). Politically, decentralization is argued to enhance accountability and responsiveness, increase political education, leadership and citizen engagement, promote liberty and equality, and strengthen national integration (B. C. Smith, 1985). Administratively, decentralization is argued to increase responsive decision-making, local innovation, and accountable public administrators because local citizens have a closer channel to monitor and voice (Pollitt, 2005).

Diverse Definitions of Decentralization

Decentralization has diverse definitions and is sometimes used in an inconsistent manner. Almost three decades ago, Conyers (1984, 1986) noted the ambiguities and inconsistencies of the concept of decentralization found in the literature. The author argued that this is a serious problem because it not only causes confusion for decentralization students and practitioners, but also makes it difficult to conduct comparative studies. Today the inconsistency still endures. In order to make sense of the concept, there are two interrelated issues that need clarification: diverse definitions of decentralization, and forms and types of decentralization. The purpose of this subsection is to address the diversity of definitions and clarify the concept as it will be used in this research.

The ambiguity and inconsistency of the usage of the term "decentralization" rest upon: 1) language differences; and 2) disciplinary differences.

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The definitions and applications of decentralization in the literature vary among international languages (Cohen & Peterson, 1996, 1997; Pollitt, 2005; Schneider, 2003). For instance, a number of World Bank decentralization specialists whose native language is French sometimes use the term "decentralization" only to mean the transfer of authority from the central government to local-level governmental units (Cohen & Peterson, 1997, p. 30) while other World Bank decentralization specialists use it in a broader sense to include transfers to other entities, such as lower levels of central administration or public corporates (Cohen & Peterson, 1997). Failure to recognize these language differences causes conceptual confusion.

Even within a single language, the term decentralization is used in in various ways. In English, for instance, B. C. Smith (1985, p. 1) notes that the term decentralization involves both administration and government, and means both reversing the concentration of administration at a single center and giving powers to lower levels of government. In addition, in English, the terms decentralization and devolution are often used interchangeably. To some decentralization and devolution are totally different phenomena whereas to others they are related (Rondinelli, 1981). At times, decentralization is used as an umbrella term that also includes devolution (e.g., Rondinelli et al., 1983), at other times devolution becomes an umbrella term in which decentralization is a subset.

In Thai, there is a problematic issue regarding the term decentralization. As the accepted translation of decentralization, "การกระจายอำนาจ" (kan krachai amnat) literally means "dispersal of power." To some, the translation creates ambiguity and is misleading because it does not clarify what power is dispersed and it signifies a reference

to the *sovereign* power (Mektrairat, 2011). Sometimes the translated term comes with a

designation of to whom the power is dispersed—for instance, "การกระจายอำนาจให้แก่

องค์กรปกครองส่วนท้องถิ่น" (kan krachai amnat *hai kae aongkorn pokkhrong suan

thongthin*) meaning the dispersal of power *to local governments.*

In addition to language differences, the usage of the term differs across

disciplines, e.g., political science, public administration, law, sociology, and

anthropology (Conyers, 1984). While multiple disciplines broaden the boundary of the

subject matter, it causes difficulty for finding relevant and practical information from the

literature because different disciplines have different languages, foci, and sets of

constructs (Cohen & Peterson, 1997; Conyers, 1984; Schneider, 2003). Students of one

discipline may find it difficult to follow the discussion on decentralization in another

discipline. For instance, public finance students would be surprised not to find fiscal

decentralization in a discussion of forms of decentralization in the public administration

literature, which generally focuses on political decentralization and administrative

decentralization (e.g., Cohen & Peterson, 1997; Pollitt, 2005).

A generally accepted definition of decentralization concerns the transfer of power

away from the center (Pollitt, 2005; Schneider, 2003). For instance, Pollitt (2005) argues

that, as an umbrella term, decentralization refers to "the notion of *authority being spread

out from a smaller to a larger number of actors"* (Pollitt, 2005, p. 373). This kind of

overarching definition, however, needs further elaboration for three reasons. First, it can

refer to both government and administration. Government, used here in a broader sense,

means "the way of governing a given entity at a certain time" referring to "the method,

range, purpose, and degree of control of society by state" (Harguindéguy, 2007, p. 387).

On the other hand, administration refers to "rule governed institutional activity" (Hood, 2005, pp. 9-10) or the process of running a public organization. Second, it does not specify the direction of the transfer—horizontal or vertical (what it definitely does not suggest is the upward direction, which is the realm of centralization). Finally, it does not specify the actors who transfer and who receive the authority, which is a matter of which forms of decentralization we are talking about.

In general, decentralization is used as an overarching term defined as: the transfer of authority, responsibility, and resources from a higher government (e.g., central, federal, national, regional, or state) to other entities through various ways (e.g., deconcentration, devolution, or privatization). These entities can be: (1) field units of the higher government ministries or agencies; (2) subordinate units or levels of government; (3) semi-autonomous public authorities or corporations; (4) area-wide, regional, or functional authorities; and (5) private, non-profit, or non-governmental organizations (Rondinelli et al., 1983). It should be noted that the type of decentralization is defined by the recipient of the transfer. Norris (2008) argues decentralization recipients can be found at the national, subnational, and supranational levels and in the public, private, and voluntary sectors.

Forms and Types of Decentralization

Cheema's, Nellis's, and Rondinelli's (Cheema & Rondinelli, 1983; Rondinelli, 1981; Rondinelli et al., 1983) works are among the first attempts to classify systematically decentralization. They classify decentralization into forms and types, based on the objectives of decentralization (forms) and the degree to which responsibility and discretion is transferred (types) (Rondinelli et al., 1983). Forms of decentralization

are political, spatial, market, and administrative. Each form is then classified into types. However, much of the literature on decentralization is focused on administrative decentralization, and, as a result, administrative decentralization has the most elaborated types—i.e., deconcentration, delegation, and devolution (discussed below) (Cohen & Peterson, 1997).

The World Bank has adopted and become the major proponent of the Cheema, Nellis, and Rondinelli approach (e.g., Silverman, 1992; World Bank, 2001a). The approach has been widely employed by other international institutions—e.g., the World Health Organization and the OECD—and researchers around the globe (see Cohen & Peterson, 1997; Mills, Vaughan, Smith, & Tabibzadeh, 1990; OECD, 2002). Nevertheless, as decentralization has been studied by diverse disciplines, their approach is not inclusive of some forms and types found in the literature.

The current study employs the Cheema, Nellis, and Rondinelli approach as a basis for analytical classification of types and forms of decentralization. However, as the original classification is not inclusive, it is necessary to integrate those forms and types studied by others. The current study also integrates three components—space, time, and ownership—as they are helpful in conceptualizing and understanding different forms and types of decentralization. Space, time, and ownership are three dimensions essential to the conceptualization of regional development (T. G. Johnson, 1994) and decentralization theories (Stallmann, 2000). Stallmann (2000) argues that devolution indicates a move across space from central to decentralized locations; across time from present to future; and in ownership from public to private.
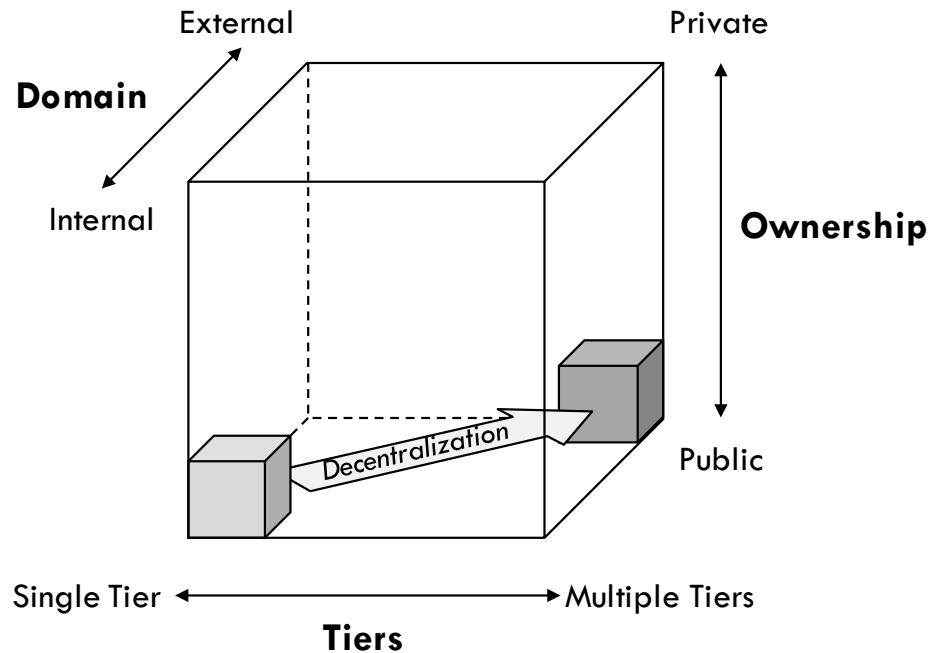
Figure 2.1. Dimensions of decentralization. Modified from Stallmann (2000).

This study builds on and introduces additional aspects to the Stallmann approach.

First, domain indicates two possible ways of decentralization: internal and external.

Internal decentralization is the distribution of authority, responsibility, and resources

within an existing organization, whereas external decentralization is the transfer to other

organizations (Pollitt, 2005). Second, ownership, or recipient, encompasses a wide

variety of possible organizations to which the authority, responsibility, and resources are

transferred: quasi-autonomous subnational units of government, semi-autonomous

organizations, administrative subdivisions of the central government, public enterprises

and corporates, private firms, non-profit organizations, citizens etc. Third, tiers indicate a

move from single tier to multiple tiers of administration/government. This modification

of the Stallmann approach is shown in Figure 2.1.

Table 2.1

Forms and Types of Decentralization

Forms	Types	Domain	Recipient of the transfer
Administrative	Deconcentration	Internal	Field offices; lower-levels within the central government
	Delegation	Internal	Semi-autonomous organizations; public enterprises or corporates
	Devolution	External	Quasi-autonomous local governmental units
Political		External	Quasi-autonomous local governmental units
Fiscal		Internal	Field offices; lower-levels within the central government; local governmental units; public enterprises or corporates
		External	Local governmental units; public enterprises or corporates; community groups; cooperatives; non-profit organizations; non-governmental organizations; private voluntary associations; private firms
Market or economic	Privatization	External	Community groups; cooperatives; non-profit organizations; non-governmental organizations; private voluntary associations; private firms
	Deregulation	External	Community groups; cooperatives; non-profit organizations; non-governmental organizations; private voluntary associations; private firms; individuals

Note. Complied by author based on Rondinelli et al. (1983).

An elaboration by Rondenelli (1983) of the forms and types of decentralization

found in the literature is shown in Table 2.1 and discussed below

Administrative Decentralization. Administrative decentralization refers to the

hierarchical and functional transfer of managerial responsibility (i.e., planning,

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management, and resource allocation) from the central government and its agencies to the lower levels of administration, semi-autonomous organizations, and subnational government units (Cheema & Rondinelli, 2007a; Cohen & Peterson, 1997; Rondinelli, 1990). This form of decentralization is traditionally studied by public administration students. The outcomes expected from administrative decentralization are diverse. Administrative decentralization is argued to create smaller organizations and shorter bureaucratic hierarchies, which lead to prompt decision-making and increased efficiency. It is expected to enhance pluriformity rather than uniformity, making organizations more flexible in their response to their environmental settings. As a result of the above it is expected to increase local innovation, public administrators' responsiveness to the citizens, and public officers' morale and identity as part of the local community (Pollitt, 2005). In addition, it is sometimes used to create independent organizations for carrying out such tasks as audit, appraisal, corruption investigation and the like.

Administrative decentralization is achieved through three possible ways, or types: deconcentration, delegation, and devolution (Rondinelli, 1981, 1990; Rondinelli et al., 1983).

Deconcentration. Deconcentration is the least extensive type of administrative decentralization. It refers to the transfer of administrative authority and/or responsibility to field offices and lower levels of administration within the central government (Cohen & Peterson, 1997; Rondinelli et al., 1983; Schneider, 2003). It is merely the shifting of workload from the central government ministry headquarters to field offices located outside the national capital (Rondinelli, 1981).

Delegation. Delegation refers to the transfer of decision-making and

administrative authority for specific functions to semi-autonomous organizations that are outside the regular bureaucratic structure and not directly controlled by, but accountable to, the central government (Cohen & Peterson, 1997; Schneider, 2003). Examples of the delegation recipient include "public enterprises or corporations, housing authorities, transportation authorities, special service districts, regional development corporations, or special project implementation units" (Rondinelli, 1990, p. 11).

Devolution. Devolution is the most extensive type of administrative decentralization and is the underlying basis for political decentralization as it creates or strengthens the legal and financial status of local geographical jurisdictions (Rondinelli et al., 1983). It refers to the transfer of some set of administrative authority, decision-making, and public functions from the central government to quasi-autonomous local units of government (Cohen & Peterson, 1997; Rondinelli, 1990; Rondinelli et al., 1983; Schneider, 2003). Local government refers here to:

> specific institutions or entities created by national constitutions (Brazil, Denmark, France, India, Italy, Japan, Sweden), by state constitutions (Australia, the United States), by ordinary legislation of a higher level of central government (New Zealand, the United Kingdom, most countries), by provincial or state legislation (Canada, Pakistan), or by executive order (China) to deliver a range of specified services to a relatively small geographically delineated area. (Shah, 2006, p. 1)

> Under devolution, lower levels of government are not merely subordinate administrative units of the central government: they have a certain degree of autonomy and independence over their specified geographical boundaries and over specified

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functions. The higher government, which created the lower levels of government, does not exercise direct control rather it supervises or audits (Rondinelli, 1990; Rondinelli et al., 1983) and sets the rules or limits within which the lower levels of government may act.

Because administrative decentralization via devolution concerns not only administrative functions but also political decision-making at the lower levels of government (as well as legal and financial issues), it is often used interchangeably with political decentralization, as discussed below or, just simply, decentralization. As discussed earlier in the preceding subsection, this variation in usage of devolution and decentralization contributes partly to the confusion in the literature.

Political Decentralization. Typically used by political scientists, political decentralization refers to the transfer of some decision-making power from the central, or a higher level, government to citizens or their elected representatives to a lower level (Cohen & Peterson, 1997, p. 29; Rondinelli, 1990). It usually includes public participation, a popularly elected governing body, and democratization (Rondinelli, 1990). In general, elections at the lower levels are the most valid indicators of political decentralization (Schneider, 2003). In addition, political decentralization implies the underlying, essential need for devolution and a comparable degree of fiscal decentralization. To some, political decentralization is parallel or identical to devolution (e.g., Carino, 2008; Fritzen & Ong, 2008).

In general, political decentralization implies two fundamental conditions: some autonomy and democracy (B. C. Smith, 1985). First, decentralized governmental units must have a certain degree of autonomy or self-government. They are neither

administered nor directly controlled by any agencies of the higher level of government; rather they must be governed by institutions of their locality (B. C. Smith, 1985). Second, the bodies that govern the decentralized governmental units must be popularly elected and organized (B. C. Smith, 1985). Because political decentralization is usually related to democratization, it is sometimes called democratic decentralization (e.g., B. C. Smith, 1985).

These two conditions make political decentralization different from administrative decentralization, as the latter does not necessarily lead to democratization or public participation (Rondinelli, 1990). Therefore, authoritarian counties tend to achieve decentralization through administrative deconcentration—rather than devolution or political decentralization—as it minimizes political participation (Rondinelli, 1990, p. 9).

In theory, political decentralization brings about a number of benefits, including political education, public participation, training in political leadership, political stability, political equality, accountability, and responsiveness (B. C. Smith, 1985).

Policy Decentralization. The study of policy decentralization is generally found in the political economy literature. Policy decentralization refers to the transfer of authority to make decisions on a given policy area from the central government to lower levels of government (Henderson, 2000). Policy decentralization is rarely empirically examined because it is difficult to measure (Rodden, 2004). It appears, however, that policy decentralization is an essential part of political decentralization—or even of administrative decentralization—rather than being a separate form of decentralization because political decentralization intrinsically concerns policy-making processes at the local levels that range from policy formulation to evaluation. Therefore, policy

decentralization is just an aspect of political decentralization.

Fiscal Decentralization. Fiscal decentralization concerns the transfer of authority for revenue generation, allocation, and expenditure for the provision of public services from the central government and its agencies to other entities (e.g., lower administrative levels of the central government, lower levels of government, or private organizations—particularly for contracting out). It takes many forms, including: (1) authorization of self-financing; (2) co-financing or co-production arrangements; (3) intergovernmental transfers for general or specific uses; and (4) authorization for local government borrowing and mobilization of resources through loan guarantees (World Bank, 2001a).

It seems that fiscal decentralization usually takes place in conjunction with other forms of decentralization, especially political and market (see discussion below). This is because when authority and responsibility are transferred to lower levels of government or the private sector, in order to make them be able to carry out the transferred responsibility effectively, they must have the decision-making power about revenues and expenditures (World Bank, 2001b).

Theoretically, fiscal decentralization aims to create the conditions that promote economic stability, efficient allocation of resource, (Norris, 2008), and responsiveness to local preferences (Fritzen & Ong, 2008).

Market or Economic Decentralization. Generally used by economists, market decentralization refers to the transfer of the production of publicly-provided goods and services from the central government to firms, community groups, cooperatives, private voluntary associations, non-profit organizations by means of market mechanisms (Cohen

& Peterson, 1997). This form of decentralization differs from administrative delegation in that the latter transfers authority and responsibility exclusively to public organizations. Under market decentralization, authority and responsibility are transferred to non-government sectors as discussed above and the role of the government sector becomes smaller.

Market decentralization emerged as a part of economic neoliberalism that proliferated in the 1980s and 1990s (Harvey, 2007). Market decentralization is achieved through privatization (Rondinelli et al., 1983) and deregulation (World Bank, 2001a). (However, the term privatization is also used by many in a broader sense to refer to market decentralization). In theory, market decentralization is argued to reduce public sector's burdens on citizens, and increase efficiency, productivity, responsiveness, competition, and economic growth (Rondinelli, 1990).

Privatization. Privatization refers to the "withdrawal of the state from the production of goods and services or transfer of ownership from the public sector to the private sector" (Gupta, 2011). In practice, however, privatization includes a wide range of activities. Privatization can manifest in the following forms: (1) the government allowing the private sector to also provide goods and services that had been provided exclusively by the public sector; (2) the government contracting out for services to citizens to be carried out by the private sector; (3) the government engaging in partnership with the private sector to coproduce; (4) the government borrowing from the private sector; (5) the government transferring certain public functions to be performed by the private sector through divestiture of public enterprises or selling shares to the general public; and (6) the government no longer providing goods or services and leaving

it entirely on market mechanism (Rondinelli, 1990; World Bank, 2001a). In fact, privatization is not completely new and some of these are an issue of degree as many governments have had arrangements with the private sector for a variety of goods and services for many years.

Deregulation. Deregulation is the process in which the government reduces legal limitations that are the rules within which the private sector must act or reduces legal limitations that obstruct competition among private firms to provide goods or services (Rondinelli, 1990).

Spatial Decentralization. Commonly used by regional planners and geographers, spatial decentralization refers to the creation of conditions that reduce urban concentration and promote regional growth poles by diffusing population and economic activities (Cohen & Peterson, 1997; Rondinelli, 1990). Since this form of decentralization does not have an explicit government component, it is not relevant to the topic of this study.

Forms of Decentralization and Decision-Making

These forms of decentralization all concern some sort of decision-making. Decision-making is the process of choosing from among competing alternatives or solutions to public issue (England, Pelissero, & Morgan, 2011; Guseh, 2008). Administrative decentralization concerns bureaucratic decision-making (Norris, 2008) in planning, raising and allocation of managerial resources, and service and infrastructure provisions (Rondinelli, 1990). Political decentralization gives decision-making power to citizens and/or their elected representatives for policy-making on some functions (Fritzen

& Ong, 2008). Fiscal decentralization concerns decision-making for distributing, raising, and spending resources and is often part of political decentralization. It may also be part of administrative decentralization.

As the current study concerns the decentralization of police services to lower levels of government, it focuses on and employs the concept of political decentralization because: (1) political decentralization concerns the transfer of political decision-making from the central government to quasi-autonomous lower levels of government; and (2) political decentralization includes two other forms of decentralization, administrative decentralization, and fiscal decentralization.

Decentralization in Constitutional Contexts

National governments are generally classified into two major forms: federal and unitary (Gerring, Thacker, & Moreno, 2007; Riker, 1964). Decentralization can be found in both forms of government. To some, federal states automatically employ decentralized decision-making and unitary states have centralized decision-making (Norris, 2008). Indeed, there are blurred lines to distinguish federal states from unitary ones, and the degree to which autonomy is transferred from the central government to subnational governments varies based on formal constitutional arrangements. There is, nevertheless, a practical way that is generally employed to distinguish the two forms of government: by looking at the constitutional arrangements to see where the constitutional authority rests (Gerring et al., 2007; Riker, 1964; Wheare, 1964).

By looking at constitutional arrangements and based on a typology argued by Norris (2008), the following subsection classifies government into three major forms: federal, unitary, and hybrid unions, which can also be more centralized or decentralized.

Federal System. Federalism is a concept used to describe forms of government that are organized to preserve diversity and unity based on shared- and self-rules (Agranoff, 2011; Kincaid, 2006) with a constitutionally-prescribed division of the national and subnational tiers of government (Norris, 2008; L. Ward, 2010). Based on widely-cited piece of Riker (1964) that "[a] constitution is federal if (1) two levels of government rule the same land and people, (2) each level has at least one area of action in which it is autonomous, and (3) there is some guarantee (even though merely a statement in the constitution) of the autonomy of each government in its own sphere" (Riker, 1964, p. 11).

First, constituent territorial units of government (e.g., states, provinces, regions, or cantons) usually have their own specified geographical boundaries. This means that an individual in a federal state is a citizen of the central and at least one constituent government, and both the central and the constituent governments can act directly to the individual at the same time. Second, each tier of government must have specified areas of autonomy. In general, the central government is responsible for some nation-wide functions, such as national defense, international affairs, and economic stabilization. The constituent governments are responsible for other functions, such as education, health care, and transpiration. Third, the autonomy given to each tier of government must be formally secured by the constitution: the central government cannot extinguish the constituent governments, and vice versa without constitutional change (Kincaid, 2006; Norris, 2008; Riker, 1964). The characteristic of autonomy of lower units separates federal systems from unitary governments with multiple tiers. In this study, the three conditions will be called multiple tiers of government, division of powers, and

constitutional guarantee, respectively.

In practice, there are some problematic issues in defining federal states. First, it is possible that formal constitutional arrangements of federal states contradict the principle of federalism, for instance, by assigning very limited power to the central government over subnational governments (note that in this study, central government and national government are used interchangeably). More centralized federal states are those with a strong central government and regional ones with limited areas of autonomy, e.g., Austria, Belgium, India, and Malaysia (Norris, 2008). More decentralized federal states are those with a weak central government and substantially autonomous regional ones, e.g., Brazil, Canada, and the United States (Norris, 2008). Second, the evolution of federal states over time may make them more or less centralized than their inception. Third, a unitary state can also have multiple tiers of government. Fourth, a unitary state can devolve substantial powers to subnational units of government (B. C. Smith, 1985).

These issues make the first two conditions of federal states (multiple tiers of government and division of powers) not exclusive to federal states. Therefore, the defining condition to differentiate federal and unitary forms of government rests in the third, the constitutional guarantee. That is, in a federal state the central and constituent territorial units mutually share the sovereign power (Paquin, 2011; Wilson, Dilulio, & Bose, 2015). As some scholars (e.g., Dahl, 1986; Watts, 1966) argue, a federal system is a system of dual sovereignty—i.e., a system in which individuals are subject to two sovereign entities: a central government and a subnational one.

In addition, the constitutional guarantee condition results in the substantial difference in the degree of autonomy between the decentralized governments in federal

and unitary states. While each tier of government in federal states possesses final decision-making power in its sphere as its autonomy is constitutionally secure, unitary states have only one tier of government with such power (B. C. Smith, 1985). Therefore, as the sole sovereign entity with the power to make final decisions, the national government in a unitary state can overturn any decisions made by subnational units of government or even extinguish subnational units of government more effortlessly than in a federal state (Blume & Voigt, 2011; Paquin, 2011; Routh, 2011).

Unitary System. A unitary state is governed as a single unit with the central government being the sole sovereign entity (Paquin, 2011; Routh, 2011; Wilson et al., 2015). However, this does not mean that a unitary state has one tier of government; it can have subordinate tiers of government, but the central government is the supreme political power over its entire geographical boundaries and retains the final decision-making power (Norris, 2008; Paquin, 2011; Routh, 2011; Wilson et al., 2015). The central government can establish, recognize, or abolish subordinate tiers of government, as well as choose to transfer autonomy to or withdraw autonomy from subordinate tiers of government at any time (Paquin, 2011; Routh, 2011). The great majority of countries around the globe employ unitary constitutional arrangements.

Unitary states can also be more centralized or decentralized. Centralized unitary states are those with a national government carrying out most of the functions with subnational levels of administration being given a portion of administrative authority for policy implementation with limited fiscal and political powers (Norris, 2008). Examples of centralized unitary states are Kenya, Zimbabwe, and Singapore. Decentralized unitary states are those with a national government devolving substantial administrative, fiscal,

and political powers to subnational governments, in which elected executive and legislative entities are responsible for local policy-making and management of public functions (Norris, 2008). Examples of decentralized unitary states are Denmark, Norway, and Thailand.

Hybrid Unions. Somewhere between the two extremes of federal and unitary states rests another type of constitutional arrangement. Fiscal and political decentralizations, over the past years, have blurred the line that distinguishes federal states from unitary ones (Arzaghi & Henderson, 2005). Hybrid unions are nation states in which the national government grants some degree of independence to certain geographical units to strengthen the geographical units' political power (Norris, 2008). Examples of hybrid unions are Canada (Quebec and the First Nations), the People's Republic of China (Self-Autonomous Regions), and the United Kingdom (Northern Ireland and Scotland).

As the term "unitary" connotes a sense of single tier of government and many countries are in transition, a designation is needed in order to distinguish unitary states with only one tier of government from those with multiple tiers of government. In the current study, the term "multi-tiered states" will be used to refer to non-federal countries that have multiple tiers of government.

<center>**Fiscal Federalism**</center>

If a nation-state comprises more than one tier of government, how would you assign different public functions to different tiers of government? (Wellisch, 2004). This question is at the heart of fiscal federalism. Fiscal federalism addresses the vertical structure, roles, and interaction of government within federal constitutional arrangements

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(Anderson, 2010). The pioneer work of Tiebout (1956), Musgrave (1959), and Oates (1968) has served as the foundation for the theory of fiscal federalism (Blume & Voigt, 2011; Cho, 2013; Dafflon, 2006; Rodríguez-Pose & Krøijer, 2009). The theory encompasses various issues related to fiscal relations among different tiers of government, from assignment of functions and intergovernmental transfers, to competition among local governments (E. Ahmad & Brosio, 2006b). The key policy question is the assignment of functions to appropriate levels of government based on economic principles of efficiency and equity with the aim to examine the efficiency and equity tradeoffs between centralized and decentralized functions and understand which functions are best centralized and which are best decentralized, based on these criteria (Oates, 1999).

Although having originated in the study of federal states, the theory of fiscal federalism can be a useful tool in the analysis of other political systems in which constitutional arrangements devolve authority and responsibilities to subnational levels of government (Anderson, 2010; Molander, 2004; Oates, 2008). This is because fiscal federalism focuses on the relationships and interactions between different levels of government (or public sector), which occur in both federal and unitary countries as "nearly all public sectors are more or less federal in the sense of having different levels of government [and of administration] that provide public services and have some scope for *de facto* decision-making authority (irrespective of the formal constitution)" (Oates, 1999, p. 1121).

Division of Fiscal Functions

Musgrave (1956, 1959) classified three major fiscal functions of government—

i.e., allocation, redistribution, and stabilization—and argues that these functions should

be handled independently. The allocation function refers to the provision of public goods

and services to satisfy the public wants. The redistribution function concerns the

modification of income and wealth distribution. The stabilization function aims to

achieve macroeconomic stabilization.

Because lower levels of government in general have limited mechanisms to cope

with and little or no impact on macroeconomic problems, the stabilization function tends

to be the responsibility of the central government and therefore is not a focus of this

subsection.

Although a market economy is not designed to achieve equity, it is generally

argued that equity is a desirable outcome (Steinemann, 2011). Besides efficiency, the

Tiebout model also provides a framework for thinking about government's role in equity.

It implies that the redistribution function should not be the responsibility of lower-level

governments because mobility of individuals impedes income redistribution attempts.

That is, if a local government carried out an income redistribution program by providing

support to the poor and imposing more taxes on the rich, there would be an inflow of the

poor from adjacent jurisdictions and at the same time an outflow of the rich (Oates,

1999). With the focus on police services, the redistribution function is not directly

applicable to this study (see arguments on income redistribution and equity in (Gruber,

2011; Oates, 1999).

Provision of Public Goods at the Lower Levels

The fiscal federalism literature contends that the allocation function should be at

the level where both the benefits and the costs fall: goods that provide only local benefits

should be financed at the local level. The central government is argued to be responsible for provision of national public goods—i.e., goods that provide benefits nationwide, such as national defense because the benefits are national so the costs should fall there also. In addition, national provision may help to cope with the free-rider problem as it is difficult for most citizens to escape payment by moving. In addition, there may be economies of scale to be achieved (Oates, 1999).

In his 1954 article, Samuelson introduces a type of goods called collective consumption goods, which later became known as public goods. The author defines public goods as goods "which all enjoy in common in the sense that each individual's consumption of such a good leads to no subtractions from any other individual's consumption of that good" (Samuelson, 1954, p. 387). These characteristics of public goods have become commonly known as non-excludability and non-rivalry according the terminologies used and popularized by Musgrave and Musgrave (1989). Non-excludability is a good or service for which there is no cost-effective physical or institutional means to keep unauthorized uses from benefiting without paying. Non-rivalry means that one person's consumption or use of the good or service does not subtract from the quantity and/or quality available to others.

In general, two inherent problems associated with the provision of public goods are preference revelation and preference aggregation (Gruber, 2011; Samuelson, 1954; Stiglitz, 1984). The revelation problem occurs when individuals do not honestly reveal their preferences and valuations for public goods. Unlike private goods, where individuals reveal their preferences and valuations upon purchase, individuals have the incentive to conceal or understate their preferences for public goods so that they pay a

lower amount of taxes. The aggregation problem refers to the difficulty that the government faces when it puts together individual preferences to make decisions about the social value of public goods and to provide them in quantities implied by these values and tax sufficiently to provide those quantities. These problems impede the government's capability to provide the efficient level of public goods (Gruber, 2011). Individuals want different amounts of private goods and in the market can purchase according to their preferences, but a public good is produced at only one level.

Due to these problems, both Samuelson (1954) and Musgrave (1939, 1956) argue that there is no decentralized mechanism or market-type solution to determine the optimal provision of public goods and, therefore, a political solution is preferred. Samuelson (1954) argues that

> The failure of market catallactics in no way denies the following truth: given sufficient knowledge the optimal decisions can always be found by scanning over all the attainable states of the world and selecting the one which according to the postulated ethical welfare functions is best. The solution "exists"; the problem is how to "find" it. (p. 389)

Samuelson (1954) concludes the paper by contending that it would be "pure luck" (p. 389) to find such solution. Likewise, Musgrave (1956) argues that because "individuals know that they cannot be excluded from the resulting benefits….[and] they are not forced to reveal their preferences through bidding in the market….the market mechanism does not work" (pp. 334-335).

Tiebout (1956) points out that the arguments made by Samuelson (1954) and Musgrave (1956), while valid specifically for the provision of public goods at federal or

national level, do not necessarily apply to the local level: there is a solution for a specific class of public good, whose benefits accrue to those that belong to a community and not to other communities within a society. This class of public good is later referred to as local public goods. Tiebout argues that there is a market-type solution to the provision of public goods but two essential factors—shopping and competition among firms—are missing from the market for public goods at the national level. The situation, however, is different when local public goods are provided at the local level. Local communities— such as cities and towns—act as firms providing different bundles of public goods and imposing different amounts of taxes, which are similar to prices in the private market. Individuals can shop by moving to the community whose local government provides public goods and imposes taxes that best meet their preference (Tiebout, 1956). The so-called *vote-with-their-feet* mechanism not only helps reveal the individual preferences and valuation of public goods but also induces competition among local governments that, as a result, leads to efficiency. It is this same mechanism that makes it difficult for lower levels of government to redistribute.

The Tiebout model is based on seven strict assumptions: (1) perfect mobility— individuals are fully mobile; (2) perfect information—individuals possess full knowledge of public goods provided and taxes imposed in different communities; (3) there are a large number of communities; (4) individuals have no employment restrictions; (5) there are no externalities or spillovers among communities; (6) there is an optimal community size; and (7) communities below the optimal size try to attract more individuals while those above the optimal size do the opposite (Tiebout, 1956). Because of these assumptions, the Tiebout model is argued to be "unlikely to materialize" (Reifschneider,

2006, p. 7) and "obviously extreme" (Gruber, 2011, p. 269) so that it loses certain power

to predict the reality. While not all of the assumption hold, nevertheless, there is

evidence that supports the validity of the model, especially in the test of similarity of

individual preferences across areas (sorting by preferences) and in the test of house price

capitalization (in which local property taxes and local public goods are incorporated into

the price of a house) (Gruber, 2011).

All in all, the Tiebout model contributes to the literature of fiscal federalism two

important normative implications of the assignment of government functions: one on

efficiency, the other on equity. Arguments by and debates among later authors—Oates

(1972, 1977, 1999, 2006), in particular—have expanded the model and shaped the theory

as a whole.

Fiscal Federalism Argument on Efficiency

The Tiebout model provides a framework that shows that decentralized provision

of local public goods can provide efficient levels of local public goods. There are four

reasons that make decentralized provision of local public goods promising. First, because

local governments are closer to local citizens and possess more information about citizen

demands and preferences than higher levels of government, decentralized service

provision will likely increase efficiency (Tiebout, 1956, 1961). As the central

government is generally not informed or has limited knowledge about local preferences

and is often constrained by the constitution to provide uniform access to publicly-

provided goods and services, it tends to employ one-size-fits-all approaches that do not

respond to local preferences (Oates, 1999, 2006). Second, efficiency also requires that

those who benefit pay for the benefits they receive; otherwise they will over consume

local public goods (Oates, 1999). Third, because of their mobility, individuals can choose to live in a community providing goods and services that match their preferences at the tax level that they are willing to pay, that is they are weighing their costs and benefits. (Tiebout, 1956). Fourth, as a result of individuals' mobility, local governments may compete with their neighboring jurisdictions to attract or maintain citizens. Such competition is a pressure for them to provide goods and services more efficiently. To achieve efficient levels of service provision, local governments may experiment and adopt new approaches to public policy and management that foster administrative innovations (Oates, 2006).

The above reasons are reflected in Oates' (1972, 1977, 1999) decentralization theorem, which provides a set of conditions in which decentralized provision of public goods is efficient and preferable to centralized provision. According to Oates (1972):

> For a public good—the consumption of which is defined over geographical subsets of the total population, and for which the costs of providing each level of the good are the same for the central or for the respective local government—it will always be more efficient (or at least as efficient) for local governments to provide Pareto-efficient levels of output for their respective jurisdictions than for the central government to provide *any* specified and uniform level of output across all jurisdictions. (p. 35)

In addition,

> in the absence of cost-savings from the centralized provision of a good and of interjurisdictional externalities, the level of welfare will always be at

least as high (and typically higher) if Pareto-efficient levels of

consumption are provided in each jurisdiction than if *any* single, uniform

level of consumption is maintained across all jurisdictions. (Oates, 1972,

p. 54)

In essence, the decentralization theorem contends that public goods are more

efficiently be provided at the local level under three conditions: (1) the costs and benefits

of the public goods are accrued within the jurisdictional boundary; and (2) the public

goods yield no externalities or spillovers to other jurisdictions (Oates, 1972, 1999) and 3)

there are no economies of scale. For some kinds of public goods—e.g., transportation

networks—the minimum-cost output is larger than the community being served, in which

case the goods are not efficiently provided by a number of competing communities and

the competition mechanism will not work (Boadway & Shah, 2009; Gruber, 2011).

Application of Fiscal Federalism Theory to the Assignment of Police Services

In essence, the fiscal federalism theory provides a normative framework for

assigning functions to different tiers of government as follows: (1) public goods within

the allocation function whose costs and benefits fall within a community (local public

goods) should be provided at local level; (2) public goods within the allocation function

that generate externalities or jurisdictional spillovers should be provided at the level that

encompasses the externalities; (3) public goods within the allocation function that have

large economies of scale should be provided at the local level where the economies of

scale exist; (4) the income redistribution function should be performed by a higher tier of

government or the national government; and (5) the stabilization function should be

performed by the national government.

The above framework is applicable to police services as follows. First, police services whose costs and benefits are contained within the jurisdictional boundary should be provided in a decentralized manner. This kind of services includes the prevention of arson, aggravated assault, forcible rape, larceny-theft, robbery, burglary, local traffic violation, criminal homicide, shooting, vandalism, etc. Second, police services that have externalities and jurisdictional spillovers to neighboring communities should be provided at the level that encompasses the spillover or through collaborative governance mechanism among communities. Examples of this kind of services are the prevention of crimes that cross-jurisdictional boundaries: nationwide gangs, serial killers, drug dealers, black-market, environmental pollution, and traffic offenders. Third, police services that have large economies of scale—such as forensic labs— should be provided in a centralized manner.

Conceptual Framework

When brought together, the three theories constitute a conceptual framework essential to the analyses in this study. First, the new institutionalist approach provides a broad argument about the influence of institutional arrangements over individuals' behavior and performance: that is, centralized and decentralized police systems are different institutional arrangements, so they may yield different impacts on the police's behavior and performance. Second, decentralization theory informs us about potential outcomes that can be expected from decentralization. More specifically, decentralizing responsibilities from the central to local governments is argued to increase accountability, responsiveness, prompt decision-making, and efficiency as well as to enhance the relationship between government and citizens. Third, fiscal federalism theory

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particularly sets the criteria for the provision of public goods and services: which

responsibilities should be decentralized and which not, based on criteria of efficiency and

equity. The conceptual framework to be employed henceforth in the current study is that:

a move from a centralized police system to a decentralized one denotes an institutional

change, and as a result, leads to a change in behavior and performance of the police and

more closrely reflects citizens' demand for police.

CHAPTER 3

METHODOLOGICAL FRAMEWORK

This chapter elaborates the methodological framework employed in the current study, connecting the theoretical framework developed in the preceding chapter and the subject matter, i.e., the police systems. This chapter comprises six sections as follows: (1) research questions and hypotheses; (2) mixed methods research design; (3) Phase I data collection and analysis; (4) Phase II data collection and analysis; and (5) synthesis of findings obtained from the two phases.

Research Objectives and Questions

Research Objectives

The objectives of this study are threefold. First, to develop a typology of police systems by integrating theories and frameworks found in the literatures of new institutionalism, decentralization, and fiscal federalism. Second, to examine the effects of centralized and decentralized police systems on police performance by means of empirical analyses of a large cross-national set of countries. Third, to provide an ex-ante analysis of the potential effects of the decentralization of Thailand's police services and to derive policy implications from the analysis.

Research Questions and Hypotheses

The overarching objectives discussed above lead to a set of research questions and hypotheses central to the current study. Prior to moving on to the research questions,

however, it is essential to restate the theoretical premises developed in the preceding chapter that are essential to the formulation of the hypotheses. The premises are as follows.

First, the new institutionalist approach provides a broad argument about the influence of institutional arrangements on individuals' behavior and performance: that is, centralized and decentralized police systems are different institutional arrangements, so they may yield different impacts on the police's behavior and performance. Second, decentralization theory informs us about potential outcomes that can be expected from decentralization. More specifically, decentralizing responsibilities from the central to local governments is argued to increase accountability, responsiveness, prompt decision-making, and efficiency as well as to enhance the relationship between government and citizens. Third, fiscal federalism theory particularly sets the criteria for the provision of public goods and services: which responsibilities should be decentralized and which not, based on criteria of efficiency and equity. The conceptual framework employed henceforth in the current study is that: a move from a centralized police system to a decentralized one denotes an institutional change, and, as a result, leads to changes in behavior and performance of the police and more closely reflects citizens' demand for police.

Objective One. The first research objective is to develop a typology of police systems by integrating theories and frameworks found in the literatures of new institutionalism, decentralization, and fiscal federalism. Hence, the following research question.

Research Question One (RQ1). Given a typology of police systems, where does

an individual country fit based on its structural arrangements of policing? As the objective and research questions are exploratory in nature, they do not include any hypotheses.

Objective Two. The second research objective is to examine the effect of centralized and decentralized police systems on police performance by means of empirical analyses of a large cross-national set of countries. Prior to examining the effects of police systems, it is necessary to explore the existing empirical studies of police systems, which also leads to a set of variables for empirical examination. This leads to the following research questions and hypotheses.

Research Question Two (RQ2). What do existing research studies on policing find about the effect of police systems on police performance? This research question does not include any hypotheses.

Research Question Three (RQ3). Do centralized and decentralized police systems affect police performance differentially?

Hypothesis One (H1). Decentralization is argued to move the government closer to the citizens and enhance relations between them (Oates, 1972, 1977, 1999; Pollitt, 2005); therefore, a decentralized police system is hypothesized to be positively associated with higher levels of citizen trust in the police.

Hypothesis Two (H2). decentralization is argued to provide more accurate information about citizens' preference and demand (Oates, 1972, 1977, 1999; Tiebout, 1956, 1961). Because citizens may have either high or low demand for policing, a decentralized police system is hypothesized to have an ambiguous relationship with

police demand.

Hypothesis Three (H3). decentralization is argued to improve outputs of public service delivery (J. Ahmad et al., 2006; B. C. Smith, 1985), enhance accountability (B. C. Smith, 1985), and increase responsive decision-making (Pollitt, 2005); therefore, a decentralized police system is hypothesized to be positively associated with higher responsiveness, as measured by lower homicides (H3.1), robberies (H3.2), and thefts (H3.3).

Objective Three. The third objective is to provide an ex-ante analysis of the potential effects of Thailand's decentralization of police services and to derive policy recommendations from the analysis. Based on findings from the empirical analyses, an ex-ante analysis is used to anticipate the effects of moving from a centralized to a decentralized system. Hence, the following the research question.

Research Question Four (RQ4). What differences in outcomes might be expected if Thailand were to adopt a decentralized police system?

The three hypotheses discussed above also apply here.

Mixed Methods Research Design

The aforementioned objectives and research questions not only set the agenda for the current study but also require an appropriate research methodology. Mixed methods research, as a methodology, appears to be suitable for the current study as it allows the researcher to collect and analyze rigorously both qualitative and quantitative data (Creswell & Plano Clark, 2011). The following subsections elaborate how a research design employed in the current study draws on and modifies the mixed methods design

found in the literature.

Nature of Exploratory Mixed Methods Design

Mixed methods comprises a number of research designs that serve different purposes and yield different procedures (Creswell & Plano Clark, 2011). The current study employs an exploratory, sequential mixed methods design to address the research questions. In general, this is a three-phase sequential design comprising a first phase of qualitative exploration of a given topic, a second phase of quantitative study aimed at generalizing the exploratory findings to a larger sample and/or a population, and a third phase synthesizing and analyzing findings from the first two phases.

Creswell and Plano Clark (2011) argue that there are a number of challenges associated with using the exploratory design, including lengthy time to implement, determining the qualitative findings to use for the quantitative phase and procedures for developing a valid and reliable instrument (if data are to be collected). Researchers employ the exploratory sequential design to "explore" a given phenomenon due to lack of theoretical framework, measures, instruments, or variables (Creswell & Plano Clark, 2011). They need these kinds of information to be able to move on to the next phase of study (reasons for the current study are discussed below).

Examples of Exploratory Mixed Methods Design

To illustrate how the exploratory, sequential mixed methods design works, two examples of the use of the design in the public affairs discipline—viz., Myers and Oetzel (2003) and Creamer and Ghoston (2013)—are discussed.

Myers and Oetzel (2003) aimed to create a valid measure of organizational assimilation, i.e., an index of the interactive acceptance of new members. In the first

phase, they interviewed thirteen participants from different industries and formulated six dimensions of organizational assimilation. In the second phase, they utilized these dimensions to develop a set of instruments and administered a survey to 342 employees from diverse organizations. Then, they conducted a confirmatory factor analysis (CFA), which validated the findings from the first phase.

Creamer and Ghoston (2013) employed the exploratory mixed methods design to study the influence of EC 2000—i.e., a set of engineering program accreditation standards, some of which were intended to attract more female students—on engineering schools in the US. First, a qualitative content analysis approach and frequency count were used to examine mission statements of 48 engineering schools and their conformance to the EC 2000 standards. Then, a statistical analysis was used to examine the association between the frequency of the coded elements in the mission statements and measures of women representation (i.e., proportion of female graduates, number of female graduates, and number of female faculty members) in the engineering schools. Creamer and Ghoston (2013) found that: (1) the EC 2000 standards were not widely used in the engineering schools' mission statements; and (2) there were modest associations between the EC 2000 standards and female student enrollment.

Exploratory Mixed Methods Design for the Current Study

Creswell and Plano Clark (2011) list a number of reasons for employing the exploratory mixed methods design, three of which serve as rationales for the current study. First, there is no guiding framework. Although there are several typologies of police systems found in the literature, they are neither standardized nor based on a theory or conceptual framework: therefore, a theory-based typology is required. Second,

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interrelated to the first one, existing definitions or measures of centralized and decentralized police systems cannot be compared due to lack of a standardized typology of police systems. Third, the literature and theory provide little guidance on variables pertinent to the current study. As there are a limited number of quantitative, cross-national studies of police systems, an analysis of existing qualitative, cross-national studies, as well as quantitative national ones, is necessary to formulate a set of variables.

The exploratory mixed methods design employed in the current study is relatively similar to what Creswell and Plano Clark (2011) define and the two studies discussed above. To be more specific, in the current study, the first phase specifically addresses the first research objective, being an exploration of a typology of police systems around the world by means of document analysis. Derived from the first phase is a typology of police systems based on theory, into which individual countries are categorized based on their institutional arrangement of policing. The second phase addresses the second research objective and related hypotheses and includes an exploration of empirical studies related to police systems by means of document analysis and empirical examinations the effects of police systems. Derived from the second phase are: (1) a set of variables and expected relationships to be included in statistical models; and (2) findings from the empirical examinations. Then, in the third phase, findings from the first and second phases are synthesized to derive policy implications for Thailand.

The first phase will henceforth be referred to as the exploration phase, the second as the ex-post analysis phase, and the third as the ex-ante analysis phase. Figure 3.1 exhibits a procedural diagram for data collection and analysis of the design. The following sections provide an elaboration of data collection and analysis for the

exploration and examination phases, as well as the synthesis of findings obtained from the two phases.

Phase I Exploration *(Objective I: RQ1)*		Builds to	Phase II Ex-Post Analysis *(Objective II: RQ2 & RQ3)*		Phase III Ex-Ante Analysis *(Objective III: RQ4)*
Data collection	**Data analysis**		**Data collection**	**Data analysis**	**Synthesis and Interpretation**
Procedures: • Encyclopedias of policing • Prior studies of police systems	**Procedures:** • Document analysis of police systems	**Procedures:** • Classify countries to typology of police systems • Develop empirical models • Document analysis of prior studies of police systems	**Procedures:** • $N = 72$ countries • $i = 12$ years • UNODC crime statistics • Barometer surveys	**Procedures:** • Random effects estimations (5)	**Procedures:** • Interpret and discuss empirical findings • Derive policy implications
Products: • Text data • Document analytic memos/notes	**Products:** • Typology of police systems • Content-analytic summary table	**Products:** • Country profiles of police systems • Empirical models • Set of variables	**Products:** • Numeric data • Document analytic memos/notes	**Products:** • Descriptive statistics • Correlations • Estimations	**Products:** • Discussion • Policy implications for Thailand • Future research

Figure 3.1. A methodological diagram of this study. Modified from Creswell and Plano Clark (2011).

Epistemological Stance and Background

Expressing the researcher's epistemological stance and background is a crucial part of the research (Creswell, 2013; Merriam, 2009) as it helps maintain the criticality of the researcher as well as that of the readers. Therefore, prior to moving onto the elaboration of each of the three phases, I would like to address several issues related to my epistemological stance and professional background that may affect the analysis and interpretation in the current study.

The interpretive framework used in conducting this study is that of pragmatism as I essentially focus on the problem being studied and the policy implications that may result from the analyzes. Creswell (2013) argues that pragmatic researchers "focus on the outcomes of the research—the actions, situations, and consequences of inquiry—rather than antecedent conditions….There is a concern with applications—"what works"—and solutions to problems" (p. 28). The pragmatist framework accommodates the current study in two ways. First, it allows me to integrate theories from different disciplines— i.e., economics, political science, and public administration—to address the research questions. In fact, my disciplinary background, public affairs, is pragmatist-friendly because it requires interdisciplinary theories and methods to address public issues and seek practical solutions. Second, it helps me focus on policy implications based on empirical findings.

Methodologically, as I have been trained in quantitative, qualitative, and mixed methods approaches, I tend to look at a research issue from different methodological perspectives. The mixed-method approach, indeed, complements well the pragmatist framework as it is open to any analytical technique capable of addressing the research questions.

My academic career began in 2009 at the College of Local Administration (COLA), Khon Kaen University, Thailand, whose mission statement stipulates an important role as a "center of administrative innovation for local government development" (College of Local Administration, 2012). From 2009 to 2011, as a faculty member at COLA, I engaged in a number of research studies and non-academic activities related to local governments and local government officials. This kind of engagement

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allowed me to witness various dimensions of local government in Thailand, particularly the significant role of local governments in democratic and socioeconomic development. As a result, I may have a bias in favor of local government, self-government, or decentralization in general.

Phase I Exploration

The first phase of the current mixed methods study addresses the first research objective and related questions by exploring police systems around the world by means of document analysis. It aims to derive a typology of police systems, which is drawn from the theoretical framework developed in the previous chapter and from existing classifications. Police systems employed by countries around the world are coded and classified into the typology for further use in Phase II. Findings from this phase serve as a departure point for the subsequent quantitative analysis phase.

Phase I Data Collection

Data for the exploration phase are collected from two major sources: the literature of policing and encyclopedias of policing. For the former source, the main focus is on the literature that describes the nature of policing and police systems. The latter sources include the following publications: Encyclopedia of Law Enforcement, Volume 3 (Sullivan, 2005); World Encyclopedia of Police Forces and Correctional Systems, Volumes 1 and 2 (Kurian, 2006); and World Police Encyclopedia, Volumes 1 and 2 (Das, 2006). These publications provide information about the history, organizational structure, and operation of policing of countries around the world. Additional information about government and police structures is obtained from a number of other sources (see Appendix A).

Parameters for Data Collection. Purposive sampling is used to select related

documents and research studies relevant to the objectives of the current study. The three

encyclopedias mentioned above were chosen because they describe policing for the

majority of countries around the world. However, the analysis in Phase I limits itself by

focusing on those countries where crime statistics are consistently available in the

quantitative data sources (discussed below). For the literature of police systems, the

analysis exclusively uses books and journal articles that primarily aim at comparing

structural differences in policing between or among multiple countries. For quantitative

studies, due to the lack of cross-national studies, the analysis mainly includes studies of

US policing that examine the effect of different sizes of police forces on police

performance as centralized forces are expected to be larger than decentralized ones.

Although there is no definite standard of how many documents should be

collected and analyzed, in general sufficient data have been collected when patterns of

findings have become repetitive and there is no new information (Ball, 2013). This

criterion serves as a guideline for qualitative data collection in the current study.

Phase I Data Analysis

Data analysis in Phase I addresses the research question, "Given a typology of

police systems, where does an individual country fit based on its structural arrangements

of policing?" (RQ1). To achieve a typology of police systems, document analysis is

employed as the analytical technique in Phase I. Document analysis is generally used in

qualitative studies to explore common patterns or effects of a given phenomenon. It is

also commonly used to review the literature for quantitative studies.

Document Analysis. Extracting information from documents is a common

analytic technique used in qualitative studies (Creswell, 2013; Merriam, 2009; Yin, 2014). While having evolved from content analysis that mainly focuses on frequency counting and quantification of contents, document analysis is more interactive and reflexive to researchers, and is also used to assess the characteristics of documents, their meanings, and their relationships to theories (Merriam, 2009).

Document analysis is used in Phase I to extract the information about the government structures and police systems in the sample countries (Appendices A and B). The theory of decentralization discussed in Chapter 2 provides a priori themes for the analysis of the government and policing structures. A priori coding is the establishment of themes based on some theory prior to the analysis of qualitative data (Stemler, 2001). These a priori themes include administrative decentralization, political decentralization, and fiscal decentralization, which are related to government provision of public goods and services.

Document Analysis Procedures. The current study follows the procedures for qualitative document analysis discussed by White and Marsh (2006). Their procedures cover three major steps: from preparation to coding and finalization of the themes (Castro, 2012). First, the researcher sets an overarching question about what is expected from the documents (commonly based on the research questions), and then reads the documents without labeling in order to derive an overview of the document. Second, after deriving the overview of the documents, the researcher formulates several questions subordinate to the overarching question, and then reads the documents for the second time to look for texts or phrases that correspond to the sub-questions. When found, the corresponding texts or phrases are highlighted and assigned labels that reflect the nature

of the texts or phrases. Texts or phrases that are unexpected but potentially important are also highlighted and labeled in this step. The researcher then assembles texts or phrases that are similarly labeled to create themes or categories. Third, the researcher refines the outcomes obtained from the previous step. After deriving a number of themes, the researcher has to categorize them into main- and sub-themes based on their significance. Rereading the documents for the third time is essential to assure that the researcher has generated reasonable themes and sub-themes (Castro, 2012). In addition, the researcher keeps writing analytic memos, or notes about what the researcher preliminarily observes and analyzes from the documents, as a means to reflect on the initial findings or ideas about the documents and later as traceable records for maintaining trustworthiness of the study.

Measures of Verification. In order to verify the accuracy of the qualitative findings in this phase of study, several validation strategies laid out by Creswell (2013) are relevant to this study and are employed.

Triangulation. Triangulation refers the "use of multiple and different sources, methods, investigators, and theories to provide corroborating evidence" (Creswell, 2013, p. 251). Qualitative analyses in the current study rely on data from multiple sources as discussed above. Findings such as codes and themes from different sources of data are compared and contrasted to achieve validity.

Peer Review. Review or debriefing by a colleague who "keeps the researcher honest; asks hard questions about methods, meanings, and interpretations; and provides the researcher with the opportunity for catharsis by sympathetically listening to the

researcher's feelings" helps verify the accuracy of the study (Creswell, 2013, p. 251).

For the current study, the dissertation supervisor acts as a peer debriefer throughout the

entire research.

Bias Clarification. As the researcher's philosophical stance, background,

prejudices, or assumptions have an impact on the analysis and interpretation of the study,

it helps maintain accuracy if the researcher is aware of and clarifies these biases at the

beginning of the study (Creswell, 2013). At the outset of this chapter, I elaborated my

epistemological stance and professional background, which on one hand informs the

readers of potential biases that may influence the study and, in addition, it makes me

aware of my potential biases and helps me maintain a critical eye on my analysis and

interpretation.

Phase II Ex-Post Analysis

The second phase of this study is an ex-post analysis of the effects of police

systems on police performance and demand for police. It addresses the second research

objective and related questions, "What do existing research studies on policing find about

the effect of police systems on police performance?" (RQ2) and "Do centralized and

decentralized police systems affect police performance differentially?" (RQ3).

Document analysis is used to derive a set of variables and expected relationships. These

variables and expected relationships are used to formulate empirical models. Then,

random effects estimation is used to assess the effect of police systems on police

performance and demand for police using an unbalanced panel dataset from 2001 to 2012

for 72 countries.

Phase II Data Collection

To derive a set of variables and expected relationships, data are obtained from an analysis of existing qualitative and quantitative studies in the literature. The main focus is on empirical studies that examine the relationship between formal structures of policing and police performance.

For empirical examinations, There are several ways to collect and count crime data, which are generally used to evaluate police performance (Dammer & Albanese, 2011). Data obtained from a single perspective, however, may not sufficient. Data from the police perspective are argued to underrepresent criminal incidences and, thus, are biased. Similarly, data from the victim perspective also are argued to be subjective and biased. It is, therefore, preferable to use data from more than one perspective to supplement each other (Moore, 2002). Data vital to the analyses in this phase are retrieved from sources available on the Internet as discussed below.

Sources of Police Performance Data. Empirical analyses in the current study utilize crime data from two major sources: (1) the United Nations' Surveys of Crime Trends and Operations of Criminal Justice Systems (CTS) and (2) multiple cross-national public opinion surveys. Detailed information about the sources is elaborated in Chapter 5.

United Nations' Surveys of Crime Trends and Operations of Criminal Justice Systems. The United Nations' Surveys of Crime Trends and Operations of Criminal Justice Systems (CTS) began in 1970 with the aim to systematically collect and make available comparative statistical data on criminal incidences and the main components of criminal justice system from countries around the world (Dammer & Albanese, 2011).

Data on crimes include: homicides, assaults, sexual violence, robberies, kidnappings, thefts, motor vehicle thefts, burglaries, and drug-related crimes. Data on the criminal justice system include: persons brought into formal contact with the police, persons prosecuted, persons convicted, persons detained, criminal justice system resources, total police personnel, total police budget, etc. (UNODC, 2014). So far, the CTS has conducted twelve waves of surveys covering 1970-2012 and currently the thirteenth wave is underway (UNODC, 2014). Despite its continuity and consistency, the CTS has received relatively moderate responses from UN member countries over the years. For instance, some countries participated in certain waves and not in others.

   Cross-National Public Opinion Surveys. The cross-national public opinion surveys refer to multiple attempts of institutions and researchers from diverse backgrounds to conduct systematic and consistent comparative surveys of citizen attitudes, values, and behaviors toward a range of public issues—e.g., policing and crime, political participation, democracy, governance, socioeconomics—in different regions around the globe. The sources of data on citizen trust in the police include: the Afrobarometer (Afrobarometer, 2014); the AmericasBarometer (Kinder Institute for Urban Research, n.d.; LAPOP: Latin American Public Opinion Project, 2012); the Arab Barometer (Arab Barometer, 2013); Asian Barometer. (Asian Barometer, 2014). The East-Asian Barometer (East-Asian Barometer, 2009); the Eurobarometer (European Commission, 2014); and the Latinobarómetro (Latinobarómetro Corporation, 2014).

Phase II Data Analysis

   Two analytical techniques are used in Phase II: document analysis and random effects estimation.

Document analysis is used to derived a set of variables and expected relationships. Since most of the cross-national studies of the effects of police system on police performance are case studies providing descriptive findings and discussion, document analysis is used to extract explanations or implicit variables that can potentially be included in statistical models. Prior research studies were read, coded, and categorized to generate common themes or patterns. The procedures discussed above also apply here.

Random effects estimation, a non-experimental method, is used to assess the effects of police systems on police performance and demand for police based on cross-national panel data. A random effects model is commonly used to estimate panel data with unobserved effects and appropriate when we assume that the unobserved effect is uncorrelated with all the independent variable, and can be left in the error term (Wooldridge, 2009). Unlike the fixed effects model, which is also commonly used to estimate panel data, the random effects model allows time-invariant independent variables to be included in the equation. Given that the typology of decentralization, the variable of interest, may be time invariant, fixed effects models cannot be used. The employment of the random effects estimation is appropriate because it allows for both time-variant and time-invariant variables. That is, countries whose police system did change and countries whose police system did not change are included in the estimations. A simple random effects model is written as follows (Wooldridge, 2002, 2009):

$$y_{it} = \beta_0 + \beta_1 x_{it1} + \cdots + \beta_k x_{itk} + v_{it}$$

Where

y_{it} denotes the outcome of entity i at time t,

x_{itj} denotes the independent variables, and j goes from 1 to k,

β_j is the coefficient of the independent variable, and

v_{it} is the composite error term.

Phase III Ex-Ante Analysis

Being an ex-ante analysis and a synthesis of the two preceding phases, the final analytic phase of this study is to address the third research objective and the research question, "What differences in outcomes might be expected if Thailand were to adopt a decentralized police system?" (RQ4). Findings obtained from all the analytic techniques are discussed and used to address the research question. Effect sizes from the random effects estimations in Phase II are inferred to build a scenario if Thailand were to change its police system. Policy implications for Thailand and implications for future research of police systems in general are provided.

CHAPTER 4

REVIEW OF POLICING LITERATURE AND

CONSTRUCTION OF A TYPOLOGY OF POLICE SYSTEMS

This chapter addresses the first research objective and related research questions by exploring police systems around the world and examining empirical studies related to police systems by means of document analysis. This chapter is organized as follows. The first section explains key concepts and terms related to police systems. The second section examines empirical comparative studies of police systems. The third section constructs a typology of police that is based on the theoretical framework developed in Chapter 2 and drawing from existing classifications. Police systems employed by individual countries around the world are classified for use in empirical analyses.

Policing and Police Systems

This section elucidates a number of concepts of police studies essential to the current study. First, it defines terms important to the study of police systems. Second, it provides a discussion about the classification and comparison of police systems. Third, it discusses different measures of police performance.

Fundamental Concepts of Policing

Policing, the Police, and Police System Defined. For clarification, it is important to define some of the terms, which are generally found in the literature and are used in the current study.

Policing. Mawby (2008) defines policing as "a process of preventing and detecting crime and maintaining order... [that] might be engaged in by any number of agencies or individuals" (p. 17). Following this definition, policing is a range of activity that can be performed by the public, the private, or the civil-society sectors.

The police. According to Mawby (2008), the police (generally with the article "the") refers to an organized and specialized, public, nonmilitary agency with the legitimate power to enforce the law and maintain order. This definition includes three key elements—structure, authority, and functions—that make the police different from other policing organizations. First, the police possess a certain level of authority (legitimacy) given by the public to carry out policing.[4] Second, the police are trained and organized with rules and structure. Last, the major functions of the police are to "maintain law and order and the prevention and detection of offences" (Mawby, 2008, p. 18). Note that the police in various countries may also be responsible for other duties.

Police System. Although the term "police system" is commonplace in the literature of comparative criminal justice, it is taken for granted that readers know what it means and, as a result, often is not directly defined. In this study, a police system refers to the formal structural arrangements of public policing employed by a country.

Categories and Functions of Police. In addition to maintenance of law and order and crime prevention and detection, a police system may encompass a wider range of duties that may result in a variety of police agencies in a given country (Bayley, 1992;

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[4] In his original text, Mawby (2008) uses the term "legitimacy" instead of "authority." However, I find his definition of legitimacy is more consistent with that of authority as used in the current study.

Dammer & Albanese, 2011; Mawby, 2008). Based on their missions, police can be

classified into several categories. Bayley (1992) classifies police into three main

categories: general-purpose police, special-purpose police, and ancillary police.

Sadykiewicz (2005) lists four main categories of police: internal public security police

agencies, paramilitary police forces, specialized police services, and criminal police.

There is some overlap among the two classifications. Drawing on Bayley (1992) and

Sadykiewicz (2005), police can be classified into five categories: general-purpose police,

internal public security police, special-purpose police, ancillary police, and paramilitary

police.

General-Purpose or Criminal Police. The heart of policing in any country,

general-purpose (Bayley, 1992) or criminal police (Sadykiewicz, 2005) are police "with

full powers of access, arrest, and investigation for any criminal offense throughout the

territory of the authorizing government unit" (Bayley, 1992, p. 517). This category of

police is the most common and generally the largest in terms of number (Sadykiewicz,

2005).

Internal Public Security Police. Generally centralized and equipped with

enforcement power throughout the country, internal public security police are responsible

for the detection and prevention of criminal offenses that cross jurisdictional boundaries,

such as "terror, espionage, organized crime, drug mafias, and other serious crimes"

(Sadykiewicz, 2005, p. 1250). Internal public security police are, in fact, general-purpose

police whose jurisdiction is the entire country but only for federal crimes. Examples of

this category of police are the Federal Bureau of Investigation in the US, the Federal

Crime Office in German, and the Department of Special Investigation in Thailand.

Special-Purpose Police. Special-purpose police are responsible for a limited, specially-stipulated set of duties or only one duty (Bayley, 1992). Examples of this category include taxation police, environmental or forest police, and so on (Bayley, 1992; Sadykiewicz, 2005). Examples of special-purpose police in Thailand include forest, park, and wildlife rangers. While Bayley (1992) and Sadykiewicz (2005) contend special police are generally centralized at the national level, this kind of police can be found at local, region, and national levels—for example, municipal parking enforcers.

Ancillary Police. Ancillary police are general-purpose police who are authorized by a government unit to provide basic police services in a limited, specific boundary. Special-purpose differ from ancillary police police in that the former concerns specific and limited duties whereas the latter concerns limited geographical jurisdictions. Examples of ancillary police include railway police, airport police, university police etc. (Bayley, 1992). A Thailand example of this type of police is railway police.

Paramilitary Police. Also highly centralized, paramilitary police forces are supportive of general-purpose police in normal situation, and act as military forces for national defense in times of war. Examples of this category of police are Gendarmeire Nationale in France, Arma dei Carabinieri in Italy, Guardia Civil in Spain (Sadykiewicz, 2005), and Border Patrol Police in Thailand.

The current study focuses on structural arrangements of police that provide public security services in different levels of territorial jurisdiction. Therefore, when "police" is used in this study, it refers to the general-purpose police and the internal public security police unless otherwise specified.

Classifying and Comparing Police Systems

Dammer and Albanese (2011) argue that variations in policing in different countries rest primarily on three factors: (1) political systems (democratic/non-democratic); (2) historical, cultural, and socioeconomic backgrounds; and (3) organizational structures. The second factor is classified into five models: democratic Anglo-Peelian, democratic continental, developing countries, authoritarian, and Asian (Dammer & Albanese, 2011). The democratic Anglo-Peelian model focuses on both community service and crime control and prevention.[5] The democratic continental model is more concerned with law enforcement than satisfying the public. In the developing countries model, the police are corrupt and not goal-oriented because they are poorly financed. The authoritarian model is the most militaristic. The Asian model pays more attention to cultural norms rather than to individual rights. Note that policing in a given country may fall into one or more of these models.

The organizational structures of policing is the operational framework for police officers and affects their behavior and performances (North, 1990, 1991). In 1992, Bayley argued that the study of effects of institutional arrangements on police performance was in its infancy. There were more descriptive case studies but less comparative ones. Bayley called for more quantitative examinations of the effects of police institutional arrangements.[6] More specifically, Bayley proposed that institutional

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[5] Robert Peel (1788-1850) developed a set of principles (the so-called "nine principles of policing") that became the basis of policing by consent used in English-speaking countries, such as Australia, Canada, New Zealand, and United Kingdom (United Kingdom Home Office, 2012).

[6] Even though he called for the study of police organization Bayley observed, "The organization of the police is a curious subject. To begin with, it is boring" (1992, p. 509).

arrangements should be added to the model as an independent variable. More than two decades later, the situation seems unchanged as quantitative studies of the effects of police systems are very limited.

Typology of Police Systems. Attempts to systematically analyze variations of national police systems trace back to Bayley (1985, 1992), who classifies police systems based on three components: number of autonomous forces, distribution of command, and coordination. The number of autonomous forces refers to the concepts of centralization/decentralization at the national level, asking whether the police services are provided by a single autonomous government agency or by multiple ones. According to Bayley, the forces are autonomous if "they are created, supported, and directed by units of government that cannot be directed with respect to policing by other units of government" (1992, p. 511).   Based on the decentralization literature, this component concerns vertical decentralization (Pollitt, 2005). Distribution of command refers to the number of agencies responsible for policing at each level of government. For examples, Venezuela's national police, political police, and judicial police are operated by the same tier of government. This component, distribution of command, therefore, concerns horizontal decentralization (Pollitt, 2005). The last component, coordination, asks whether there are overlapping layers of authority and jurisdiction (uncoordinated) (Bayley, 1992; Reichel, 2013; Sadykiewicz, 2005).

Bayley's (1992) typology is helpful in understanding the complexity of a nation's police system. Based on the typology, for instance, the police system in the United States falls into a decentralized, multiple, uncoordinated system whereas that of Saudi Arabia is a centralized, single—and, therefore, coordinated—system. Bayley's typology is useful,

but it does not recognize that within each of the three components there may be degrees or variations among countries. In addition, when command is distributed among various agencies—i.e., horizontal decentralization—these commands are generally paramilitary police, and/or special-purpose, not the general purpose police which are the focus of this study.

UNAFEI's (2003) typology appears to address Bayley's first component and classifies national police systems into three categories: centralized, decentralized, and semi-centralized. Centralized refers to "a police system in which there is a national police agency or police institution which is centrally commanded and controlled through a vertical chain of command and such police institution has unlimited jurisdiction throughout the territory of the country" (UNAFEI, 2003, p. 183). Decentralized refers to "a police system in a federal, union or similar form of political or constitutional arrangement, where the responsibility for law and order and consequently the operational control, management, and superintendence of the police agencies or institutions is the exclusive responsibility of the governments of the states, or provinces; components of the federal or union arrangement as the case may be" (UNAFEI, 2003, p. 183). Semi-centralized refers to "police system in a federal system of government or similar constitutional arrangement where the responsibility for law and order is vested in the governments of the component states, provinces or prefectures and the control of the police agencies in the states, provinces or prefectures vests in both the Federal (Central) government as well as the governments of the component states, provinces or prefectures irrespective of the extent and measure of control exercised by either organ" (UNAFEI, 2003, p. 183).

Basically UNAFEI (2003) uses the structure of government to classify the structure of policing. But not all tiers of government have police. For instance, while Japan is a multi-tiered state in terms of constitutional arrangement, its police system is a semi-centralized, in which both the national and prefectural governments have control over the police. Therefore, classifying a police system employed by a country based on the country's constitutional arrangement is not applicable to all cases.

In a study examining the effect of police systems upon police performance, Esparza (2012) classifies police systems as follows:

> Centralized police systems are characterized as having a singular police force charged with the basic law enforcement duties and protection of citizens in a society. A decentralized police system is characterized as having multiple police forces at the national and sub-national levels that collectively are charged with the basic law enforcement duties and protection of citizens in a society. (p. 12)

Esparza's classification, while practical, is also wanting. In regard to the definition of the decentralized police system there may be countries where "the basic law enforcement duties and protection" are not carried out collectively by the national and subnational governments. For example, in the US "the basic law enforcement duties and protection" are run primarily at the local level while the national police force has more specialized duties (Bayley, 1992).

Due to shortcomings found in the above typologies of police systems, it is essential to develop a coherent typology that not only takes into account the literatures of decentralization and fiscal federalism but also allows for varying degrees of

centralized/decentralized structures. A new typology of police systems will be developed in the last section of this chapter.

Measuring Police Performances Comparatively

The various structures of police systems have strengths and weaknesses. Kurtz (1995) and Reiss (1995) provide two reviews of the literature and find that centralized and decentralized police systems have the following strengths—which also serve as weaknesses for each other. First, while centralized policing promotes standardization and uniformity of services and service delivery, decentralize policing promotes innovation and provides adaptive and flexible services and delivery to meet local needs. Second, standardized, centralized policing reduces administrative duplication whereas decentralized policing allows local citizens to have control over the police. Third, centralized policing provides higher levels of training whereas decentralized policing provides special training or customized enforcement strategies for local needs. Fourth, centralized policing allows coordination of efforts to stop criminal activities that cross jurisdictions whereas decentralized policing focuses on local crimes and may not coordinate with other jurisdictions. Fifth, centralized policing provides national coordination of criminal record keeping whereas decentralization protects against one big police agency that has excessive information and control over citizens' lives. And, sixth, while centralized policing reduces local political interference and corruption, decentralized policing reduces political interference and corruption from the national level. These strengths and weaknesses focus on administrative aspects of policing rather than performance or outcomes.

Attempts to collect and analyze crime data across national borders trace back to

Europe in the late nineteenth century. However, over the years such attempts—e.g.,

United Nations in the late 1940s and Interpol between the 1940s and the 1970s—have

had little success due to different definitions of crime and inconsistent data contribution

by nations (Dammer & Albanese, 2011). More recently, the International Crime Victim

Surveys (ICVS) and the United Nations Surveys of Crime and Trends and Operation of

Criminal Justice Systems (CTS) have been trying to systematically collect international

crime data, providing accessible and consistent data sources (Dammer & Albanese,

2011).

In general, based on key participants in any given criminal offense, there are three

ways to collect crime data, from the police, victim, and offender perspectives (Dammer &

Albanese, 2011). Data obtained from these perspectives are useful for providing a

broader perspective on police performance for comparing and analyzing crimes among

different jurisdictions, regions, and nations. It should be noted that, however, data from

the police perspective are more common than those from the other sources. Crime data

from the victim and offender perspectives in general are available for limited number of

countries, often only for the capital city, and are not used in this study.

Crime Data from the Police Perspective. Crime data reported by the police are

the most conventional and extensive data source (Dammer & Albanese, 2011). In the

US, the FBI's Uniform Crime Reporting (UCR) program has collected crime data

reported by the police since 1930. Data that the UCR annually collects from police

agencies at different levels—states, counties, municipalities, tribes, colleges, and

universities—include crime counts and trends, crime clearances, arrests, number of law

enforcers, and homicides (Barnett-Ryan, Langton, & Planty, 2014).

Crime rates, arrests, citations, and clearances are traditional indicators of police performance (Maguire, 2003). Despite being the most extensive, these kinds of crime data have several shortcomings. First, crime rates are not only subject to the police performance; there are a number of factors that affect criminal offences, particularly social, economic, and political factors. For example, economic downturns are found to be correlated with higher criminal activities (Maguire, 2003). Second, not all crimes are reported to the police (Dammer & Albanese, 2011; Maguire, 2003). Arrests, citations, and clearances are dependent on crimes reported and as a result share the similar problem of not reflecting exact occurrences of criminal activities. Unreported and undiscovered crimes are usually referred to as the dark figure of crime (Regoli, Hewitt, & Maras, 2013) and the extent of these crimes is basically unknowable. Third, the government—either local or national—has the incentive to use crime data for its political agenda: as a high crime rate may discourage business investment and citizens' confidence, the government may under-report the number of criminal activities. For example, police officers in New York, NY, downgraded crime statistics in order to portray the city as a safer place compared with other major cities (Parascandola & Paddock, 2015; Rashbaum, 2010). Because crime data reported by police are likely biased (Dammer & Albanese, 2011; Maguire, 2003), there have been calls over the years for incorporating citizens' satisfaction or confidence in the police as an indicator of police performance (Maguire, 2004).

Inclusive Measures of Police Performance. In response to calls for more inclusive indicators of police performance, Moore (2002) developed a framework for measuring police performance by recognizing a number of public values. As a result,

Moore established seven dimensions of police performance: (1) reduction of victimization; (2) calling offenders to account; (3) reduction of fear and enhancement of security; (4) guarantee of safety in public spaces; (5) efficient and effective use of financial resources; (6) efficient and effective use of force and authority; and (7) customer satisfaction and legitimacy (Moore, 2002).

To be able to empirically assess police performance, Moore (2002) assigned proxies for the seven dimensions based on criminal indicators generally used in the literature. Some of the indicators are data collected from either the police or the victim perspective. That is, (1) reduction of victimization is measured by crime and victimization rates; (2) calling offenders to account is measured by clearance and conviction rates; (3) reduction of fear and enhancement of security is measured by levels of fear and levels and measures of self-defense based on survey data; (4) guarantee of safety in public spaces is measured by traffic fatalities, utilization of public space, and property values; (5) efficient and effective use of financial resources is measured by costs and expenditures; (6) efficient and effective use of force and authority is measured by citizen complaints, court settlements, and police shootings; and (7) customer satisfaction and legitimacy is measured by citizen satisfaction and response time

Moore's (2002) framework partially guides the current study in the empirical examination of police systems. Because many of the measures are not available across countries, the examination includes two main measures of police performance: citizen trust in the police and crime rates (further discussed in Chapter 5).

New Typology of Police Systems

This classification is designed to measure the degree of police decentralization in

countries around the world. In line with the research objectives and theoretical frameworks, the classification focuses on vertical decentralization of policing (multiple tiers of government) rather than horizontal decentralization (fragmentation, multiple police agencies in the same tier). The classification is based on three criteria that measure different aspects of decentralization: (1) governmental structure, measuring the degree of decentralization and local-self government in general; (2) political control, measuring the degree of political and administrative decentralization; and (3) fiscal control, measuring the degree of fiscal decentralization.

Component 1: Vertical Governmental Structure

Vertical governmental structure measures the number of hierarchical tiers of general-purpose government within the nation state. It is coded by counting the number of tiers of government—from the national to the lowest local-self government—in a given country. A general-purpose government refers to a political entity that has the power and authority to determine public policies and provide a broad range of public services to citizens within a defined geographical jurisdiction.

In this component, it is assumed that:

First, the government of each tier has power for policy- and decision-making: within their realm of authority, decisions cannot be overruled retroactively, except by courts or mechanisms stipulated by law.

Second, higher tiers have larger geographical jurisdictions that may include geographical jurisdictions of a lower tier or tiers. In general, different tiers provide different services to citizens in their geographical jurisdiction. However, a higher tier may or may not have political and/or administrative control over its immediate lower tier.

For example, counties in the US are larger geographical jurisdictions that include

geographical jurisdictions of municipalities but counties do not have any control over

municipalities.

Third, a tier of government may or may not cover all areas of the country. For

example, municipalities in the US provide services only in incorporated areas: their

geographical jurisdictions do not cover all the territory of the US.

Fourth, within a tier, there may be more than one type of government. In general,

different types of government within the same tier do not have official authority over one

another. For instance, the third tier of government in India comprises two types of

government: municipalities and district councils (zilla panchayats). Municipalities

provide services in urban areas while district councils serve rural ones. As municipalities

and district councils in India operate at the same geographical level, they constitute one

tier of government.

Fifth, different countries use different models of local government.[7] Some nation

states have only one tier of local government, others have multiple tiers. Kenya, for

instance, has four types of local government but they are all in the same tier. France, on

the other hand, has three tiers of local government: regions, departments, and communes.

This criterion counts all tiers of local government even though they are all labelled or

referred to as "local government."

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[7] Local government refers here to "specific institutions or entities created by national
constitutions (Brazil, Denmark, France, India, Italy, Japan, Sweden), by state
constitutions (Australia, the United States), by ordinary legislation of a higher level of
central government (New Zealand, the United Kingdom, most countries), by provincial or
state legislation (Canada, Pakistan), or by executive order (China) to deliver a range of
specified services to a relatively small geographically delineated area" (Shah, 2006, p. 1).

Singapore	Jamaica	Thailand
		National Government
	National Government	PAOs
National Government	Parishes	Muni. & SAOs

France	United States	Argentina
		Federal Government
National Government	Federal Government	Provinces
Regions	States	Municipalities
Departments	Counties	2nd Class Muni.
Communes	Municipalities	3rd Class Muni.
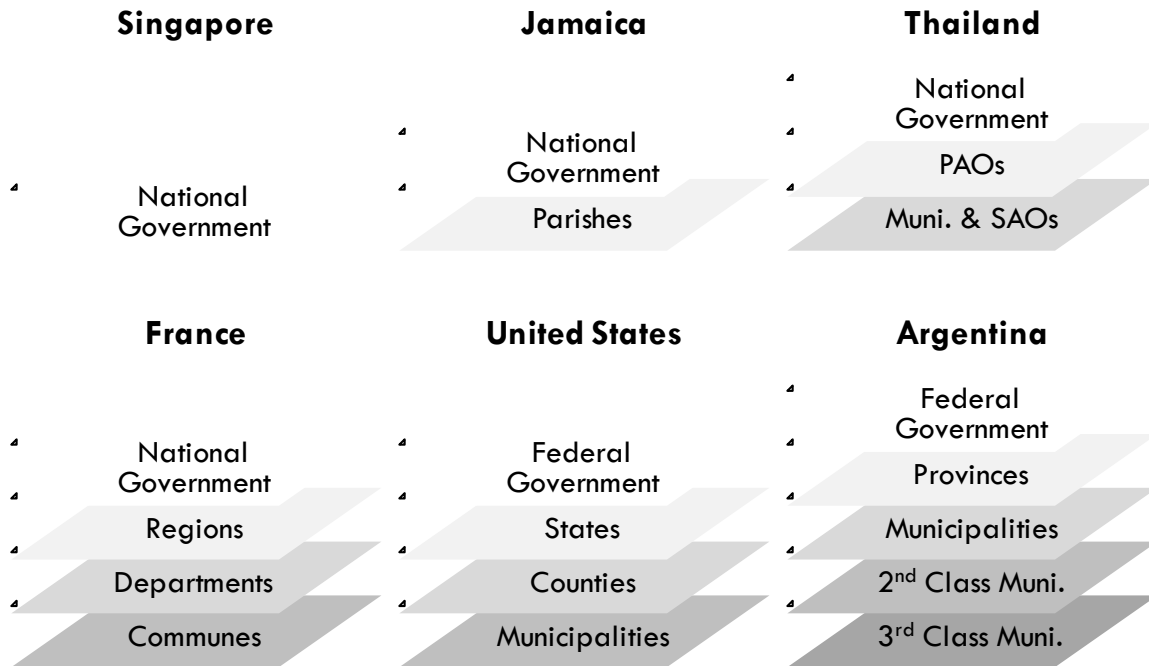
Figure 4.1. Tiers of government in selected countries. Muni. is short for municipalities; PAOs stands for provincial administration organizations; and SAOs stands for sub-district administration organizations.

For better understanding of how this component is coded, consider the following cases of the US and Thailand (Figure 4.1). The US is a federal system in which a federal government and fifty state governments share the sovereign power. Within each state constitution, the state specifies the types of local government and how it will share power with them. Counties (other names are used in some states) and municipalities are general-purpose local governments and they provide services on different geographical levels. Therefore, the US has four tiers of general purpose government: federal government, states, counties, and municipalities. Thailand is in transition from a unitary government and currently has two additional tiers of government: provincial administration organizations (PAOs) in the upper tier, and municipalities (serving urban

areas) and sub-district administration organizations (SAOs, serving rural areas) in the lower tier. Therefore, with the national government and two tiers of local governments, Thailand has three tiers of government and is coded 3.

Three issues should be noted here. First, this component concerns government, not administration: it does not measure tiers of administrative authorities (administrative divisions) that are politically and administratively subordinate to or part of a government. Second, this component does not count supranational governments, such as the European Union. Third, it does not measure other types of geographical subdivisions that do not provide general purpose government (for example, attendance zones for an individual school building). The number of tiers of government in this typology may or may not correspond to the number of geographical divisions reported in standardized systems such as the Nomenclature of Territorial Units for Statistics (NUTS) used by the European Union (Eurostat, 2015) because of the strict definition of general purpose government being used in this study.

As noted, in Thailand there are two systems concurrently providing public services nationwide: the so-called "provincial administration" and the local government (Figure 4.2).[8] The former is a deconcentrated system of service delivery, an outreach arm of the national government in Bangkok whereas the latter is a decentralized system with locally elected executive and legislative bodies (Chardchawarn, 2010; Nagai et al., 2008).

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[8] Thailand—like in France, Japan, United Kingdom, and other countries—avoids using the term "local *government*." The Royal Thai Government uses "local administration organizations" to describe local governments. Other countries use other terms such as "local authorities." However, based on the definition in the current study, the so-called "local administration" system in Thailand is for all intents and purposes a local government system.

The tiers of administrative divisions and those of local government do not correspond: there is no local government at the province-group, district, and village levels.

Census Geographic Division	Administrative Division	Tier of Government
Country	Nation	National Government
Regions		
	Province Groups	
Provinces	Provinces	PAOs
Districts	Districts	
Sub-districts	Sub-districts	Muni. & SAOs
Villages	Villages	
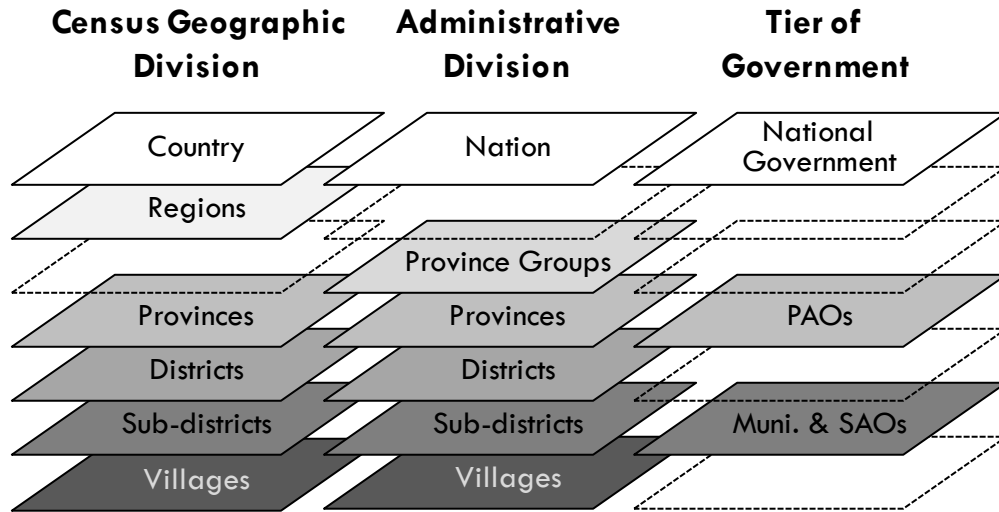
Figure 4.2. Territorial divisions in Thailand. Muni. is short for municipalities; PAOs stands for provincial administration organizations; and SAOs stands for sub-district administration organizations.

Component 2: Administrative and Political Control

This component asks, "Who controls the police?" It is based on the concepts of political decentralization or devolution, appointment decentralization, and electoral decentralization. This component takes into account both the instances where local governments provide police services (exclusively or concurrently with another level of government) and where local governments have administrative and/or political control over police services that are exclusively provided by another level of government. This component is coded by the number of tiers of government that have political and/or administrative control over the police. A government has political and/or administrative control over the police, if it is: (1) responsible for the administration, supervision, and/or

evaluation of the police; or (2) responsible for recruiting and/or appointing police executives and/or officers.

Consider the following examples. In the Netherlands, the national government provides police services throughout the country but municipalities (third tier of government) have political and administrative control over the police and is coded 2. In the Philippines, the national government provides police services throughout the country but provinces and municipalities (second and third tiers of government, respectively) have political and administrative control over the police and is coded 3.

Component 3: Fiscal Control

This component concerns the fiscal aspect of policing and is based on the concept of fiscal decentralization, asking, "Who pays for the police?" It counts the number of tiers of government that finance the police. Financing can be self-financing, joint-financing by two or more tiers, or transfers from one tier to another. The sources do not distinguish among these types of financing and only report if a tier has police expenditure. If the revenues for policing come exclusively from another tier, that tier has fiscal control. However, the sources do not provide any information about revenue transfers for police services from one tier of government to another.

Consider the following examples. In the US, lower tiers of government may receive funding from other tiers but all the four tiers of government also have and contribute to financing their police agencies and, as a result, it is coded 4. Canada is coded 3. While there are five tiers of government—federal, provincial, supra-regional, regional, and municipal—the supra-regional and regional governments neither have nor finance the police. Japan has three tiers of government. Because the prefectures—the

second tier of government—provide police services in the prefectural and municipal jurisdictions but the national government also partially finances the prefectural police, it is coded 2. Lithuania is coded 2. While the national government is the only tier of government that provides police services but the municipal governments also finance some local police programs.

Table 4.1 summarizes the components discussed above and provides ranges of possible scores. Because there is no country with more than five tiers of government, the highest possible code for each component is 5, the lowest 1.

The typology of police systems discussed above encompasses three components: (1) tiers of government; (2) tiers of government that have control over the police; and (3) tiers of government that finance the police. The three components measure different aspects of decentralization based on the supporting theories. I expected to find some variations among the two latter components. However, when I coded the countries based on the typology, there were only a few differences between components (2) and (3). Only five out of 72 countries had such variations.[9] In addition, there was no information about revenue transfers for police services from one tier of government to another, which is an important aspect of fiscal control over the police. This meant that the numerical value of component (3) did not provide any new information to the index. Therefore, the index of police decentralization was calculated as tiers of government that have control over the police divided by tiers of government, component (2) / component (1).

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[9] The five countries are Lithuania, the Netherlands, the Philippines, Sweden, and Ukraine (see Appendix B).

Table 4.1

Summary of the Components of the Typology of Police Systems

Component (Supporting Theory)	Definition	Code Range
1. Governmental Structure (federalism, political autonomy, decisionmaking decentralization, vertical decentralization) *"How many governments does the country have?"*	Number of hierarchical tiers of governments within the nation state. • Each tier has power for public service provision and policy- and decision-making—within their realm of authority, decisions cannot be overruled retroactively, except by courts or mechanisms stipulated by law. • This study counts geographical divisions of governments from the national to the lowest local level. Different countries use different models of local government. Some countries have only one tier of local government, others have multiple tiers. In this study, all tiers of local government are counted. • Higher tiers have larger territorial jurisdiction that entails multiple jurisdictions of a lower tier. Lower tiers of government are not necessarily subordinate—politically and/or administratively—to their immediate higher tiers. Therefore, counties in the US are of a higher tier than municipalities; although both constitute local government, they are in separate tiers. • Certain tiers may not provide services to all areas of the nation state. For example, municipalities in the US do not cover all areas of the country.	1-5
2. Political Control (vertical decentralization, political decentralization or devolution, appointment decentralization, electoral decentralization) *"Who controls the police?"*	Number of tiers of governments that have political and/or administrative control over the police • Responsible for the administration of the police and/or the recruitment/appointment of police executives and officers. • To whom the police report and are accountable.	1-5
3. Fiscal Power (fiscal decentralization, fiscal federalism) *"Who pays for the police?"*	Number of tiers of governments that finance the police. • Funding and/or transfer from that tier.	1-5

Empirical Comparative Studies of Police Systems

Decentralization implies smaller police forces and may lead to what some call fragmentation of police forces. Discussions about the performance and efficiency of size and fragmentation of the police forces in the US began around the 1930s but it was not until the late 1960s that there were empirical studies comparing outcomes of larger and smaller police forces (Ostrom & Parks, 1973). Findings from these discussions in the US served as a starting point for the debates about centralized and decentralized police systems around the world (e.g., Esparza, 2012). This section traces back the scholarly debates about police systems and discusses findings from empirical studies that compare different police systems.

Studies of the United State Police Systems and Police Performance

The US police system is decentralized and also the most fragmented system in the world with 14,000 police agencies under local governments (Bayley, 1992). In the late 1960s and early 1970s, based on the argument that the fragmented nature of policing in the US led to police incapability, inefficiency, and coordination problems, there were calls for consolidation of police, especially in the metropolitan areas (Ostrom & Parks, 1973). The following are some examples of such calls. Reuss (1970) argued that "Fragmented local governments also means splintered law enforcement, with overlapping jurisdictions, petty jealousies and rivalries, poor or nonexistent communications networks, inadequate training …" (p. 58). Callahan (1972) pointed out that "Surveys of the efficiency of small and undersized police forces indicate that their personnel are poorly trained, poorly organized, and overworked. Consequently, small police agencies frequently provide an extremely low quality of services" (p. 1 as cited in Ostrom &

Smith, 1976).

A report by the Advisory Commission on Integrovernmental Relations (1971) examined the structure and operation of state-local criminal justice systems, looking at the police, courts, prosecution, defense counsel for indigent, and corrections across the US. The commission found that small police departments were both ineffective and inefficient as they "are unable to provide a wide range of patrol and investigative services to local citizens.…[and] do not have adequate full-time patrol and preliminary investigative services" (p. 17). A study in Appendix B of the report examined the relationships between population size and police expenditures and employment in cities with population over 25,000 (not the smallest cities) in California, Illinois, Massachusetts, Michigan, New Jersey, New York, Ohio, and Texas. There was no evidence of either economies or diseconomies of scale in cities of 25,000 to 250,000. There was a positive, but not statistically significant relationship between population size and per capita police expenditures. However, when cities of over 250,000 were included in the regression, the relationship between population size and police expenditures and employment was positive and significant, indicating diseconomies of scale with increasing size, the opposite of expectations.

The National Advisory Commission on Criminal Justice Standards and Goals (1973) also addressed the issue of fragmented police forces. Even though the commission did not have any empirical supports that large police departments provided more effective and efficient police performance, it recommended against small police departments. The commission argued that "a small agency is certain not to provide a full range of police services… lack sufficient resources necessary for 'full service' police

agencies" and recommended the "recombination and consolidation of police departments with less than 10 full-time sworn officers" (p. 110).

Amidst predominant criticisms of fragmentation of the police, Ostrom and Whitaker (1973) conducted a study comparing the performance of large-scale police forces in three neighborhoods within Indianapolis with that of small-scale police forces in three neighborhoods in small cities near Indianapolis. A 1970 survey of residents was analyzed at two levels: 1) neighborhood level by aggregating individual responses to determine the neighborhood patterns; and 2) individual level examining the association between type of neighborhood and respondents' evaluations of the police using Kendall's tau test. Findings showed that the police in the small city neighborhoods outperformed the police in the Indianapolis neighborhoods in respondents' evaluations of police promptness of response to calls for assistance, neighborhood crime trends, police-citizen relations, and satisfaction with the job being done (Ostrom & Whitaker, 1973).

In the same year, Ostrom and Parks (1973) examined the relationships between size of jurisdiction (measured by population served), size of police department (measured by number of police per 1,000 population) and fragmentation of police forces (measured by number of police forces in the metropolitan area and by number of police forces per 100,000 population) and outcomes of police services using data from a 1966 nationwide victimization survey, analyzed via the Kendall's tau and the Pearson product-moment correlation tests. Outcomes of police services were measured by citizen evaluations of the police (e.g., police promptness, police respectfulness, police attention to complaints, etc.), and citizen experience with the police (e.g., feelings of safety, confidence in the police, willingness to report, etc.).

In communities of 10,000 and above, with increasing jurisdictional and departmental sizes there were inverse relationships with outcomes of police services However, using a different data set, findings were mixed in the analyses of communities of 20,000 and below. Jurisdictional population size had a positive relationship with satisfaction with police services, but departmental size had inverse ones. The authors also found that larger jurisdictional and operational sizes did not lead to lower costs. Holding the outcomes above constant, findings from the nationwide survey for all communities in the sample showed that larger police jurisdictions and departments had higher per capita expenditures. (It should be noted that the severity of crimes was not held constant.) That is, there was no evidence of economies of scale (Ostrom & Parks, 1973).

Regarding the relationship between fragmentation of police forces (measured by number of police forces in metropolitan areas and by number of police forces per 100,000 population) and outcomes of police services, the findings indicated that less fragmented jurisdictions were not positively associated with higher outcomes of services. However, there were mixed findings for the relationships between fragmentation of police forces and costs. When using the absolute number of police jurisdictions in metropolitan areas, they found that per capita expenditures increased when number of jurisdictions increased. On the other hand, when using the number of police jurisdictions per 100,000 population, they found that the relationships were strongly in the opposite direction, per capita expenditures decreased (Ostrom & Parks, 1973). These varying relationships imply that, in order to achieve efficiency, police jurisdictions need to be defined proportional to population size.

Browne (1974) conducted open-ended interviews in 1971 with police chiefs in 33 police departments in the St. Louis metropolitan area, asking their attitudes toward financial allocation. Based on the interviews, he found two distinct groups of police chiefs, those who would spend additional funds on specialized personnel and more sophisticated equipment and those who would focus on traditional personnel and standard equipment. The author categorized the former "progressive" and the latter "traditional." The author found that the progressive police chiefs were highly associated with larger police departments, and the traditional with smaller ones. The author concluded that "police departments must be relatively large enough to attract police chiefs who are adequately informed enough to handle the problems that will confront them" (Browne, 1974, p. 398), implying economies of scale of larger police jurisdiction. What is not taken into account in this study is the potential difference in types of crimes in the various jurisdictions.

Ostrom and Smith (1976) called Browne's (1974) study "a leap from meager evidence to grand conclusions" (p. 194) and contended that the presumption that small police forces were unviable and inefficient was unwarranted. Based on a 1972 survey of approximately 4,000 respondents living in the St. Louis, Missouri, metropolitan area, Ostrom and Smith used both bivariate and multivariate analyses to examine the relationships between size of police departments (measured by number of officers employed) and police performance. They found that, "The very small police departments [less than 12 employees] are consistently performing at higher levels than are [St. Louis City and St. Louis County] the two largest police departments in the St. Louis metropolitan areas" (p. 195) in terms of victimization, crime trend, and police-citizen

relations. In addition, per capita expenditures of the very small departments were relatively low, compared to the large departments. Again this does not take into account potential differences in types of crimes across jurisdictions.

In addition to the previous studies of Grand Rapids and Indianapolis by Ostrom and Parks (1973) and of St. Louis by Ostrom and Smith (1976), Ostrom's (1976) study of two additional metropolitan areas—Chicago and Nashville-Davidson—found that larger police departments were not associated with higher police performance as measured by citizen experiences or evaluations.

Liska and Chamlin (1984) examined the effects of demographic and socioeconomic characteristics, and number of police employees per capita on crime control (as measured by arrest rates) in 109 cities of 10,000 inhabitants and above. Findings from analyses of cross-sectional data indicated that the crime rate, income inequality, segregation, and the percentage of minorities were associated with arrest rates, but the relationship between size of the police department and arrest rates was not statistically significant.

However, findings on the effect of size of police department and arrest rates are not consistent. Slovak (1986) studied the relationships between arrest rates per 1,000 inhabitants and five organizational characteristics: size of police department (as measured by number of full-time police employees), percentage of sworn officers assigned to patrol duty, percentage of patrol officers per police sergeant, percentage of civilian employees, and percentage of sworn black officers. Based on data collected between 1976 and 1979 from a sample of 42 cities, findings from multiple regression analysis showed that the percentage of civilian employees was significantly associated with arrest rates for both

violent and property crimes. However, the relationships between size of department and arrest rates for violent and property crimes were significantly negative, meaning that when the number of full-time police employees increased arrest rates decreased. One interpretation is that beyond some size additional employees to not contribute as much to arrests. An alternative interpretation is that increased police presence reduces crime and, thus, arrests.

Similar findings about arrest rates were shown by Mastrofski, Ritti, and Hoffmaster (1987), who examined the effects of organizational attributes and police performance as measured by arrest rates of driving under the influence (DUI). The authors conducted a field study in four pseudonymous police departments (three municipal and one state) in 1984. Data were collected via participant observations, in-depth interviews, and a survey of 71 patrol police officers. Results from multiple regression analysis, which included officer's characteristics, showed that police officers in the two larger departments were less likely to arrest drunk drivers than those in the small ones. The authors argued that, on one hand, police officers in smaller police departments adhered to their administrative priorities and professional conduct. On the other hand, police officers in larger police departments were less likely to strictly commit to the professional conduct as they had to deal with high prevalence of criminal activities (Mastrofski et al., 1987). It should be noted that the authors did not control for crime prevalence and other socio-economic and organizational variables in their regression. It is also possible that smaller departments rely more on revenues from fines.

Table 4.2

Summary of Relationships between Size and Fragmentation of Police Forces and Police

Performance

Study	Size/Fragmentation Variable	Performance Variable	Relationship
Advisory Commission on Integrovernmental Relations (1971) Appendix B	Population size (cities of 25,000 – 250,000)	Police expenditures & employments	NS
	Population size (cities of 250,000 and above)	Police expenditures & employments	+
Ostrom & Parks (1973)	Population served	Citizen experiences & evaluations (cities of 10,000 and above)	-
	Population served	Citizen experiences & evaluations (cities of 10-20,000)	+
	Number of police per 1,000 population	Citizen experiences & evaluations (cities of 10,000 and above)	-
	Number of police per 1,000 population	Citizen experiences & evaluations (cities of 10-20,000)	-
	Number of jurisdictions in metropolitan area	Citizen evaluations (SMSA central-city)	-
	Number of jurisdictions in metropolitan area	Citizen evaluations (SMSA suburban)	+
	Number of jurisdictions per 100,000 population	Citizen experiences (SMSA)	-
	Population served	Per capita expenditures (nationwide)	+
	Number of jurisdictions in metropolitan area	Per capita expenditures (SMSA)	+
	Number of jurisdictions per 100,000 population	Per capita expenditures (SMSA)	-
Browne (1974)	Number of police	Specialization & sophistication	+
Ostrom and Smith (1976)	Number of police	Victimization & crime trend	+

Study	Size/Fragmentation Variable	Performance Variable	Relationship
Ostrom (1976)	Number of police	Citizen experiences & evaluations	-
	Number of police	Citizen experiences & evaluations	-
	Number of police	Per capita expenditures	+
Liska and Chamlin (1984)	Number of police per capita	Arrest rates	NS
Slovak (1986)	Number of police	Arrest rates (violent property crimes)	-
	Percentage of civilian employees	Arrest rates (violent property crimes)	+
Mastrofski et al (1987)	Number of police	Arrest rates (DUI)	-

Note. NS = not significant. SMSA = St. Louis Metropolitan Statistical Area.

In summary, findings obtained from the US studies are mixed with regard to the relationships between jurisdictional size and fragmentation of police forces and police performance (see Klinger, 2004). However, the relationships between department size, as measured number of police, and measures police performance appear to be more consistent and suggest that performance is lower in larger departments in an inverse direction (Table 4.2). Given the mixed findings, when it comes to the US police system, there have been two schools of thought: those who call for consolidation/centralization and those who value fragmentation/decentralization (Esparza, 2012). These studies compare within the US, whose police system is decentralized. Then, the question becomes: "How would these findings travel across national boundaries?"

Cross-National Studies of Police Systems and Police Performance

While there is a substantial number of cross-national, comparative works on

police systems , most of the works are descriptive in nature, provide normative

arguments, and/or put emphases on two or a small set of countries (e.g., de Millard &

Savage, 2012; Park & Johnstone, 2013; Reichel, 2013; Reiss, 1995; Terrill, 2013;

UNAFEI, 2003). There have been limited attempts to empirically examine the effect of

police systems using a large number of countries.

Recently, Esparza (2012) studied the relationships between police systems and

police performance by comparing: (1) the decentralized system of Mexico and the

centralized system of Colombia; (2); centralized and decentralized police systems in

eighteen Latin American countries; and (3) federal, state, and municipal police forces in

Mexico. For the first two comparisons, the author used data on citizens' confidence in

police forces from 1996 to 2010 based on surveys conducted by the Latinobarómetro

(www.latinobarometro.org, discussed further in Chapter 5). The surveys asked

respondents to rate their confidence in various public institutions, including the police as

a lot, some, little, or no. The author combined the percentages of responses of "a lot" and

"some" as an indicator of citizen confidence in the police. The author's analytical

method was descriptive in nature: levels of confidence in police were compared and

shown graphically. The comparative analysis between Mexico and Columbia found that

Colombia's centralized police system outperformed Mexico's decentralized system on

citizen confidence in the police. For the comparison of the eighteen countries, for each of

the years, the author averaged the responses for countries with a centralized police system

and those with a decentralized one. The annual averages for the two systems were then

compared. Findings showed that citizens in a centralized system were more satisfied

with the police than those in a decentralized one. No statistical tests of the differences

were made.

For the comparison of the federal, state, and municipal police forces of Mexico, Esparza (2012) used data from the National Insecurity Survey conducted in Mexico in 2006 and again from 2008 to 2010 to compare federal, state, and municipal police forces. The surveys asked respondents to rate their confidence in the various police forces based on three options: a lot, a little, or no confidence. Only the percentages of the "a lot" response were used as an indicator of citizen confidence. Findings showed that municipal police scored the lowest in citizen confidence over the years whereas the federal police were rated the highest. The state police were rated about 2.5 percentage points higher than the municipal police. There are two major limitations in this study. First, the analyses only compared the survey findings and did not take into account other explanatory variables that may correlate with citizens' confidence in the police. Second, the study did not allow for the fact that the federal, state, and municipal police forces may be responsible for different tasks and may not be a good fit for comparative purpose.

More recently, a cross-national empirical study by Morris (2014) took into account the organizational structures of policing as an important factor that explains police performance. The author employed a two-level (individual- and country-levels) hierarchal model to examine factors affecting levels of citizen confidence in the police in 53 countries. Included in the country-level set of explanatory variables were three measures of police systems: a binary variable for a centralized police system, a binary variable for multiple police forces, and a binary variable for the existence of paramilitary police force. The first two variables are similar to the first two components (number of autonomous forces and distribution of command) in Bayley's typology discussed above.

Findings indicated that none of the three variables were statistically significant in explaining citizen confidence in the police.

A limited number of empirical, cross-national studies examining the effects of police systems on police performance and lack of a standard typology to measure the varying degrees of police decentralization serve as rationales for the current study.

Studies of Demand for Police

The theories of decentralization and fiscal federalism argue that decentralization reflects citizen demand for public goods and services better than centralization and it is possible that citizens may have higher or lower demand. The number of studies addressing this issue of how decentralization and demand are related is very limited. Most of the studies of demand for police do not concern police systems and/or decentralization.

Cross-national studies and studies in the US in general examine the effects of socio-economic and demographic factors on demand for police. For example, Jacobs (1979) found positive relationships between demand for police and economic inequality and crime rates. Kent and Jacobs (2004) also found a positive relationship between demand for police and economic inequality. McCarty, Ren, and Zhao (2012) found positive relationships between demand for police and the percentage of black population and income.

A prior study that is pertinent to this study is Ruddell and Thomas (2015) that examined the relationship between socio-economic and demographic factors and demand for police in Canadian large cities. The authors included a measure of policing structural arrangement, i.e., a binary measure of municipal police force. The finding indicated that

demand for police is more positively associated with cities that have their own municipal

police force than those with contracted regional, provincial, or federal forces.

CHAPTER 5

EMPIRICAL MODELS

To test the hypotheses discussed in Chapter 3, three sets of empirical models

examine the effects of police systems: citizen trust, demand for police, and crimes. The

first two sections of this chapter provide detailed information about the dependent and

independent variables, which are formulated from document analysis of qualitative and

quantitative studies. The third section discusses the expected relationships between the

dependent and independent variables in each of the three empirical models. The last

section discusses the choice of analytical technique—i.e., random effects estimation.

Dependent Variables

This subsection provides detailed information about the dependent variables:

citizen trust in the police, demand for police, and crime rates. Crime rate is measured

with several dependent variables: intentional homicides per 100,000 inhabitants,

robberies per 100,000 inhabitants, and thefts per 100,000 inhabitants.

Citizen Trust in the Police

Citizen trust is measured as the percentage of the respondents reporting trust in

the police in public opinion surveys. To measure respondents' level of trust in the police,

most of the surveys used a four-Likert scale that ranged from "no confidence at all" to

"little confidence," "some confidence," and "a lot of confidence." However, the

Eurobarometer surveys provided only two choices: tend not to trust and tend to trust. For

this reason, the four-level responses were aggregated into to two groups. The responses

of "no confidence at all" and "little confidence" were aggregated and labeled "tend not to trust." The responses of "some confidence" and "a lot of confidence" were labeled "tend to trust." For surveys that utilized a five- or seven-Likert scale, the percentage of the mid-point response was divided by two and half assigned to each side.

Aggregated, country-level data were retrieved from several public opinion surveys: the Afrobarometer (2014) surveys for the African countries; the AsiaBarometer (2012), East-Asian Barometer (2009), and Global Barometer (2009) surveys for the Asian countries; the Eurobarometer (European Commission, 2015) surveys for the European countries; the AmericasBarometer (Latin American Public Opinion Project, 2015) surveys for the North American, Central American, and Caribbean countries; and the Latinobarómetro (Latinobarómetro Corporation, 2014) surveys for the South American countries. Additional sources include the World Values Survey (2015), the Gallup Confidence in Institutions surveys (Gallup, 2015) for the US, and the OECD social indicators report (OECD, 2014) for Australia, Canada, Israel, New Zealand, and Russia.

Demand for Police

Demand for police is measured by the police rate, i.e., the number of police officers per 100,000 inhabitants. Data were obtained mainly from the datasets produced and disseminated by UNODC (2015). For some countries, additional data were collected from reports and/or data available on the websites of the national police agency or the national statistical office.

Crime Rates

Crime rates are measured as specific violent and property crimes per 100,000

inhabitants: intentional homicides, robberies, and thefts. Data were obtained mainly from the datasets produced and disseminated by the United Nation Office on Drugs and Crime (UNODC, 2015). Among crime measures, the homicide rate is argued to be the most consistently and reliably measured crime across countries (Dammer & Albanese, 2011).

<div align="center">**Independent Variables**</div>

Some of the dependent variables—i.e., homicide rates and police rates— are also used as independent variables in other models. The independent variables fall into 5 categories: governance, environmental and organizational, socioeconomic, demographic, and geographic.

Governance Variables

Governance variables measure aspects of governing structures and values of the nations. These include measures of police decentralization, democracy, corruption, and civil conflict.

Police Decentralization Index. This is the index developed by the author in Chapter 4. It measures the extent to which policing is decentralized to different tiers of government. This index ranges from 0.25 to 1.00. A higher score denotes a higher level of police decentralization.

The index encompasses two components: (1) tiers of government; (2) tiers of government that have control over the police. The two components measure different aspects of decentralization based on the supporting theories. The index of police decentralization is calculated as tiers of government that have control over the police divided by tiers of government, component (2) / component (1).

Fiscal federalism suggests that tiers of government that finance the police is also an aspect of decentralization. However, when I coded the countries based on this component (3) only five out of 72 countries had variation between components 2 and 3. This meant that adding the numerical value of component (3) did not provide any new information to the index.

Democracy. PolityIV, an index developed by the Center for Systemic Peace (Marshall, Gurr, & Jaggers, 2014), is used as a proxy for the level of democracy. It measures the degree of institutionalized democracy minus the degree of institutionalized autocracy, ranging from -10 to 10. A higher score denotes a higher level of democracy.

Corruption. This variable measures the level of corruption in government, based on the Corruption Perceptions Index (CPI). CPI is an index of the perceptions of government corruption, gathered from a number of international organizations' assessments and public opinion surveys (Transparency International, 2014). The index ranges from 0 to 10. A lower score denotes a higher level of corruption.

Civil Conflict. Civil conflict is an index measured by the sum of scores of all domestic major political violence incidents in one year. Data were retrieved from the dataset produced and disseminated by the Center for Systemic Peace (Marshall, 2015). Major political violent incidences are defined as "the systematic and sustained use of lethal violence by organized groups that result in at least 500 directly-related deaths over the course of the episode" (Marshall, 2015, p. 2). This includes civil violence, civil war, ethnic violence, and ethnic war. Each incident was classified with a score of 0 to 10. A high score denotes a high level of civil conflict. For instance, 1 "Sporadic or Expressive

Political Violence" and 10 refers to "Extensive, systematic, and indiscriminate destruction of human resources and/or physical infrastructure with persistent, adverse effects" (Center for Systemic Peace, 2014). This index sums the scores of all incidents take place in a given year, thus the total score for the country may be more than 10. As violent incidences may span over one year, a continuing incident is given the same index score for each of the years.

The civil conflict index has a threshold of 500 deaths per episode. These deaths would count as homicides. For this reason, the civil conflict index is not used in the homicide model. Having part of the dependent variable (homicide) in one of the independent variables may diminish the validity of the findings. Therefore, the political stability index is used as an alternative in the homicide model.

Political Stability. The index uses various measures, such as violent demonstrations, terrorism threat, orderly transfers of power, etc., to create the index of political stability (World Bank, 2015e). The information is gathered from a number of public opinion surveys, public sector organizations, private-sector organizations, and non-governmental organizations (Kaufmann, Kraay, & Mastruzzi, 2010). Data were retrieved from the Worldwide Governance Indicators (WGI) dataset available on the World Bank website. This index ranges from -2.5 to 2.5. A high score denotes a high level of political stability.

Environmental and Organizational Variables

Environmental and organizational variables measure the nature of operational environments in which the police operate. These include number of police officers per 100,000 inhabitants, a binary indicator of routinely armed police, crime rates, formal

contact rate with the police, and civilian firearm ownership rate.

Police Rate. See above.

Murder Rate. See above.

Armed Police. This is a binary variable to indicate whether police officers routinely carry firearms. Descriptive information about the police carrying firearms was coded from the three encyclopedias of policing (Das, 2006; Kurian, 2006; Sullivan, 2005). Countries in which police officers routinely carry firearms are coded 1, and others 0. This variable does not change by country during the period of the analysis.

Formal Contact Rate. This variable is defined as the number of persons cautioned, suspected, or arrested by the police per 100,000 inhabitants. Data were obtained from the datasets by UNODC (2015).

Civilian Firearm Ownership Rate. This variable is defined as the number of firearms per 100 inhabitants. Data were retrieved from the report produced by the Small Arms Survey (2007). As this is the only available report on firearm ownership, and as gun ownership rates are likely to be relatively constant over a short span of years, the rates reported for 2007 were applied to all the years from 2001 to 2012 for which there were data for a country. No country has data for all twelve years.

Socio-economic Variables

Socioeconomic variables control for how social and economic status of the population affect the dependent variables. These include GDP per capita, an inequality index, the unemployment rate, and mean years of schooling.

GDP per Capita. Gross domestic product (GDP) divided by total population is used as a proxy for per capita income. Data were retrieved from the World Bank (2015a) for the years to match the data of each country.

Income Inequality. The GINI index is a measure of income inequality. The GINI coefficient measures the extent of income distribution deviating from a perfectly equal distribution (World Bank, 2015b). The index ranges from 0 to 100. A higher score denotes a higher level of income inequality. Data are from GINI index dataset available on the World Bank website.

Unemployment Rate. This variable is the number of unemployed members of the labor force divided by the total labor force. Unemployed persons are defined as "those individuals without work, seeking work in a recent past period, and currently available for work" (International Labour Organization, 2014, p. 67). Some countries interpret unemployment differently. For example, Thailand follows the definitions suggested by the International Labour Organization and the United Nations but also uses some distinct definitions and methods suitable for the characteristics of the country (National Statistics Office, 2015). Data were retrieved from the ILO dataset available on the World Bank (2015d) website.

Education. The average number of years of education received by people age 25 and older is used as a proxy for level of education. Data were retrieved from the Barro and Lee (2013) dataset available on the United Nations Development Programme (UNDP, 2013) website. As the estimates prior to 2005 were in five-year intervals, the estimates for the years 2001 to 2004 were interpolated by allocating the difference

between the 2000 and 2005 estimates equally among the interim years.

Demographic Variables

      Demographic variables include an ethnic heterogeneity index and age measures.

      Ethnic Heterogeneity. This variable is an index developed by Alesina, Devleeschauwer, Easterly, Kurlat, and Wacziarg (2003) to measure the ethnic composition of the population, Ethnicity was defined based on language and racial characteristics. Because the index is available for only one year and as ethnic heterogeneity is highly stable over a short period of time, the index was applied to all the years, from 2001 to 2012. The index was computed as one minus the sum of squared ethnolinguistic group shares, ranging from 0 to 1.[10] A high score denotes a high level of ethnic heterogeneity.

      Age Measures. As models with various dependent variables have different expectations about the effect of age, the current study uses two age measures, including median age and the percentages of young working age.

      Median Age. This variable measures the population median age. Data were retrieved from the World Population Prospects datasets produced and disseminated by UN (UNDES Population Division, 2015). As the median age estimates are available only every five years, the estimates for the years 2001 to 2004 were interpolated by allocating the difference between the 2000 and 2005 estimates equally among the interim years. A similar interpolation method was employed to derived estimates for the years 2006 to

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[10] The formula is: $FRACT_j = 1 - \sum_{i=1}^{N} s_{ij}^2$, where s_{ij} is the share of ethnolinguistic group i ($i = 1 \dots N$) in country j (Alesina et al., 2003).

2009, and 2011 and 2012.

Percentage of Young Working Age. This variables measures the percentage of population aged 15 – 34, retrieved from the World Population Prospects datasets produced and disseminated by UN (UNDES Population Division, 2015).

Geographic Variables

Geographic variables account for how the nations' geographic attributes affect the dependent variables. These include population density, neighboring countries' average crime rate, and regions.

Population Density. Data were retrieved the World Bank (2015c) website. Population density, total population divided by land area in square kilometers, is a common measure of urbanization (Population Reference Bureau, 2015). Although the percentage of urban population is available on the World Bank website, it is highly correlated with a number of other independent variables and the definitions of urban areas are not consistent across the countries.

Neighbors' Homicide Spillover. This variable measures the total intentional homicide rates of the neighboring countries that share land borders divided by the total population of the neighboring countries. Data were obtained from the datasets and reports produced by the Global Study on Homicide (UNODC, 2011, 2013). Information about borders was retrieved from the Center for Systemic Peace (2015) and the World Factbook (Central Intelligence Agency, 2015a).

Regions. Dammer and Albanese (2011) argue that variations in policing in different countries partly rest on historical, cultural, and regional factors. In addition,

research finds a wide range in citizen trust of the police, crime rates, and number of police officers by different regions of the world (e.g., UNODC, 2013). For example, citizens of European and North American countries appear to have a higher level of trust in the police, and Latin America has higher crime rates relative to other regions. Using regions as a variable may partially compensate for these differences. This study controls for regions by use of dummy variables. For analytical purpose, the countries were classified into seven regional groups based on geographical proximity and/or cultural background (Table 5.1): Africa and the Middle East (6), The Anglosphere (6), Asia (10), Central America and the Caribbean (10), Eastern Europe (15), South America (10), and Western Europe (15). As the Africa and the Middle East region has the fewest yearly observations for each country, especially in terms of the trust and crime variables, it was used as a base for comparison.

Table 5.1

List of Designated Regions and Countries in the Sample

Region	Country
Africa and the Middle East	Israel, Jordan, Kenya, Mauritius, Morocco, and Uganda
Anglosphere	Australia, Canada, Ireland, New Zealand, United Kingdom, and United States
Asia	Azerbaijan, Bangladesh, Georgia, India, Indonesia, Japan, Kazakhstan, Philippines, South Korea, and Thailand
Central America and the Caribbean	Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, and Trinidad and Tobago
Eastern Europe	Albania, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Moldova, Poland, Russia, Slovenia, Turkey, and Ukraine
South America	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela
Western Europe	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland

Expected Relationships

This subsection discusses the expected relationships between the independent

variables and dependent variables for each model. It provides rationales for each of the

relationships based on theories and previous studies.

The Citizen Trust Model

Citizen trust is measured as the percentage of the respondents reporting trust in

the police in public opinion surveys.

Police Decentralization and Trust. Decentralization is argued to move the

government closer to citizens and enhance relations between citizens and police (Oates,

1972, 1977, 1999; Pollitt, 2005). Therefore, a decentralized police system is

hypothesized to be positively associated with higher levels of citizen trust in the police

(see Chapters 2 and 3 for detailed discussion about the theories). The literature also

discusses the relationship between police decentralization and corruption (Kurtz, 1995;

Reiss, 1995). That relationship should be captured with the corruption variable (see

below).

Democracy and Trust. "[P]ublic trust, or faith in government to do the right

thing, is closely aligned to the exercise of political liberties and popular acceptance of, or

acquiescence towards, government actions within a democratic framework" (Goldsmith,

2005, p. 446). Elections, an essence of democracy, allow people to express their consent

and have control over the government via ballot boxes. Citizens in countries with a

higher level of democracy may have more control over the police than those in

authoritarian countries. Therefore, democracy is expected to have a positive relationship

with citizen trust in the police.

Corruption and Trust. Corruption undermines citizen trust in the government (S. D. Morris & Klesner, 2010). Research finds that corruption has an inverse relationship with citizen trust in the police (Chainey & Tompson, 2012; Kääriäinen, 2007; Millie & Herrington, 2005; C. S. Morris, 2014; Wu & Sun, 2009). Therefore, countries with a lower score on the corruption index, indicating a higher level of corruption, are expected to have a lower level of citizen trust in the police, that is an inverse relationship is expected.

Civil Conflict and Trust. In countries where civil violence exists, the police may be perceived by citizens as ineffective in suppressing violence among the citizens. The relationship between civil disorder and trust in the police is not yet determined in the literature. Jackson, Bradford, Stanko, and Hohl (2013) find that perceived disorder has a positive relationship with trust in the police because residents who live in disorderly communities tend to lack informal control mechanisms and not to act in accordance with shared social values, so they tend to trust the police to provide protection. However, Nix, Wolfe, Rojek, and Kaminski (2015) find that "individuals' perceptions of disorder within their neighborhoods" tend to be associated with a lower level of trust in the police (p. 623). Therefore, the relationship between civil conflict and citizen trust in the police is ambiguous.

Police Rate and Trust. Citizens may perceive the presence of a large number of police officers as a sign of protection or intimidation (Jackson et al., 2013). Therefore, the relationship between the police rate and citizen trust in the police is ambiguous.

Homicide Rate and Trust. Citizens may perceive pervasiveness of crimes as a sign of the ineffectiveness of the police. Research finds that a perceived crime problem has an inverse relationship with trust in the police (Sun, Hu, Wong, He, & Li, 2013) and that levels of delinquent and criminal activities in the neighborhood affect citizen trust in the police (Ashcroft, Daniels, & Hart, 2003). Therefore, countries with higher murder rates are expected to have lower level of citizen trust in the police.

Armed Police and Trust. Police officers who routinely carry firearms may be perceived by citizens as more ready to suppress all sorts of crime and increase citizen trust in the police (Tyler, 2001). On the other hand, using firearms is subject to police officers' discretion and citizens may feel threatened by routinely armed police officers (Das & Verma, 1998). Therefore, the relationship between routinely armed police and citizen trust is ambiguous.

Formal Contact and Trust. Extensive cautions or arrests by the police may be perceived by citizens as a sign of protection or intimidation. Research finds an inverse relationship between "being stopped by officers and trust in police fairness and intentions" (Jackson et al., 2013, p. 124). Therefore, the formal contact rate is expected to have an inverse relationship with citizen trust in the police.

Civilian Firearm Ownership and Trust. Research finds that gun ownership tends to increase when people do not have trust in the police (Kleck & Kovandzic, 2009; D. A. Smith & Uchida, 1988; Young, McDowall, & Loftin, 1987). Owning firearms make people feel more secure (Whitehead & Langworthy, 1989). However, people who do not own a gun may feel threatened by the fact that other people have guns, and may

have to rely on the police. Therefore, the relationship between firearm ownership rate and trust in the police is ambiguous.

GDP Per Capita and Trust.   On one hand, police "seek positive evaluations and support from influential members of society" by providing better services to those members, causing middle- and high-income citizens to have more confidence in the police (Skogan, 2006, p. 102). On the other hand, low-income people are the ones who rely on police services and are argued to have higher levels of trust in the police (Skogan, 2006). Research finds mixed relationships between income and trust in the police. MacDonald and Stokes (2006) and Sargeant, Murphy, and Cherney (2014) found that income has a positive relationship with trust; Skogan (2006) found an inverse relationship when experiences with police included (the contact variable is included in the equation); and Murphy and Cherney (2012) found no significant relationship. Therefore, the relationship between GDP per capita and citizen trust in the police is ambiguous.

Income Inequality and Trust. Income differences and unequal income distribution may kindle cynicism of the government among citizens. Recent studies find that higher income inequality has an inverse relationship with trust in other people and public institution (Tesei, 2015; Twenge, Campbell, & Cater, 2014). Therefore, countries with a higher level of income inequality are expected to have a lower level of citizen trust in the police.

Unemployment and Trust. Economic hardship, anxiety, and uncertainty about unemployment may lead to dissatisfaction with the current power structure and authority figures. However, research does not find a significant relationship between

unemployment and trust in the police (Lai & Zhao, 2010; MacDonald & Stokes, 2006).

Therefore, the relation between the unemployment rate and citizen trust in the police is ambiguous.

Education and Trust. Education provides citizens with skills and knowledge to access and obtain information. Citizens that are more educated may be more likely to voice their positions and may be more critical about their government or as a result of their voice may have achieved the police service they want. Research finds mixed relationships between education and trust in the police (MacDonald & Stokes, 2006; Nix et al., 2015; Van Craen & Skogan, 2015). It is possible that citizens with higher "educational backgrounds are less inclined to believe that government agents such as the police always have the community's best interest in mind when making decisions" (Nix et al., 2015, p. 628). Therefore, the relationship between education and citizen trust in the police is ambiguous.

Ethnic Heterogeneity and Trust. Different ethnic groups may be treated differently by the police and thus have different levels of trust in the police (Murphy & Cherney, 2012). In addition, research finds that there are differences in the level of trust in the police among different ethnic groups because they are treated differently by the police (Lai & Zhao, 2010; MacDonald & Stokes, 2006; Nix et al., 2015; Tyler, 2005). Therefore, countries with a higher level of ethnic heterogeneity are expected to have a lower level of citizen trust in the police.

Age and Trust. As criminal and delinquent behaviors are more likely to be committed by younger than older individuals, the police may focus more on monitoring

younger citizens. As a result, younger citizens may feel over-policed and have lower trust in the police (Murphy & Cherney, 2012). Research finds that older people tend to trust the police (Lai & Zhao, 2010; Sargeant et al., 2014; Sun, Jou, Hou, & Chang, 2014; Wu & Sun, 2009). Therefore, countries with a higher population median age are expected to have a higher level of citizen trust in the police.

Population Density and Trust. Because crime rates are higher in urban areas (Christens & Speer, 2005), people living in densely populated and urban areas may feel unsafe and distrust the police more than those living in rural areas. Research finds that levels of delinquent and criminal activities in the neighborhood affect citizen trust in the police (Ashcroft et al., 2003). Therefore, countries with a higher population density are expected to have a lower level of citizen trust in the police.

Neighbors' Homicide Spillover and Trust. Citizens may feel threatened by cross-national criminal activities and spillover criminal activities from neighboring countries, and expect the police to provide safety and protection. Prior research suggests that transnational criminal activities committed by organized criminal groups may reduce the public's trust in the police (UNODC, 2013). Therefore, the relationship between murder rate of neighboring countries and citizen trust in the police is ambiguous.

Regions and Trust. Dammer and Albanese (2011) argue that variations in policing in different countries partly rest on historical, cultural, and regional factors which are difficult to measure. These factors have the potential to affect the level of trust in the police.

The Demand for Police Model

This model examines the relationship between demand for police and the selected independent variables. The demand for police is measured by the number of police per 100,000 people.

Police Decentralization and Demand. Decentralization is argued to provide more accurate information about citizens' preference and demand for public goods and services (Oates, 1972, 1977, 1999; Tiebout, 1956, 1961). Citizens may have either high or low demand for policing. Therefore, a decentralized police system is hypothesized to have an ambiguous relationship with police demand (H2).

Democracy and Demand. Research finds a positive relationship between democracy and government efficiency overall (Hauner, 2008). Authoritarian regimes use the police as means for suppression (Jacobs, 1979; Linz, 2000; Mawby, 1999). However, research also finds that authoritarian regimes do not employ a larger police workforce and that democracy is positively associated with the size of the police workforce (Sung, 2006). This inverse relationship between democracy and efficiency in the number of police may be because democratic countries need to maintain legitimate and responsive services at different stages of the criminal justice system whereas authoritarian countries do not need to do so (Sung, 2006). It is also plausible that authoritarian countries use means of control other than the police, such as citizen informants or the military in lieu of police. Therefore, the relationship between democracy and demand for police is ambiguous.

Corruption and Demand. Research finds that corruption distorts government

spending (Mauro, 1996, 1998). A more corrupt government is less efficient because

"bureaucrats have no strong incentives to pursue mandated tasks under a corrupt

environment" (Yan & Oum, 2014, p. 119). On the other hand, a less corrupt government

may have a more efficient way to monitor and control expenditures (Heald, 2006; Hood

& Heald, 2006). Therefore, the CPI index is expected to have an inverse relationship with

demand for police.

Civil Conflict and Demand. Countries with high levels of civil/political

violence may need more police officers to provide protection. In addition, in a more

stable political system, the government may be able to carry out public policies and

services more efficiently. Research finds that social conflict has a positive relationship

with police rates (McCarty et al., 2012). Therefore, countries with more civil conflicts

are expected to have a higher demand for police.

Armed Police and Demand. Routinely armed police officers may be more

efficient in suppressing crimes (Tyler, 2001) and reduce the need for more police

officers. Therefore, countries in which police officers are routinely armed are expected

to have a lower police rate. On the other hand, police may be armed because crime rates

are high. Thus, the relationship is ambiguous.

Civilian Firearm Ownership and Demand. Research finds an inverse

relationship between firearm ownership rate and the police rate. This relationship may be

that an increase in collective security helps reduce the need for self-protection (Kleck &

Kovandzic, 2009). Alternatively, it may be that higher rates of gun ownership may

promote self-protection and prevent crimes from happening, which would lower the need

for police. Therefore, firearm ownership rate is expected to have an inverse relationship with demand for police, but it could be for either or both reasons above.

GDP Per Capita and Demand. Policing is a public service and public services in general are normal goods as income increases, demand for public goods increases (Gruber, 2011; Steinemann, 2011). While higher income countries may have higher demand for protection, research also finds that governments in higher income countries are more efficient (A. Afonso & Aubyn, 2006; A. Afonso, Schuknecht, & Tanzi, 2010; Hauner, 2008; Hauner & Kyobe, 2010) and that per capita income has a negative relationship with the police rate (McCarty et al., 2012). Therefore, the relationship between GDP per capita and demand for police is ambiguous.

Income Inequality and Demand. Unequal income distribution may give the governments "both the ability to control the coercive apparatus of the state and a vital need to maintain order so that ongoing relationships can be sustained" (Jacobs, 1979, pp. 922-923). Prior research finds that income inequality is positively related to demand for police (Jacobs, 1979). Therefore, the relationship between income inequality and demand for police is expected to be positive.

Unemployment and Demand. "[H]igh status politically influential citizens may view the unemployed as a threat to social order […] or because substantial unemployment leads to resentments against underclass criminals and thus magnifies public demands for additional law enforcement capacity" (Kent & Jacobs, 2005, p. 739). However, research finds mixed relationships between unemployment and police strength; while Jacobs (1979) and McCarty et al. (2012) find no relationship, Kent & Jacobs Kent

and Jacobs (2005) and Ruddell and Thomas (2015) find a positive relationship between unemployment and police strength. Therefore, the relationship between unemployment and demand for police is ambiguous.

Education and Demand. The police may be benefitted by a pool of more educated citizens in two ways: (1) citizens that are more educated may not commit as many crimes, which could lower the demand for police; and (2) higher education may make more skilled and efficient police officers, which could result in a lower demand for police. Prior research suggests that communities with well-educated residents may demand fewer police because there is no need for coercive control (Kent & Jacobs, 2005; Ruddell & Thomas, 2015). Therefore, countries where people have more years of education are expected to have a lower demand for police.

Ethnic Heterogeneity and Demand. Countries with more diverse ethnic groups may need more police officers in response to the diverse needs of different ethnic groups. Research finds a positive relationship between ethnic heterogeneity and police rate (Ruddell & Thomas, 2010). More recent studies of the US also find that an increase in the percentage of black population, which in this index would increase ethnic heterogeneity, is positively associated with police rates (Kent & Jacobs, 2005; McCarty et al., 2012). Therefore, highly ethnically diverse countries are expected to have a higher demand for police.

Age and Demand. Delinquent and criminal behaviors are "most heavily concentrated in the second and third decades of life" (Ellis, Beaver, & Wright, 2009, p. 17). Research finds that teenagers and young-adults tend to commit more crimes than

older people (Greenberg, 1985; Hirschi & Gottfredson, 1983; Sweeten, Piquero, & Steinberg, 2013; Ulmer & Steffensmeier, 2014). Therefore, the percentage of population aged 15-34 is expected to have a positive relationship with demand for police.

Population Density and Demand. In a densely populated, urban area, the police may enjoy an economy of scale: a smaller number of police officers may serve a larger number of citizens. However, densely populated areas tend to have more crimes: rates of violent and property crimes are higher in urban areas than rural ones (Axenroth, 1983; Christens & Speer, 2005; Kneebone & Raphael, 2011). Prior research finds mixed relationships between urbanization/population density and police rate: while Stucky (2005) found an inverse relationship, Ruddell and Thomas (2015) found a positive one. Therefore, the relationship between population density and the demand for police is ambiguous.

Neighbors' Homicide Spillover and Demand. A general argument in fiscal federalism is that jurisdictional spillovers cause inefficiency (Gruber, 2011; Oates, 1972, 1999; Tiebout, 1956). Similarly, cross-national crimes and spillover criminal activities may force a country employ more police officers (UNODC, 2010). Therefore, countries with more neighboring countries are expected to have a higher demand for police.

Regions and Demand. Research finds that there are higher prevalence of crimes in Central and South Americas than in other parts of the world, and lower in Australia, Europe and North America (UNODC, 2013). Therefore, the regions of Central America and the Caribbean and South America are expected to have a higher demand for police than the region of Africa and the Middle East. The regions of Anglosphere, Asia, Eastern

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Europe, and Western Europe are expected to have a lower demand for police than the region of Africa and the Middle East.

The Crime Models

This model estimates the relationships between the three measures of crime—homicide, robbery and theft rates per 100,000 inhabitants—and the selected independent variables. The expected relationships generally are similar for the three measures of crime.

Police Decentralization and Crime. Decentralization is argued to enhance responsiveness to the local needs (Oates, 1972, 1977, 1999; Pollitt, 2005). Therefore, a decentralized police system is hypothesized to be positively associated with higher responsiveness, as measured by lower crime rates (H3).

Corruption and Crime. Corruption in the government is found to facilitate criminal activities (Center for the Study of Democracy, 2010) and governmental transparency is argued to help reducing crimes (Chainey & Tompson, 2012; Millie & Herrington, 2005; Sunlight Foundation, n.d.). The corruption perception index is coded with low values indicating higher corruption. Therefore, it is expected to have an inverse relationship with crime rates.

Civil Conflict and Crime. Pervasive political violence and instability may lead to delinquent behaviors and criminal activities (Council on Foreign Relations, 2013). Research finds that conflicts lead to violence and crimes (UNODC, 2013). Therefore, the relationship between civil conflict and crime is expected to be positive.

Armed Police and Crime. Routinely armed police officers may be more ready

to suppress crime than unarmed ones (Das & Verma, 1998) which suggests a negative relationship On the other hand, police officers may carry arms in response to high crime rates, which suggests a positive relationship. Therefore, the relationship between armed police system and crime rates is ambiguous. If the relationship is positive it suggests that armed police is responding to crime rates; if negative, it suggests that armed police lowers crimes.

Formal Contact Rate and Crime. Extensive contacts, cautions or arrests by the police may reduce the number of offenders and discourage delinquent and criminal behaviors. Research finds that arrest rates have an inverse relationship with crime rates (Levitt, 1995; Tauchen, Witte, & Griesinger, 1994). Therefore, formal contact rates are expected to have an inverse relationship with crime rates.

Civilian Firearm Ownership and Crime. A number of studies find positive relationships between firearm ownership and violent crimes (Ayres & Donohue III, 2002; Hemenway, Azrael, & Miller, 2000; Killias, 1993; Kleck, 1979; Kleck & Kovandzic, 2009; Krug, Powell, & Dahlberg, 1998), which suggests that the guns are used to commit crimes. However, other studies find that when the rate of gun ownership increases, crimes tend to decrease (Lott & Mustard, 1997). This suggests that ownership deters crime.   Further studies find that gun ownership rates are not related to crime rates (Levitt, 2004). Therefore, the relationship between firearm ownership and crime is ambiguous. If the relationship is negative, gun ownership lowers crime. If it is positive, it is not possible to know if it is because the guns are used to commit crime or if people buy guns for protection as crime increases. As thefts neither involve violence nor guns (UNODC, 2015), the civilian firearm ownership rate is not included in the theft model.

GDP Per Capita and Crime. Income is one of the most widely discussed determinants of delinquency and crime since the very beginning of the field (Ellis et al., 2009). "[T]he economically disadvantaged [are] more likely to commit criminal behavior" (Krohn, 1976, p. 304) because they are "subject to strain and are likely to abandon their commitments to societal norms and values" (Messner, 1982, p. 104). High-income citizens are argued to be risk averse to criminal behaviors because there is higher opportunity cost relative to low-income citizens (Fajnzylber, Lederman, & Loayza, 2002a, 2002b). Research finds that income has a negative relationship with delinquent and criminal behaviors (Krohn, 1976; Wellford, 1974). Therefore, countries with a higher GDP per capita are expected to have a lower crime rate.

Income Inequality and Crime. Research finds that higher income inequality leads to higher crime rates (Avison & Loring, 1986; Axenroth, 1983; Fajnzylber et al., 2002a, 2002b; Herrenkohl et al., 2000; Kposowa, Breault, & Harrison, 1995; Krohn, 1976). Inequality fosters criminal behavior because "opportunities or means for success are unavailable to certain members of a society and that such deprivations are associated with crime" (Avison & Loring, 1986, p. 745). Therefore, countries with a higher level of income inequality are expected to have a higher crime rate.

Unemployment and Crime. Unemployed people may lack opportunities to acquire necessities and improve their living conditions: they may feel that criminal activities are their only alternative (Raphael & Winter-Ebmer, 2001). However, research finds mixed relationships between unemployment rates and crime rates (Brenner, 1976; Bukenya, 2005; Krohn, 1976; Lieberman & Smith, 1986; Papps & Winkelmann, 1998). Therefore, the relationship between unemployment and crime rates is ambiguous.

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Education and Crime. Education provides citizens with skills and knowledge to obtain well-paying jobs and socializes them to be law-abiding and risk averse to commit crimes (Moretti, 2005). Research finds that education has a negative relationship with delinquent and criminal behaviors and with antisocial behaviors (Bukenya, 2005; Chilton & Dussich, 1974; Lieberman & Smith, 1986; Lochner & Moretti, 2001). Therefore, mean years of schooling are expected to an inverse relationship with crime.

Ethnic Heterogeneity and Crime. Tensions between different ethnic groups may lead to violent confrontations. Research finds that ethnic heterogeneity has a positive relationship with delinquent and criminal behaviors (Avison & Loring, 1986; Hansmann & Quigley, 1982). Therefore, ethnic heterogeneity is expected to be positively associated with crime rates.

Age and Crime. Delinquent and criminal behaviors are "most heavily concentrated in the second and third decades of life" (Ellis et al., 2009, p. 17). Research finds that teenagers and young-adults tend to commit more crimes than older people (Greenberg, 1985; Hirschi & Gottfredson, 1983; Sweeten et al., 2013; Ulmer & Steffensmeier, 2014). Therefore, countries with a higher percentage of young working population are expected to have a higher crime rate.

Population Density and Crime. Research finds that highly populated, urban areas have a positive relationship with delinquent and criminal behaviors. Rates of violent and property crimes are higher in urban areas than rural ones (Axenroth, 1983; Christens & Speer, 2005; Kneebone & Raphael, 2011). Therefore, countries with a higher population density are expected to have a higher crime rate.

Neighbors' Homicide Spillover and Crime. Research finds different patterns of crimes and homicides in regions of the world due to transnational criminal activities (UNODC, 2013). A country may experience spillover effects of cross-national criminal activities from neighboring countries (UNODC, 2010). Therefore, countries with a higher neighboring countries' crime rate are expected to have a higher crime rate.

Regions and Crime. Research finds different patterns of crimes and homicides in regions of the world: there are higher prevalence of crimes in Central and South Americas than in other parts of the world, and lower in Australia, Europe and North America (UNODC, 2013). Therefore, the regions of Central America and the Caribbean and South America are expected to have a higher crime rate than the region of Africa and the Middle East. The regions of Anglosphere, Asia, Eastern Europe, and Western Europe are expected to have a lower crime rate than the region of Africa and the Middle East.

Table 5.2

Expected Relationships between the Independent and Dependent Variables

Independent Variable	Operationalization	Expected Relationship		
		Trust	Demand	Crime
Governance				
Police decentralization	Police decentralization index	+	+/-	-
Democracy	PolityIV index	+	+/-	N/A
Corruption	Corruption perception index	+	-	-
Civil conflict	Sum of scores of all domestic major political violence incidents in one year	+/-	+	+
Political stability	Political stability and absence of violence/terrorism index	N/A	N/A	-
Environmental and Organizational				
Police rate	Number of police officers per 100,000 people	+/-	N/A	N/A

Independent Variable	Operationalization	Expected Relationship		
		Trust	Demand	Crime
Homicide rate	Intentional homicides per 100,000 people	-	N/A	N/A
Armed police	Binary variable of countries where police officers carry firearms	+/-	+/-	+/-
Formal contact rate	Persons cautioned, suspected, or arrested per 100,000 people	-	N/A	-
Firearm ownership rate	Gun ownerships per 100 people	+/-	-	+/-
Socio-economic				
Income	GDP per capita	+/-	+/-	-
Income inequality	GINI coefficient	-	+	+
Unemployment rate	Percentage of labor force that is without work	+/-	+/-	+/-
Education	Mean years of education of people age 25 and older	+/-	-	-
Demographic				
Ethnic heterogeneity	Ethnic fractionalization index	-	+	+
Age measure	Population median age	+	N/A	N/A
	Percentage of population aged 15 – 34	N/A	+	+
Geographic				
Population density	The sum of scores of all domestic major political violence incidents in one year	-	+/-	+
Neighbors' homicide spillover	Average murder rates of neighboring countries	+/-	+	+
Regions	Designated region dummies with the region of Africa and the Middle East as base for comparison	N/A	N/A	N/A

Note. + = positive relationship; - = inverse relationship; +/- = ambiguous relationship;

N/A = not applicable.

Analytical Techniques

Random Effects Estimations

The current study uses panel data, but data on the dependent variables are missing

for some countries. I considered different estimation methods—i.e., fixed effects,

random effects, and pooled OLS. The major difference between fixed effects and random effects methods rests on the assumption about unobserved effects. The fixed effects method assumes that time-invariant unobserved effects within the individual may affect the independent variables or the outcome and must be removed from the error term. As unobserved effects can be correlated with each of the independent variables, it is impossible to distinguish the effects of time-invariant observables from those of time-invariant unobservables (Wooldridge, 2002). Therefore, fixed effects method does not allow for time-invariant variables to be included in the model (Wooldridge, 2009). In addition, Wooldridge (2002) argues that "with a large number of random draws from the cross section, it almost always makes sense to treat the unobserved effects, c_i, as random draws from the population, along with y_{it} and x_{it}" (p. 252), where y_{it} denotes the dependent variable and x_{it} denotes the independent variable. As the independent variable of interest in this study, the police decentralization index, and several other independent variables, are time-invariant, fixed effects is not appropriate. In addition, fixed effects is often indicated for use with complete populations, which is not the case.

Unlike fixed effects, both random effects and pooled OLS methods allow for time-invariant variables. To decide whether to employ a random effects or a pooled OLS method, I conducted several Breusch and Pagan (1980)'s Lagrange multiplier (LM) tests for random effects versus pooled OLS. The LM test is generally used to test for the presence of individual heterogeneity. The null hypothesis of the LM test is that variances across entities are zero ($H_0: \sigma_v^2 = 0$): that is, there are no significant differences among countries or no panel effect. The alternative hypothesis is that $\sigma_v^2 > 0$ and there is a panel effect. The LM test is distributed as chi-squared with one degree of freedom ($x_{(1)}^2$).

The results showed that I could reject the null hypothesis and accept the alternative.

Therefore, random effects method was appropriate (Table 5.3). In addition, Wooldridge

(2009) argues that random effects "is preferred to pooled OLS because RE is generally

more efficient" (p. 493).

Table 5.3

Results from Breusch and Pagan Lagrangian multiplier tests for random effects

	Trust	**Demand**	**Homicide**	**Robbery**	**Theft**
$\bar{x}^2$	95.53	1864.95	2670.67	2385.70	1830.57
Prob $> \bar{x}^2$	0.0000	0.0000	0.0000	0.0000	0.0000

A random effects estimation is commonly used to estimate panel data with

unobserved effects. The random effects method is appropriate when we assume that the

unobserved effect is uncorrelated with all the independent variable, and can be left in the

error term (Wooldridge, 2009). Unlike the fixed effects model, which is also commonly

used to estimate panel data, the random effects model allows time-invariant independent

variables to be included in the equation. In the current study, use of the random effects

model is appropriate because the model allows for both time-variant and time-invariant

variables. In the current study, time-invariant variables are the the police decentralization

index, the focus of the study, civilian firearm ownership rate, and the ethnic heterogeneity

index.

A simple random effects model is written as follows (Wooldridge, 2002, 2009):

$$y_{it} = \beta_0 + \beta_1 x_{it1} + \cdots + \beta_k x_{itk} + v_{it}$$

Where

y_{it} denotes the outcome of entity i at time t,

x_{itj} are the independent variables with j going from 1 to k,

β_j are the coefficients of the independent variables described above and

v_{it} is the composite error term.

The presence of heteroskedasticity, serial correlation, and multicollinearity bias the standard errors and yield less efficient results from the random effects models. To test for heteroskedasticity in panel data, I used a test developed by Wiggins and Poi (2013). The test performs a likelihood-ratio (LR) test of the null hypothesis that the parameter vector satisfies some smooth constraint. Results from the test for indicated heteroskedasticity in the demand and crime models (Table 5.4).

Table 5.4

Results from a test for heteroskadasticity in panel data (Wiggins & Poi, 2013)

	Trust	**Demand**	**Homicide**	**Robbery**	**Theft**
LR x^2	-156.92	1318.74	3384.85	2982.63	1586.02
Prob $> x^2$	1.0000	0.0000	0.0000	0.0000	0.0000

The null hypothesis of the Woolridge test for autocorrelation in panel data is that there is no serial correlation in the model specification (Drukker, 2003). Results from the test strongly reject the null hypothesis in the demand and crime models, indicating the presence of serial correlation (Table 5.5). In order to deal with the issues of heteroskedasticity and serial correlation, the command "robust" were used in the analysis of the demand and crime models to obtain standard errors robust to heteroskedasticity and serial correlation (Wooldridge, 2002, 2009).

Table 5.5

Results from the Wooldridge test for serial correlation in panel data

	Trust	Demand	Homicide	Robbery	Theft
F	0.961	107.853	23.897	29.520	840.605
Prob > F	0.3326	0.0000	0.0000	0.0000	0.0000

To detect multicollinearity among the variables, a variance inflation factor (VIF) test was conducted. Results from the test did not find multicollinearity problems as the mean VIF score for the trust, demand, and three crime models were 3.49, 3.08, 1.81, 1.72, and 1.80respectively. In general, a VIF larger than 10 is cause for concern (O'Brien, 2007).

CHAPTER 6

EFFECTS OF POLICE SYSTEMS

This chapter discusses findings from the empirical analyses. The first section discusses the descriptive statistics of the police decentralization index, dependent, and independent variables employed in this study. The descriptive statistics for the countries in the sample are compared with statistics of all countries when data are available from other sources. The second section elaborates findings from each the five random effects regressions.

Descriptive Statistics

Police Decentralization Index

Based on the information about the government and policing structures of the 72 countries in the sample (see Appendices A and B), the police decentralization index ranges from 0.25 to 1.00 (Table 6.1). The scores for the police decentralization index listed in the table include all of the scores; there is a limited range of scores because there is a limited range of tiers of both government and police. More than half of the countries (40) employ a more centralized police system (PDI ranging from 0.25 – 0.50), 22 of which have three tiers of government but the national government exclusively provides police services. All of the African and Middle Eastern countries and the majority of the Asian (7), Eastern European (8), and South American (8) countries employ a more centralized police system (Table 6.2).

Table 6.1

Summary Statistics of the Police Decentralization Index

Police Decentralization Index	Frequency	Percent
0.25	6	8.33
0.33	22	30.56
0.40	1	1.39
0.50	11	15.28
0.60	2	2.78
0.67	13	18.06
0.75	4	5.56
0.80	1	1.39
1.00	12	16.67
Total	72	100

Note. 1.00 indicates highly decentralized.

Table 6.2

Police Decentralization Index by Region

Region	Police Decentralization Index									Total
	0.25	0.33	0.40	0.50	0.60	0.67	0.75	0.80	1.00	
Africa & Middle East	2	1	0	3	0	0	0	0	0	6
Anglosphere	1	1	0	0	1	1	0	1	1	6
Asia	0	5	0	2	1	1	0	0	1	10
C. America & Caribbean	0	3	0	0	0	1	0	0	6	10
Eastern Europe	3	1	0	4	0	5	0	0	2	15
South America	0	7	1	0	0	1	1	0	0	10
Western Europe	0	4	0	2	0	4	3	0	2	15
Total	6	22	1	11	2	13	4	1	12	72

There are, however, variations within regions (see Table 5.1 for the designated regions and countries). Among the Asian countries, India, Japan, and the Philippines have a more decentralized system with a PDI of 0.60, 0.67, and 1.00 respectively. The foundations of India's and Japan's police systems were influenced by policing in the UK and the US respectively (Kurian, 2006). Decentralization in the early 1990s in the Philippines gave local governments some administrative and political control over the

police (Sullivan, 2005). Among the six English-speaking countries in the Anglosphere region, Ireland and New Zealand, both small island countries with a population around 4.5 million, have a more centralized police system.

Dependent Variables

There are wide variations in the dependent variables (Table 6.3). These variations, especially in the crime rates, may be because of differences in how crimes are defined in the countries, an issue common to cross-national studies (Dammer & Albanese, 2011). According to the UNODC (2015), "any cross-national comparisons should be conducted with caution because of the differences that exist between the legal definitions of offences in countries, or the different methods of offence counting and recording." There are also differences in the quality of reporting. Among these, the homicide rate is argued to be the most consistently and reliably measured crime across countries (Dammer & Albanese, 2011). Using regions as a variable may partially compensate for these differences.

Table 6.3

Summary Statistics of the Dependent Variables

Dependent Variable	Obs.	Mean	SD	Min.	Max.
Citizen trust (%)	531	53.88	20.55	12.20	92.30
Police rate	689	310.36	138.14	82.07	948.06
Homicide rate	864	9.06	13.92	0.30	91.40
Robbery rate	660	159.30	287.19	0.37	2094.67
Theft rate	682	1189.05	1235.58	5.56	9284.48

Note. Obs. = observations; SD = standard deviation; Min. = minimum; and Max. = maximum. All rates are per 100,000 inhabitants.

Citizen Trust. Citizen trust, the percentage of citizens reporting having trust in

the police, ranges from 12.20% in Mexico in 2002 to 92.30% in Jordan in 2007 with an average of 53.89%.[11] Citizen trust is the dependent variable with the smallest number of observations (531). Citizen trust in the police is generally low in Latin American countries compared with other parts of the world, especially Europe.

Police rate. The average number of police officers in this study is 308 per 100,000 inhabitants. For comparison, based on the latest available data from UNODC (2015), this is lower than the global average in 2013 of 344 officers per 100,000 inhabitants. Among the 72 countries in this study, Bangladesh has the lowest rate, 82 per 100,000 inhabitants, and Mauritius has the highest, 948 per 100,000 inhabitants.

Homicide Rate. The average homicide rate for the countries in the sample is 9.09 per 100,000 inhabitants, higher than the global rate of 6.2 per 100,000 inhabitants (UNODC, 2013). Among the 72 countries in this study, Japan has the lowest rate, 0.30 and Honduras the highest, 91.40. Honduras currently has high rates of criminal activities, associated with drugs, and is dubbed the "Murder Capital of the World" (Lohmuller, 2015).

Robbery Rate. The average rate of robbery of the countries in the sample is 159.30 per 100,000 inhabitants, higher than the global average of 135.6 per 100,000 inhabitants (UNODC, 2015). Thailand has the lowest rate, 0.37 per 100,000 inhabitants and Belgium has the highest rate, 2,094.67 per 100,000 inhabitants.

Theft rate. The average rate of theft for countries in this study is 1189.05 per

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[11] There are observations for all countries but not for as many years as for the other dependent variables.

100,000 inhabitants, higher than the global average of 949 per 100,000 inhabitants (UNODC, 2015). Bangladesh has the lowest theft rate (5.56 per 100,000 inhabitants) and the highest is the Netherlands (9284.48). Although the Netherlands has a relatively low violent crime rate, it has a high prevalence of thefts. According to the Overseas Security Advisory Council (2015, para. 2), "Tourists and visitors are most commonly victimized in petty, non-violent street crimes of opportunity (pickpocketing, break-ins to unattended vehicles, cell phone theft)."

Independent Variables

Table 6.4 exhibits the summary statistics of the independent variables. Dependent variables used as independent variables in other equations are discussed above.

Governance Measures. Most of the countries in this study are democratic with the average democracy index of 7.53. The index ranges from highly authoritarian regimes (-7) of Azerbaijan and Belarus to the most stable and highly democratic (10), 25 countries in 2012. A low score on the corruption perception index indicates the perception of a high level of corruption. The corruption perception index ranges from 1.2 in Bangladesh to 9.7 in Finland and the sample average is 4.9. Based on the latest report from Transparency International (2014), Finland and Bangladesh ranked 3rd and 145th on the corruption perception index. The great majority of the countries (63) have no major domestic political violence incidents during the study period and score zero on civil conflict. India has the highest score of nine in both 2001 and 2002. Political stability ranges from Colombia (-2.39) to the Netherlands (1.67).

Table 6.4

Summary Statistics of the Independent Variables

Independent Variable	Obs.	Mean	SD	Min.	Max.
Governance					
Democracy index	864	7.53	4.26	-7	10
Corruption perception index	864	4.92	2.36	1.20	9.70
Civil conflict	864	0.34	1.16	0	9
Political stability	864	0.09	0.89	-2.39	1.67
Environmental/Organizational					
Armed police (binary)	864	0.92	0.28	0	1
Formal contact rate	554	1473.90	1374.72	24.62	7094.88
Firearm ownership rate	864	13.35	13.60	0.50	88.80
Socio-economic					
GDP per capita	864	17347.36	20200.81	232.80	113731.70
GDP per capita (log)	864	8.99	1.38	5.45	11.64
Income inequality index	864	37.19	9.36	20.20	69.17
Unemployment (%)	864	7.80	3.79	0.70	25.20
Mean years of schooling	856	9.37	2.45	3.50	13.10
Demographic					
Median age	864	32.47	7.60	15.26	45.52
Population aged 15-34 (%)	864	30.90	4.37	21.29	40.84
Ethnic heterogeneity index	864	0.362	0.223	0.002	0.930
Geographic					
Population density	864	138.23	171.78	2.53	1188.41
Neighbors' homicide spillover	864	8.88	11.14	0.00	63.21

Note. Obs. = observations; SD = standard deviation; Min. = minimum; and Max. = maximum.

Environmental and Organizational Measures. Police officers in 66 of the countries (92%) routinely carry firearms in the course of their action. Police officers in the other six countries—Ireland, Kenya, New Zealand, Norway, Trinidad and Tobago, and the UK—in general do not carry firearms (Das, 2006). The Philippines has the lowest formal contact rate with the police of 24.62 per 100,000 inhabitants and Argentina has the highest rate of formal contact, 7094.88. Bangladesh and Indonesia have the lowest rate of civilian firearm ownership, 0.5 per 100 inhabitants, and the US has the highest rate of 88.8 per 100 inhabitants. The global average is 10.24 per inhabitants and

the US still is ranked 1st (Small Arms Survey, 2007).

Socio-economic Measures. Luxembourg has the highest GDP per capita ($113,731.70) and Uganda has the lowest ($232.80). The sample average is $17,347 compared with the 2012 global average of $14,791. For the inequality index, Switzerland has the lowest GINI coefficient (20.20) and Jamaica has the most unequal income distribution (69.17). Thailand has the lowest rate of unemployment, less than one percent, and Spain has the highest rate of 25.20 percent. Thailand has had very low unemployment rates since the early 2000s partly due to demographic structure but also the way it counts the employed (Yuvejwattana, 2015).[12] Morocco has the lowest average years of schooling (3.50 years) and the Czech Republic has the highest (13.10 years).

Demographic Measures. Uganda has the lowest median age of 15.26 years and Japan has the highest median age of 45.52 years. For comparison using another source, in 2014, Japan (46.1) ranked 3rd and Uganda (15.5) was the second lowest; the global average is 29.7 years (Central Intelligence Agency, 2015a). Italy has the lowest percentage of the population aged 15-34 (21.29%) and Moldova has highest (40.48%). South Korea is the most ethnically homogeneous country with an ethnic fractionalization index of 0.001998. The most ethnically-diverse country is Uganda (0.930175). Uganda has ten major ethnic groups that make up about two-third of the total population; the other one-third is a wide variety of ethnic groups (Central Intelligence Agency, 2015b).

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[12] In general Thailand follows the definitions suggested by the International Labour Organization and the United Nations but also uses some distinct definitions and methods suitable for the characteristics of the country (National Statistics Office, 2015). Seasonal unemployment is not counted as unemployment. Adding the seasonally unemployed would double the official unemployment rate.

Geographic Measures. Australia has the lowest population density (2.53 people per sq. km) and Bangladesh the highest (1,188.41 people per sq. km). For neighbors' spillover of homicides, countries with no land neighbors (e.g., Japan and New Zealand) score a zero. All of the countries with land neighbors that have a neighbors' spillover of homicide rate less than 1 per 100.000 inhabitants are in Europe. Panama has the highest rate of homicide spillovers (63.21 per 100,000 inhabitants in 2002). Panama shares its borders with Colombia and Costa Rica, which ranked 12th and 71st respectively for homicide rate in 2012 (UNODC, 2013). Because Honduras has the highest homicide rate, its neighboring countries have relatively high rates of homicide spillovers: El Salvador, 57.33 per 100,000 inhabitants; Guatemala, 26.55; and Nicaragua, 59.48.

Empirical Findings

The focus of the study is the effect of police system structure, as measured by the police decentralization index, on police performance and demand for police. Five random effects models estimate the relationship between police decentralization and other control variables on performance and demand. Performance is measured as: citizen trust in the police, homicide rate, robbery rate, and theft rate. Demand for police is measured as police rate. Findings from the one-way (years) random effects estimations with region dummies are discussed below.

The Citizen Trust Model

This model estimates the relationship between citizen trust and police systems as measured by the police decentralization index. The first hypothesis (H1) is that: decentralization is argued to move the government closer to the citizens and enhance relations between them (Oates, 1972, 1977, 1999; Pollitt, 2005); therefore, a

decentralized police system is hypothesized to be positively associated with higher levels of citizen confidence in the police. However, the relationship between the police decentralization index and trust is not statistically significant. This means centralized or decentralized police systems have no effect on the level of citizen trust and confidence in the police, rejecting H1.

Governance Measures. The relationship between the democracy index and trust is statistically significant but opposite of expectations; the more democratic the country, the lower the trust. C. S. Morris (2014) found an inverse relationship between democracy and trust, but it was not statistically significant. One possible explanation may be that in a more democratic country, citizens have freedom of speech and can express their resentment toward the police more freely than those in a more authoritarian regime. The lower the corruption perception index, as expected, the higher the trust in the police, a finding consistent with the literature (Chainey & Tompson, 2012; Kääriäinen, 2007; Millie & Herrington, 2005; C. S. Morris, 2014; Wu & Sun, 2009). The expectation was ambiguous but the finding indicates that civil conflict has a positive relationship with trust, supporting Jackson et al.'s (2013) finding that residents who live in disorderly communities lack informal control mechanisms and need to rely on the police.

Environmental and Organizational Measures. While the literature is ambiguous about the direction of the relationship, the statistically significant inverse relationship between the police rate and trust supports the argument that a large number of police officers may be a sign of intimidation rather than protection (Jackson et al., 2013). The inverse relationship between the homicide rate and trust is expected: citizens perceive pervasiveness of crime as a sign of ineffectiveness of the police and, thus, have

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Table 6.5

Random Effects Estimations of the Effect of Police Systems on Citizen Trust (N=321)

Variable	Coefficient	Standard Error	z	P>z
Governance				
Police decentralization	1.593	2.984	0.53	0.594
Democracy index	-0.534	0.315	-1.69	0.090*
Corruption perception index	4.427	0.553	8.01	0.000***
Civil conflict	2.422	0.594	4.08	0.000***
Environmental/Organizational				
Police rate	-0.014	0.006	-2.37	0.018**
Armed police	-2.006	2.584	-0.78	0.437
Formal contact rate	0.001	0.000	1.22	0.222
Homicide rate	-0.184	0.072	-2.55	0.011**
Firearm ownership rate	0.092	0.052	1.77	0.077*
Socio-economic				
GDP per capita (log)	2.304	1.382	1.67	0.095*
Income inequality index	0.107	0.142	0.75	0.450
Unemployment rate	0.989	0.175	5.64	0.000***
Years of schooling	-1.576	0.481	-3.28	0.001***
Demographic				
Median age	0.170	0.231	0.74	0.462
Ethnic Heterogeneity	-2.644	2.994	-0.88	0.377
Geographic				
Population density	-0.001	0.006	-0.16	0.873
Neighbors' homicide spillover	0.107	0.074	1.45	0.148
Africa & Middle East[a]	-	-	-	-
Anglosphere	15.360	4.602	3.34	0.001***
Asia	14.787	4.518	3.27	0.001***
Central America & Caribbean	-0.987	4.739	-0.21	0.835
Eastern Europe	9.127	4.878	1.87	0.061*
South America	-1.941	4.537	-0.43	0.669
Western Europe	16.632	4.869	3.42	0.001***
Constant	7.165	10.689	0.67	0.503

R-squared:
  Within = 0.8203
  Between = 0.8858
  Overall = 0.8226

Note. Std. Err. = standard errors.

[a] Omitted as base for comparison.

* p<0.10, ** p<0.05, *** p<0.01.

a lower level of trust (Sun et al. (2013). The civilian firearm ownership rate has a weak, positive relationship with trust in the police. This relationship is opposite previous studies in the US that gun ownership tends to increase when people do not have trust in the police (Kleck & Kovandzic, 2009; D. A. Smith & Uchida, 1988; Young et al., 1987). Neither armed police nor the formal contact rate with police have a statistically significant relationship with trust in the police.

Socio-economic Measures. The relationship between GDP per capita and trust is positive with a weak statistical significance. The relationship supports previous findings and supports the argument that police may provide better services in well-off communities (Skogan, 2006). The reason may be that police and public services in general are normal goods so as income increases demand increases. The unemployment rate has a positive relationship with trust. Unemployment is often found to have an ambiguous relationship with police performance (Ellis et al., 2009) and prior research did not find a significant relationship with trust in the police (MacDonald & Stokes, 2006). This finding rejects the argument that economic hardship, anxiety, and uncertainty from unemployment may lead to dissatisfaction with the power structure and authority figures (Lai & Zhao, 2010; MacDonald & Stokes, 2006). The education measure has an inverse relationship with trust, supporting the argument and previous studies that more educated citizens are more critical of the police and less inclined to believe that police always act in the best interests of the community (Nix et al., 2015). The inequality index does not have a statistically significant relationship with trust in the police.

Demographic Measures. Neither median age nor the ethnic heterogeneity index have a statistically significant relationship with trust in the police.

Geographic Measures. Neither population density nor neighbor's spillover of homicides have statistically significant relationships with trust in the police. The region dummies for the Anglosphere, Asia, Eastern Europe, and Western Europe show more positive relationships with trust in the police than the region of Africa and the Middle East while South America has lower trust in the police in comparison with Africa and the Middle East.

The Demand for Police Model

This model examines the relationship between demand for police, as measured by the rate of police officers per 100,000 inhabitants, and police systems, as measured by the police decentralization index. Hypothesis Two (H2) is that: decentralization is argued to provide more accurate information about citizens' preference and demand (Oates, 1972, 1977, 1999; Tiebout, 1956, 1961). Because citizens may have either high or low demand for policing, a decentralized police system is hypothesized to have an ambiguous relationship with police demand. The police decentralization index and demand for police has an inverse relationship. This means the more the police system is decentralized, the lower the demand for police officers, supporting previous studies in the US (Advisory Commission on Integrovernmental Relations, 1971; Ostrom, 1976; Ostrom & Parks, 1973).

Governance Measures. The democracy index has a statistically significant positive relationship with demand for police. The relationship supports Sung's (2006) finding that democratic countries need to maintain legitimate and responsive services at different stages of the criminal justice system and, thus, employ more police officers. As expected, the corruption perception index has a statistically significant inverse

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Table 6.6

Random Effects Estimation of the Effect of Police Systems on Demand for Police

(N=687)

Variable	Coefficient	Robust Std. Err.	z	P>z
Governance				
Police decentralization	-87.722	21.513	-4.08	0.000***
Democracy index	3.445	1.706	2.02	0.043**
Corruption perception index	-50.903	4.017	-12.67	0.000***
Civil conflict	-14.617	5.799	-2.52	0.012**
Environmental/Organizational				
Armed police	43.272	11.980	3.61	0.000***
Firearm ownership rate	1.557	0.235	6.62	0.000***
Socio-economic				
GDP per capita (log)	84.189	9.989	8.43	0.000***
Inocme inequality index	-1.192	0.608	-1.96	0.050**
Unemployment rate	6.296	0.870	7.23	0.000***
Years of schooling	-7.585	2.193	-3.46	0.001***
Demographic				
Population aged 15-34	-0.206	1.208	-0.17	0.864
Ethnic Heterogeneity	77.874	18.824	4.14	0.000***
Geographic				
Population density	0.226	0.047	4.8	0.000***
Neighbors' homicide spillover	-2.627	0.369	-7.13	0.000***
Africa & Middle East[a]	-	-	-	-
Anglosphere	-17.849	26.489	-0.67	0.500
Asia	-109.759	20.475	-5.36	0.000***
Central America & Caribbean	4.097	22.714	0.18	0.857
Eastern Europe	-2.133	21.446	-0.1	0.921
South America	30.994	14.240	2.18	0.030**
Western Europe	-49.078	29.215	-1.68	0.093*
Constant	-174.860	51.441	-3.4	0.001***

R-squared:
   Within = 0.4148
   Between = 0.0348
   Overall = 0.3919

Note. Std. Err. = standard errors.

[a] Omitted as base for comparison.

* p<0.10, ** p<0.05, *** p<0.01.

relationship with demand and police. The relationship supports the findings from

previous research that a less corrupt government tends to spend less overall than a more

corrupt government (Mauro, 1996, 1998). It could also be that a more corrupt

government employs more police officers as means of suppression of public scrutiny.[13]

The civil conflict index has an unexpected, inverse relationship with demand for police,

rejecting the argument that countries with high levels of political violence may need more

police officers to provide protection; and the previous finding that social conflict has a

positive relationship with police rates (McCarty et al., 2012). One possible explanation is

that countries in which there are civil conflicts may employ more military personnel in

lieu of police officers.

Environmental and Organizational Measure. The binary variable measuring

armed police has a positive relationship with demand for police. The relationship rejects

the argument that routinely armed police officers may be more efficient in suppressing

crimes and reduce the need for more police officers (Tyler, 2001). It could also be that

communities that want more policing also want the police armed. The civilian firearm

ownership rate has a positive relationship with demand for police. The relationship is

unexpected, rejecting the finding from previous research that self-protection reduces the

need for collective security (Kleck & Kovandzic, 2009; McDowall & Loftin, 1983).

Socio-economic Measures. GDP per capita has a positive relationship with

demand for police. The relationship supports the argument that public services in general

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[13] For instance, in the late 2015 Thailand's police under the military junta government
pressed charges against students and activists who attempted to uncover corruption
scandals related to a newly built public park (Associated Press, 2015).

are normal goods: as income increases, demand for public goods increases (Gruber, 2011; Steinemann, 2011). The income inequality index has an inverse relationship with demand for police; while this relationship is inconsistent with Jacobs's (1979) and Kent and Jacobs's (2004) finding that income inequality is positively related to the police rate, it supports Stucky's (2005) finding that income inequality has an inverse relationship with the police rate. The unemployment rate has a positive relationship with demand for police. The relationship supports Kent and Jacobs's (2005) finding and argument that "substantial unemployment leads to resentments against underclass criminals and thus magnifies public demands for additional law enforcement capacity" (p. 739). The education index has an inverse relationship with demand for police. The inverse relationship is expected, consistent with the previous studies (A. Afonso & Aubyn, 2006; A. Afonso et al., 2010; Hauner, 2008; Hauner & Kyobe, 2010) and supports the argument that educated people are less likely to commit crime, and because of the general level of education police officers may be more skilled and efficient.

Demographic Measures. The ethnic heterogeneity index has a statistically significant positive relationship with demand for police. The positive relationship supports the argument that countries with more diverse ethnic groups may need more police officers in response to the diverse needs of different ethnic groups and is consistent with previous studies (Kent & Jacobs, 2005; McCarty et al., 2012; Ruddell & Thomas, 2010). The percentage of population aged 15-34 does not have a statistically significant relationship with demand for police.

Geographic Measures. Population density has a statistically significant relationship with demand for police. The positive relationship supports Ruddell and

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Thomas's (2015) finding that densely populated areas have higher prevalence of crimes and more police officers are needed. This finding rejects the argument that police officers in densely populated areas may enjoy economies of scale because a smaller number of police officers may serve a larger number of citizens and is inconsistent with the finding from other research that population density has an inverse relationship with police rate (Stucky, 2005). Neighbors' spillover of homicides has an inverse relationship with demand for police. The inverse relationship would seem to reject the argument that cross-national crimes and spillover criminal activities may force a country to employ more police officers (UNODC, 2010). On the other hand, countries may choose to use military in lieu of the police in these cases. The region dummies for the Asia and Western Europe show a lower demand for police than does Africa and the Middle East while South America has a higher demand than Africa and the Middle East.

The Homicide Model

This model examines the relationship between the homicide rate and police systems as measured by the police decentralization index. Hypothesis Three (H3) is that decentralization is argued to improve outputs of public service delivery (J. Ahmad et al., 2006; B. C. Smith, 1985), enhance accountability (B. C. Smith, 1985), and increase responsive decision-making (Pollitt, 2005); therefore, a decentralized police system is hypothesized to be positively associated with higher responsiveness, as measured by lower homicide rates (H3.1). However, the police decentralization index and homicide rate have a positive relationship. This finding rejects H3.1 and is inconsistent with previous research in the US (Ostrom & Smith, 1976).

Decentralized police systems may not be as effective as centralized ones in

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preventing homicides, the most violent crime. Because a portion of homicides may be related to cross-jurisdictional criminal activities conducted by organized criminal groups or gangs (UNODC, 2013), decentralized police systems may not have cooperation mechanisms in place to deal with such cross-jurisdictional crimes.

Table 6.7

Random Effects Estimation of the Effect of Police Systems on the Homicide Rate (N=856)

Variable	Coefficient	Robust Std. Err.	z	P>z
Governance				
Police decentralization	15.649	0.863	18.14	0.000***
Political stability	-4.528	0.164	-27.53	0.000***
Environmental/Organizational				
Firearm ownership rate	-0.124	0.008	-15.27	0.000***
Socio-economic				
GDP per capita (log)	0.880	0.120	7.31	0.000***
Income inequality index	-0.044	0.070	-0.64	0.525
Unemployment	0.041	0.051	0.81	0.417
Years of schooling	-0.427	0.071	-6.02	0.000***
Demographic				
Population aged 15-34	-0.004	0.060	-0.07	0.941
Ethnic Heterogeneity	-4.460	0.823	-5.42	0.000***
Geographic				
Population density	-0.002	0.001	-2.47	0.014**
Neighbors' homicide spillover	0.297	0.040	7.50	0.000***
Africa & Middle East[a]	-	-	-	-
Anglosphere	2.730	0.661	4.13	0.000***
Asia	-0.949	0.453	-2.10	0.036**
Central America & Caribbean	17.254	1.411	12.23	0.000***
Eastern Europe	1.756	0.828	2.12	0.034**
South America	8.599	0.621	13.86	0.000***
Western Europe	1.375	0.750	1.83	0.067*
Constant	-4.859	1.946	-2.50	-4.859
R-squared:				
Within = 0.6295				
Between = 0.3516				
Overall = 0.6293				

Note. Std. Err. = standard errors. * p<0.10, ** p<0.05, *** p<0.01.

[a] Omitted as base for comparison.

Governance Measure. The political stability index has an inverse relationship with homicide rate. This relationship is expected and supports the argument that pervasive political instability leads to delinquent behaviors and criminal activities (Council on Foreign Relations, 2013).

Environmental and Organizational Measure. The civilian firearm ownership rate has an inverse relationship with homicide rate. This finding is inconsistent with many previous studies (Ayres & Donohue III, 2002; Hemenway et al., 2000; Killias, 1993; Kleck, 1979; Kleck & Kovandzic, 2009; Krug et al., 1998) but supports Lott and Mustard's (1997) finding that firearm ownership lowers crime.

Socio-economic Measures. GDP per capita is positively associated with the homicide rate. The unexpected relationship is inconsistent with previous findings that income has a negative relationship with delinquent and criminal behaviors (Krohn, 1976; Wellford, 1974) and does not support the argument that high-income citizens are risk averse to criminal behaviors because there is a higher opportunity cost for engaging in criminal activity (Fajnzylber et al., 2002a, 2002b). The education measure has an inverse relationship with the homicide rate. This relationship is as expected and consistent with previous studies (Bukenya, 2005; Chilton & Dussich, 1974; Lieberman & Smith, 1986; Lochner & Moretti, 2001), supporting the argument that education provides citizens with skills and knowledge to obtain well-paying jobs and socializes them to be law-abiding and risk averse to commit crimes (Moretti, 2005). Neither the income inequality index nor the unemployment rate have a statistically significant relationship with homicide rate.

Demographic Measures. The ethnic heterogeneity index has an inverse

relationship with homicide rate. This is an unexpected relationship, rejecting the findings

from previous studies that ethnic heterogeneity has a positive relationship with delinquent

and criminal behaviors (Avison & Loring, 1986; Hansmann & Quigley, 1982). The

percentage of population aged 15-34 does not have any statistically significant

relationship with homicide rate. This finding is inconsistent with prior research that

teenagers and young-adults tend to commit more crimes (Ellis et al., 2009).

Geographic Measures. Population density has a positive relationship with the

homicide rate, consistent with previous studies that crime rates are higher in urban,

highly-populated areas than rural ones (Axenroth, 1983; Christens & Speer, 2005;

Kneebone & Raphael, 2011). Neighbors' spillover of homicides has a positive

relationship with homicide rate at the 0.01 level. The relationship supports previous

research that domestic homicides are related to transnational homicide and there are

patterns of homicides in various regions of the world (UNODC, 2013). The region

dummies for the Anglosphere, Central America and the Caribbean, Eastern Europe,

South America, and Western Europe have more positive relationships with the homicide

rate than the region of Africa and the Middle East while Asia has lower homicides in

comparison with Africa and the Middle East.

The Robbery Model

This model examines the relationship between the robbery rate and police systems

as measured by the police decentralization index. Hypothesis Three (H3) is that:

decentralization is argued to improve outputs of public service delivery (J. Ahmad et al.,

2006; B. C. Smith, 1985), enhance accountability (B. C. Smith, 1985), and increase

responsive decision-making (Pollitt, 2005); therefore, a decentralized police system is

hypothesized to be positively associated with higher responsiveness, as measured by

lower robbery rate (H3.2). However, the relationship between the police decentralization

index and robbery rate is not statistically significant, rejecting H3.2.

Table 6.8

Random Effects Estimation of the Effect of Police Systems on the Robbery Rate (N=654)

Variable	Coefficient	Robust Std. Err.	z	P>z
Governance				
Police decentralization	29.300	19.438	1.51	0.132
Civil conflict	-4.980	2.443	-2.04	0.042**
Environmental/Organizational				
Firearm ownership rate	-2.625	0.328	-7.99	0.000***
Socio-economic				
GDP per capita (log)	57.022	8.890	6.41	0.000***
Income inequality index	-3.412	0.903	-3.78	0.000***
Unemployment	17.194	2.283	7.53	0.000***
Years of schooling	-12.063	3.750	-3.22	0.001***
Demographic				
Population aged 15-34	0.401	1.575	0.25	0.799
Ethnic Heterogeneity	399.824	41.374	9.66	0.000***
Geographic				
Population density	0.257	0.024	10.81	0.000***
Neighbors' homicide spillover	-3.263	0.601	-5.43	0.000***
Africa & Middle East[a]	-	-	-	-
Anglosphere	151.610	22.272	6.81	0.000***
Asia	78.145	11.646	6.71	0.000***
Central America & Caribbean	427.482	33.894	12.61	0.000***
Eastern Europe	83.772	20.742	4.04	0.000***
South America	493.184	19.013	25.94	0.000***
Western Europe	267.141	31.326	8.53	0.000***
Constant	-604.235	94.112	-6.42	0.000***
R-squared:				
Within = 0.2918				
Between = 0.1386				
Overall = 0.2869				

Note. Std. Err. = standard errors.

[a] Omitted as base for comparison.

* p<0.10, ** p<0.05, *** p<0.01.

Governance Measure. The civil conflict index has an inverse relationship with the robbery rate. This relationship is unexpected and opposite the findings for the homicide rate. The impact of political violence may not be the same across all types of delinquent behaviors and criminal activities as suggested by the Council on Foreign Relations (2013).

Environmental and Organizational Measure. The civilian firearm ownership rate has an inverse relationship with the robbery rate. This finding is inconsistent with many previous studies (Ayres & Donohue III, 2002; Hemenway et al., 2000; Killias, 1993; Kleck, 1979; Kleck & Kovandzic, 2009; Krug et al., 1998) but supports Lott and Mustard's (1997) finding that firearm ownership lowers crime.

Socio-economic Measures. GDP per capita has a positive relationship with the robbery rate. The unexpected relationship is inconsistent with previous findings that income has a negative relationship with delinquent and criminal behaviors (Krohn, 1976; Wellford, 1974) and rejects the argument that high-income citizens are risk averse to criminal behaviors because there is a higher opportunity cost for engaging in criminal activity (Fajnzylber et al., 2002a, 2002b). It could be argued that it is not the level, but the distribution of income that is important in robbery. However, the inverse relationship between the income inequality index and robbery rate is also unexpected and inconsistent with previous findings that inequality is a factor in criminal behavior (Avison & Loring, 1986; Axenroth, 1983; Fajnzylber et al., 2002a, 2002b; Herrenkohl et al., 2000; Kposowa et al., 1995; Krohn, 1976). The unemployment rate has a positive relationship with the robbery rate, supporting the argument that unemployment may lead people to commit criminal activities out of desperation (Raphael & Winter-Ebmer, 2001). The literature

often finds mixed relationships between unemployment and crimes (Ellis et al., 2009). The education measure has an inverse relationship with the robbery rate. This relationship is as expected and consistent with previous studies (Bukenya, 2005; Chilton & Dussich, 1974; Lieberman & Smith, 1986; Lochner & Moretti, 2001), supporting the argument that education provides citizens with skills and knowledge to obtain well-paying jobs and socializes them to be law-abiding and risk averse to commit crimes (Moretti, 2005).

Demographic Measures. The ethnic heterogeneity index has a positive relationship with the robbery rate. This is an expected relationship, supporting findings from previous studies that ethnic heterogeneity has a positive relationship with delinquent and criminal behaviors (Avison & Loring, 1986; Hansmann & Quigley, 1982). The percentage of population aged 15-35 does not have a statistically significant relationship with the robbery rate.

Geographic Measures. Population density has a positive relationship with the robbery rate, consistent with previous findings that crime rates are higher in urban, highly-populated areas than rural ones (Axenroth, 1983; Christens & Speer, 2005; Kneebone & Raphael, 2011). Neighbors' spillover of homicides has an inverse relationship with the robbery rate, rejecting the argument that a country may experience spillover effects of cross-national criminal activities from neighboring countries (UNODC, 2010). It could be that the impact of neighbors' spillover of homicides may not be the same across all types of delinquent behaviors and criminal activities. The region dummies indicate that all of the other regions have more positive relationships with the robbery rate than the region of Africa and the Middle East.

The Theft Model

This model examines the relationship between the theft rate and police systems as measured by the police decentralization index. Hypothesis Three (H3) is that: decentralization is argued to improve outputs of public service delivery (J. Ahmad et al., 2006; B. C. Smith, 1985), enhance accountability (B. C. Smith, 1985), and increase responsive decision-making (Pollitt, 2005); therefore, a decentralized police system is hypothesized to be positively associated with higher responsiveness, as measured by lower theft rate (H3.3). The finding indicates an inverse relationship between the police decentralization index and theft rate (Table 6.8). The relationship supports H3.3 and previous research in the US (Ostrom & Smith, 1976).

Governance Measure. The civil conflict index has a statistically significant relationship with the theft rate. The relationship is expected and supports the argument that pervasive political violence and instability may lead to delinquent behaviors and criminal activities (Council on Foreign Relations, 2013).

Socio-economic Measures. As expected, GDP per capita has an inverse relationship with the theft rate. The relationship is consistent with previous findings that income has a negative relationship with delinquent and criminal behaviors (Krohn, 1976; Wellford, 1974) and supports the argument that high-income citizens are risk averse to criminal behaviors because they have a higher opportunity cost to engage in such behavior (Fajnzylber et al., 2002a, 2002b). The inverse relationship between the income inequality index and theft rate is unexpected, inconsistent with previous findings that inequality fosters criminal behavior (Avison & Loring, 1986; Axenroth, 1983; Fajnzylber et al., 2002a, 2002b; Herrenkohl et al., 2000; Kposowa et al., 1995; Krohn, 1976). The

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unemployment rate has an inverse relationship with theft rate, rejecting the argument that unemployment may lead people to commit criminal activities out of desperation (Raphael & Winter-Ebmer, 2001). The literature often finds mixed relationships between unemployment and crimes (Ellis et al., 2009). The positive relationship between years of schooling and theft rate is unexpected and inconsistent with previous findings that education has a negative relationship with delinquent, criminal, and antisocial behaviors (Bukenya, 2005; Chilton & Dussich, 1974; Lieberman & Smith, 1986; Lochner & Moretti, 2001).

Demographic Measures. The two demographic measures have unexpected relationships with theft rate. The percentage of population aged 15-34 has an inverse relationship with theft rate, inconsistent with previous findings that teenagers and young-adults tend to commit more crimes than older people (Greenberg, 1985; Hirschi & Gottfredson, 1983; Sweeten et al., 2013; Ulmer & Steffensmeier, 2014). The ethnic heterogeneity index has an inverse relationship with theft rate, inconsistent with previous findings that ethnic heterogeneity has a positive relationship with delinquent and criminal behaviors (Avison & Loring, 1986; Hansmann & Quigley, 1982).

Geographic Measures. Population density has a positive relationship with theft rate, consistent with previous findings that crime rates are higher in urban, highly-populated areas than in rural ones (Axenroth, 1983; Christens & Speer, 2005; Kneebone & Raphael, 2011). Neighbors' spillover of homicides has a positive relationship with theft rate at the 0.01 level, supporting the argument that a country may experience spillover effects of cross-national criminal activities from neighboring countries (UNODC, 2010). The region dummies for the Anglosphere, South America, and

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Western Europe have more positive relationships with the theft rate than the region of

Africa and the Middle East while Asia and Eastern Europe has lower thefts in comparison

with Africa and the Middle East.

Table 6.9

Random Effects Estimation of the Effect of Police Systems on the Theft Rate (N=677)

Variable	Coefficient	Robust Std. Err.	z	P>z
Governance				
Police decentralization	-322.605	94.186	-3.43	0.001***
Civil conflict	51.298	7.923	6.47	0.000***
Socio-economic				
GDP per capita (log)	-115.967	43.582	-2.66	0.008***
Income inequality index	-40.541	5.104	-7.94	0.000***
Unemployment	-48.054	5.421	-8.86	0.000***
Years of schooling	136.528	11.913	11.46	0.000***
Demographic				
Population aged 15-34	-67.703	10.416	-6.5	0.000***
Ethnic Heterogeneity	-647.611	89.394	-7.24	0.000***
Geographic				
Population density	0.465	0.192	2.42	0.015**
Neighbors' homicide spillover	7.392	0.690	10.71	0.000***
Africa & Middle East[a]	-	-	-	-
Anglosphere	674.294	71.684	9.41	0.000***
Asia	-1081.833	82.660	-13.09	0.000***
Central America & Caribbean	-57.024	75.764	-0.75	0.452
Eastern Europe	-598.190	88.645	-6.75	0.000***
South America	482.432	88.991	5.42	0.000***
Western Europe	468.003	75.889	6.17	0.000***
Constant	5116.435	874.528	5.85	0.000***
R-squared:				
Within = 0.6641				
Between = 0.4043				
Overall = 0.6537				

Note. Std. Err. = standard errors.

[a] Omitted as base for comparison.

* p<0.10, ** p<0.05, *** p<0.01.

Findings Summary

Findings from the random effects estimations reveal some insights about the effect of police systems. Table 6.10 summarizes findings from the random effects estimations of the effects of police systems on police performance and demand for police.

Police Decentralization Index. The police decentralization index (PDI) has mixed effects on police performance and demand for police, implying that both centralized and decentralized police systems have strengths in some areas and weaknesses in others.

PDI and Citizen Trust. The police decentralization index does not have any significant relationships with citizen trust in the police. This rejects the hypothesis that decentralization enhances the relationships between the police and citizens.

PDI and Demand for Police. Decentralization is expected to reflect citizen demand for police, but the level of that demand is unclear. The police decentralization index has an inverse relationship with demand for police. This finding suggests that centralized police systems tend to employ more police officers than the decentralized, perhaps reflecting lower citizen demand. As a result, decentralization of police services also may reduce costs.

PDI and Crime Rates. The police decentralization index has mixed relationships with the homicide, robbery, and theft rates: decentralized policing tends to increase homicides and decrease thefts, but has no effect on robberies. This may mean decentralized police systems are more effective in preventing property crimes than violent crimes.

Table 6.10

Summary of the Findings from the Random Effects Estimations

Variable	Citizen Trust	Demand for Police	Homicide Rate	Robbery Rate	Theft Rate
Governance					
Police decentralization	N/S	-	+	N/S	-
Democracy index	-	+			
Corruption perception index	+	-			
Civil conflict	+	-		-	+
Political stability			-		
Environmental/Organizational					
Police rate	-				
Armed police	N/S	+			
Formal contact rate	N/S				
Homicide rate	-				
Firearm ownership rate	+	+	-	-	
Socio-economic					
GDP per capita (log)	+	+	+	+	-
Income inequality index	N/S	-	N/S	-	-
Unemployment rate	+	+	N/S	+	-
Years of schooling	-	-	-	-	+
Demographic					
Median age	N/S				
Population aged 15-34		N/S	N/S	N/S	-
Ethnic heterogeneity	N/S	+	-	+	-
Geographic					
Population density	N/S	+	-	+	+
Neighbors' homicide spillover	N/S	-	+	-	+
Africa & Middle East[a]					
Anglosphere	+	N/S	+	+	+
Asia	+	-	-	N/S	-
Central America & Caribbean	N/S	N/S	+	+	N/S
Eastern Europe	+	N/S	+	+	-
South America	N/S	+	+	+	+
Western Europe	+	-	+	+	+

Note. + = statistically significant, positive relationship; - = statistically significant, inverse relationship; N/S = not significant; blank = not applicable.

[a] Omitted as base for comparison.

Independent Variables. Some of the effects of the independent variables were in the directions predicted by theory and consistent with previous findings. For others,

theory and previous findings were ambiguous. For still others, the current results are opposite of theoretical expectations and clearly are areas for future research.

Of particular interest is the varying impact of the independent variables on the various measures of crime, used as measures of police performance. For example, GDP per capita has positive relationships with the homicide and robbery rate, but an inverse relationship with the theft rate. Population density has positive relationships with robberies and thefts but an inverse relationship with homicides. These differences warrant additional research but were not the focus of this study.

CHAPTER 7

CONCLUSIONS AND POLICY IMPLICATIONS

This chapter provides concluding discussions about the current study. It first

summarizes the objectives, theories, methods of the study, and findings from the

empirical analyses. It then discusses policy implications for Thailand and general policy

implications. The final sections elaborate limitations, areas for future research, and

contributions of this study to the literature.

Summary

Policing encompasses a wide range of services, from preventing offences and

identifying offenders ranging from traffic offenses to international drug dealing networks.

A basic question in the literature and among government officials is: does the structure

and control of police among different levels of government affect outcomes? In countries

with multiple tiers of government, police services might be provided exclusively by the

national government or assigned to the various tiers of government. Because there are

potential advantages and disadvantages related to each option, the decision to adopt a

more centralized system or decentralized system is an important policy issue for countries

around the world (Bayley, 1985, 1992; Kurtz, 1995). For instance, while Mexico and

Venezuela are moving toward a more centralized system to cope with cross-jurisdictional

crimes (Esparza, 2012; S. Johnson et al., 2012), South Korea is considering moving

toward a decentralized one to be responsive to local needs (Park & Johnstone, 2013). In

Thailand, there have been calls for police reform from diverse interest groups and

decentralization of policing to local governments is argued to be a potential solution to the police problems (e.g., Chanruang, 2011).

Since the 1990s, there have been calls for empirical studies of the effects of the structural arrangements on police performance (Bayley, 1992), but the literature still lacks cross-national generalizable studies of the effects of police systems. Most cross-national, comparative studies on the subject matter are descriptive in nature, provide normative arguments, and/or emphasize a small set of countries. The classifications of police systems used in the policing literature are neither standardized nor based on a theory related to the decentralized provision of public goods and services. The lack of standardized classification makes it difficult to conduct comparative cross-national, quantitative studies of the effects of police systems.

The objectives of this study are threefold. First, to develop a typology of police systems by integrating theories and frameworks found in the literatures of new institutionalism, decentralization, and fiscal federalism. Second, to examine the effect of centralized and decentralized police systems on police performance by means of empirical analyses of a large cross-national set of countries. Third, to provide an ex-ante analysis of the potential effects of Thailand's decentralization of police services and to derive policy implications from the analysis.

Three interrelated theories—new institutionalism, decentralization, and fiscal federalism—guide the conceptualization and analyses in this study. New institutionalism posits that institutions not only reduce individuals' uncertainties and risks but also shape individuals' behavior and performance (North, 1990, 1991). Different institutions influence individuals and an institutional change changes individuals' behavior and

performance. Decentralization argues that decentralizing responsibilities from the central

to lower-level governments increases accountability, responsiveness, prompt decision-

making, and enhances the relationship between government and citizens (J. Ahmad et al.,

2006; Pollitt, 2005; B. C. Smith, 1985). Fiscal federalism argues that decentralized

provision of public services is more efficient because local governments have more

accurate information about citizens' preference and demand if there are no economies of

scale and no jurisdictional spillovers (Oates, 1972, 1977, 1999; Tiebout, 1956, 1961).

Thus, a move from a centralized police system to a decentralized one denotes an

institutional change and is hypothesized to lead to changes in behavior and performance

of the police and more closely reflect citizens' demand for police.

Based on the theories discussed above, three hypotheses are formulated. First,

decentralization is argued to move the government closer to the citizens and enhance

relations between them (Oates, 1972, 1977, 1999; Pollitt, 2005); therefore, a

decentralized police system is hypothesized to be positively associated with higher levels

of citizen trust in the police (H1). Second, decentralization is argued to provide more

accurate information about citizens' preference and demand (Oates, 1972, 1977, 1999;

Tiebout, 1956, 1961). Because citizens may have either high or low demand for policing,

a decentralized police system is hypothesized to have an ambiguous relationship with

police demand (H2). Third, decentralization is argued to improve outputs of public

service delivery (J. Ahmad et al., 2006; B. C. Smith, 1985), enhance accountability (B. C.

Smith, 1985), and increase responsive decision-making (Pollitt, 2005); therefore, a

decentralized police system is hypothesized to be positively associated with higher

responsiveness, as measured by lower homicide, robbery, and theft rates (H3).

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To test the hypotheses, one contribution of this study is the development of a new typology of police systems—i.e., the police decentralization index. Instead of classifying the diverse police systems into binary categories of centralized and decentralized systems, the index measures the degree of police decentralization based on the number of tiers of government that have administrative/political control over the police relative to the total number of tiers of government. Limitations of the existing data did not allow use of fiscal control as a component of the index. The derivation of the index for each country is presented in Appendix B. The index is the variable of focus to examine the effects of police decentralization on citizen trust in the police, demand for police, and crime rates.

The second contribution of the study is to develop and use a large cross-national panel data set from 2001 to 2012 for 72 countries to test the hypotheses about decentralization, rather than a focus on a single or a small set of countries. The hypotheses are tested using five one-way (years) random effects estimations for the dependent variables of citizen trust, demand for police, and homicide, robbery and theft rates.

The structure of police systems, as measured by the police decentralization index, is not significantly related to citizen trust in the police. This is opposite of expectations given that new institutionalism argues that structure affects conduct and performance (North, 1990, 1991) and that decentralization is argued to move the government closer to the citizens and enhance relations between them (Oates, 1972, 1977, 1999; Pollitt, 2005). The insignificant relationship is inconsistent with the prior research by Esparza (2012) and Ostrom and Parks (1973), but is consistent with C. S. Morris (2014).

Decentralization of police systems is inversely associated with demand for police: countries with a more decentralized police system tend to employ fewer police officers, holding other factors constant. Fiscal federalism argues that decentralized government is more responsive to citizen preferences and, thus, more efficient (Oates, 1972, 1977, 1999; Tiebout, 1956, 1961). However, the theory does not suggest whether preferences in a decentralized system or higher or lower. This finding suggests preferences for police are lower in decentralized systems and is consistent with prior studies by Ostrom and Parks (1973), Ostrom and Smith (1976), and Ostrom (1976).

The effects of the structure of police systems on performance, as measured by crime rates, are mixed: decentralized police systems tend to have more homicides but fewer thefts and have no significant effects on robberies, holding other factors constant. This suggests that decentralized police systems may be more effective in preventing property crimes but not violent crimes. While the finding about homicides is opposite prior research in the United States by Ostrom and Smith (1976), the finding about thefts are consistent with that prior research.

Policy Implications

Implications for Thailand

Based on the findings from the random effects estimations, this subsection addresses the question, "What differences in outcomes might be expected if Thailand were to adopt a decentralized police system?" The third contribution of this study is to examine the potential implications for Thailand of a change from a centralized to a more decentralized police system.

Thailand has three tiers of government but the national government exclusively

provides police services. Thus, Thailand currently has a more centralized police system (police decentralization index = 0.33). Based on findings from the regression estimations, if Thailand were to adopt a more decentralized police system by giving a tier of local government authority for some police services (police decentralization index from 0.33 to 0.67), the following outcomes might be expected.

It should be noted that this analysis is based on holding all else constant. It is unlikely that such a change would be made without changes in other aspects of governance and society. Thus, this analysis should be taken mainly as indication of direction and less of magnitude. A second factor to take into account is that the equation estimates an error term for each country. The accuracy of the estimation and the size of the error vary by country. It is possible that Thailand was not estimated as accurately as some other countries.

Citizen Trust. About 57 percent (a seven-year average) of the population of Thailand have trust in the police, slightly higher than the average of countries in this study (54%). Findings from the estimation indicate that police systems do not have any statistically significant relationships with citizen trust in the police. Therefore, if Thailand were to adopt a more decentralized police system, no change in the level of trust would be expected.

Police Demand. The relationship between the police decentralization index and police demand is inverse; the more decentralized the police system, the lower the demand for police officers, holding all else constant. Given the coefficient of -87.72 on the police decentralization index, it implies that if Thailand were to adopt a more decentralized police system by transferring some police powers to local government (a change in the

index from .33 to .67, an increase of .34) the demand for police would decrease by 29.83 officers per 100,000 inhabitants. This is a decrease in the current twelve-year average of 332.84 per 100,000 inhabitants to 303.01 per 100,000 inhabitants. Given the current population of 67,976,405, this implies about 20,277 fewer police officers. It should be remembered that this estimate is based on holding all else constant. It is unlikely that a change in the structure of policing would not be accompanied by other changes.

Homicide Rate. The police decentralization index and homicide rate have a positive relationship. Given the coefficient of 15.65 and holding other factors constant, if Thailand were to adopt a more decentralized police system (from .33 to .67, an increase of .34), the homicide rate would increase by approximately 5.32 per 100,000 inhabitants. This implies an increase from the current twelve-year average of 6.70 per 100,000 inhabitants to 12.02 per 100,000 inhabitants. Given the current population of 67,976,405, this implies about 3,616 additional homicides. It should be remembered that this estimate is based on holding all else constant. It is unlikely that a change in the structure of policing would not be accompanied by other changes.

Robbery Rate. The estimation indicates that police systems do not have a statistically significant relationship with robberies. Therefore, if Thailand were to adopt a more decentralized police system, the robbery rate would not be expected to change (an eleven-year average of 1.45 per 100,000 inhabitants), holding other factors constant.

Theft Rate. The estimation indicates an inverse relationship between the police decentralization index and theft rate; -323 per 100,000 inhabitants, holding other factors constant. If Thailand were to adopt a more decentralized police system (from .33 to .67,

and increase of .34), theft rate would decrease by 110 per 100,000 inhabitants, from the average of 91.12 per 100,000 inhabitants to below zero per 100,000 inhabitants. This result indicates the importance of the assumption that all else is held constant. It is unlikely that a change in the structure of policing would not be accompanied by other changes. Also, the size of the error term may affect the accuracy of the calculation.

Policy Implications

Because decentralized policing is found to be related to lower property crime, it may be beneficial for countries that currently employ a more centralized police system to transfer police services related to property crimes to lower levels of government. Decentralizing police services may also reduce costs of policing as decentralized police systems tend to employ fewer police officers.

The finding indicates that decentralized policing is associated with higher homicides. For countries that currently have a more decentralized police system, it may be beneficial to devise some cooperation mechanisms to deal with violent crimes, especially if they cross jurisdictional boundaries. These mechanisms could be an integrated criminal information system that helps police in different jurisdictions identify repeat offenders or members of organized criminal groups or gangs.

Limitations

This study has several limitations. First, theory suggests multiple dimensions of decentralization—administrative, political, and fiscal. The data source consulted did not provide sufficient detail about the sources of revenues for police services in different tiers. That is, it did not distinguish if the revenues were from own sources or transfers from higher tiers of government. This meant that the fiscal component of the index,

based on fiscal federalism, could not be coded accurately. As a result, there were only five variations between the political control and the fiscal control dimensions of the index. This meant that the fiscal dimension added no new information and was dropped from the index. Second, the efficiency premise of decentralization could not be tested. There was limited information on the costs for each country. In addition, there were no data on crime clearance rates. Third, while this study is the largest cross-national study on decentralization to my knowledge, it still covers only about a third of the world's countries because of limited or no data on many of the dependent and independent variables. Finally, a very limited number of countries (Estonia, Switzerland, and Uruguay) changed the structure of their government or policing systems during the period of the study. Thus directly addressing the issue of how changes in structure affect outcomes was not possible.

Implications for Future Research

If data become available, some of the limitations noted above could be addressed in future research. The literature finds different patterns of crime among developed and developing countries (e.g., UNODC, 2013). It would be interesting to examine the effect of police systems between the developed and developing worlds. The disparities between the two worlds may result in differing responses to police decentralization. The limited number of countries that changed their police systems during the period of the study, or near that time, are opportunities for in-depth comparative case studies of those who centralized and decentralized, their motivations for doing so and the resulting outcomes.

The independent variables have varying effects on different types of crime and provide opportunities for further research. For example, ethnic heterogeneity is found to

have mixed relationships with the various measures of crime rates. It would be interesting to examine if the geographical isolation of different ethnic groups leads to little contact across groups and thus lowers crimes. Means years of schooling also have mixed relationships with the crime rates: inversely associated with homicides and robberies, and positively with thefts. It may mean that education has deterrent effect on violent crimes but not property crimes. It could also be that the relationship between education and crime is non-linear. Future research is needed to examine which is the case. Regions were used as controls for differences in history and culture across countries. More detailed information on history and culture could be used to examine both the structure of police systems and the outcomes of policing

Based on the same theoretical framework, the police decentralization index can be adapted and applied to study other public services that are provided in either centralized or decentralized manner, e.g., health care and education.

Contributions

This study provides several contributions to the literature as discussed below.

Typology of Police Systems

This study integrates the theories of new institutionalism, decentralization, and fiscal federalism to address the research objectives. By drawing on the three theories found in public administration, political science, and economics and developing a synthesis to systematically classify and examine police systems, it provides a more holistic view of the aspects of the structural arrangement of policing, as each of the above disciplines tends to focus on one or a limited number of aspects.

Empirical Contribution

Although interest in examining the effect of centralized and decentralized police systems began more than two decades ago, the subject matter has been examined mostly in qualitative fashions. This study employs both qualitative and quantitative approaches to examine the subject matter. qualitative analysis was used to develop the police decentralization index. This method could be used to adapt the index to address similar questions about other public services. Qualitative methods were used to code information in qualitative studies that was then used in the quantitative analysis.

This study finds that decentralization of police systems is not a panacea because decentralized police systems have strengths in some areas and weaknesses in others: the strengths of decentralized police systems are weaknesses of centralized ones, and vice versa. This study also demonstrates that governance, organizational, socio-economic, demographic, and geographic factors have varying effects on the various types of crime, notably between violent and property crimes. Moreover, this study controls for regions to as a proxy for the historical and cultural aspects that affect policing (Dammer & Albanese, 2011). Regions were found to have differential effects on police performance and demand.

Policy Contribution

The findings from this study contribute to an important policy question that Thailand and other nations around the world confront: what are the tradeoffs between centralized and decentralized police services? The issue is particularly pertinent to Thailand as there have been calls by various groups for decentralization of police services from the national government to local governments. The findings suggest that some

outcomes are positively influenced by centralization and others by decentralization. This

suggests that no one system will address all needs and hybrids of existing systems—such

as collaboration across jurisdictional lines—may be useful to improve some outcomes.

APPENDIX A

POLICE DECENTRALIZATION INDEX

Table A.1 exhibits the police decentralization index for each of the 72 countries for 2012. This index changes for only three countries between 2000 and 2012: Estonia in 2003, Switzerland in, and Uruguay in 2010. See Chapter 4 for explanation. See Appendix B for individual country profiles of the government and police system.

Table A.1

Police Decentralization Index (PDI) by Country for 2012

Country	Tiers of Government	Tiers of Government that Control Police	PDI[a]	Source of Government Structure[b]
Albania	3	2	0.67	Republic of Albania Ministry of Interior (2006)
Argentina	5	2	0.40	Asensio (2006); United Cities and Local Government (2016)
Australia	3	2	0.67	Commonwealth Local Government Forum (2013); Ramsland and Dollery (2011); United Cities and Local Government (2016)
Austria	3	2	0.67	United Cities and Local Government (2016); Wenda (2014)
Azerbaijan	2	1	0.50	United Cities and Local Government (2016)
Bangladesh	4	2	0.50	Commonwealth Local Government Forum (2013); United Cities and Local Government (2016)

Country	Tiers of Government	Tiers of Government that Control Police	PDI[a]	Source of Government Structure[b]
Belgium	3	2	0.67	United Cities and Local Government (2016)
Bolivia	3	1	0.33	United Cities and Local Government (2016)
Brazil	3	2	0.67	J. R. R. Afonso and Araújo (2006); Souza (2002)
Bulgaria	2	1	0.50	Stoilova (2011)
Canada	5	4	0.80	Commonwealth Local Government Forum (2013); McMillan (2006)
Chile	3	1	0.33	Letelier (2006); United Cities and Local Government (2008a)
Colombia	3	1	0.33	United Nations Public Administration Network (2010)
Costa Rica	3	2	0.67	Donadio (2013); International City/County Management Association (2004); United Cities and Local Government (2016)
Croatia	3	1	0.33	Ivanisevic, Kopric, Omejec, and Simovic (2001); United Cities and Local Government (2016)
Czech Republic	3	2	0.67	United Cities and Local Government (2016)
Denmark	3	1	0.33	Blom-Hansen, Borge, and Dahlberg (2010); Local Government Denmark (2009)
Dominican Republic	3	1	0.33	United Cities and Local Government (2016)
Ecuador	3	1	0.33	United Nations Public Administration Network (2010)
El Salvador	2	2	1.00	Donadio (2013); United Cities and Local Government (2016)
Estonia	2	2	1.00	Ainsoo et al. (2002)
Finland	3	1	0.33	The Association of Finnish Local and Regional Authorities (2007)
France	4	2	0.50	Prud'homme (2006); United Cities and Local Government (2016)
Georgia	3	1	0.33	Losaberidze, Kandelaki, and Orvelashvili (2001)
Germany	4	3	0.75	United Cities and Local Government (2016); Werner (2006)
Greece	3	2	0.67	Hellenic Republic Ministry of Interior (2000); United Cities and Local Government (2016)
Guatemala	2	2	1.00	Donadio (2013); United Cities and Local Government (2016)
Honduras	2	2	1.00	Donadio (2013); United Cities and Local Government (2016)
Hungary	3	2	0.67	Balás and Hegedüs (2001)
India	5	3	0.60	Alok (2006); Commonwealth Local Government Forum (2013); Mathur (2006); United Cities and Local Government (2016)

Country	Tiers of Government	Tiers of Government that Control Police	PDI[a]	Source of Government Structure[b]
Indonesia	3	1	0.33	Eckardt and Shah (2006); United Cities and Local Government (2016)
Ireland	3	1	0.33	United Cities and Local Government (2016)
Israel	2	1	0.50	Carmeli (2008); Carmeli and Cohen (2001)
Italy	4	3	0.75	United Cities and Local Government (2016)
Jamaica	2	2	1.00	Commonwealth Local Government Forum (2013)
Japan	3	2	0.67	Mochida (2006); United Cities and Local Government (2016)
Jordan	2	1	0.50	United Cities and Local Government (2016)
Kazakhstan	3	1	0.33	Makhmutova (2001, 2006); United Cities and Local Government (2016)
Kenya	2	1	0.50	United Cities and Local Government (2016)
Korea, South	3	1	0.33	Choi, Choe, and Kim (n.d.); United Cities and Local Government (2016); United Nations Public Administration Network (2010)
Latvia	2	2	1.00	D. J. King, Vanags, Vilka, and McNabb (2004); United Cities and Local Government (2016); Vanags (2005)
Lithuania	2	2	0.50	Saparniene and Lazauskiene (2012)
Luxembourg	2	1	0.50	United Nations Public Administration Network (2010)
Mauritius	3	1	0.33	Commonwealth Local Government Forum (2013); Local Government Service Commission (2008)
Mexico	3	3	1.00	P. M. Ward, Wilson, and Spink (2010)
Moldova	3	2	0.67	Chiriac, Munteanu, Popa, and Mocanu (2001)
Morocco	4	1	0.25	United Cities and Local Government (2016)
Netherlands	3	2	0.33	Association of Netherlands Municipalities (2008); Netherlands Ministry of the Interior and Kingdom Relations (2009); United Cities and Local Government (2016)
New Zealand	4	1	0.25	Commonwealth Local Government Forum (2013); United Cities and Local Government (2016)
Nicaragua	3	1	0.33	Donadio (2013); United Cities and Local Government (2016)
Norway	3	1	0.33	Blom-Hansen et al. (2010); Norwegian Ministry of Local Government and Modernisation (2014)
Panama	3	1	0.33	Donadio (2013); United Cities and Local Government (2016)

Country	Tiers of Government	Tiers of Government that Control Police	PDI[a]	Source of Government Structure[b]
Paraguay	3	1	0.33	United Cities and Local Government (2016)
Peru	3	1	0.33	United Cities and Local Government (2016)
Philippines	3	3	1.00	United Cities and Local Government (2016)
Poland	3	2	0.67	Swaniewicz (2006); United Cities and Local Government (2016)
Portugal	3	1	0.33	United Cities and Local Government (2016)
Russia	4	1	0.25	United Cities and Local Government (2016)
Slovenia	2	1	0.50	Andrews and Plostajner (2001)
Spain	4	3	0.75	do Vale (2010); United Cities and Local Government (2016)
Sweden	3	3	1.00	Blom-Hansen et al. (2010); Ministry of Finance (2005); Sandalow (1971)
Switzerland	3	3	1.00	Barankay and Lockwood (2007); Kälin (2000)
Thailand	3	1	0.33	Nagai et al. (2008); United Cities and Local Government (2016)
Trinidad and Tobago	2	2	1.00	Commonwealth Local Government Forum (2013)
Turkey	4	1	0.25	Akilli and Akilli (2013); United Cities and Local Government (2008b)
Uganda	4	1	0.25	Commonwealth Local Government Forum (2013); Ministry of Local Government (2014); Stefensen (2006); United Cities and Local Government (2016)
Ukraine	4	2	0.50	Navruzov (2001); United Cities and Local Government (2016)
United Kingdom	5	3	0.60	Commonwealth Local Government Forum (2013); D. King (2006)
United States	4	4	1.00	Schroeder (2006); United Cities and Local Government (2016)
Uruguay	3	1	0.33	Nickson (2011)
Venezuela	4	3	0.75	United Nations Public Administration Network (2010)

Note. Based on data from the year 2012.

[a] Police decentralization index = tiers of government that politically/administratively control police divided by tiers of government.

[b] Main sources for the police structure are Das (2006), Kurian (2006), and Sullivan (2005).
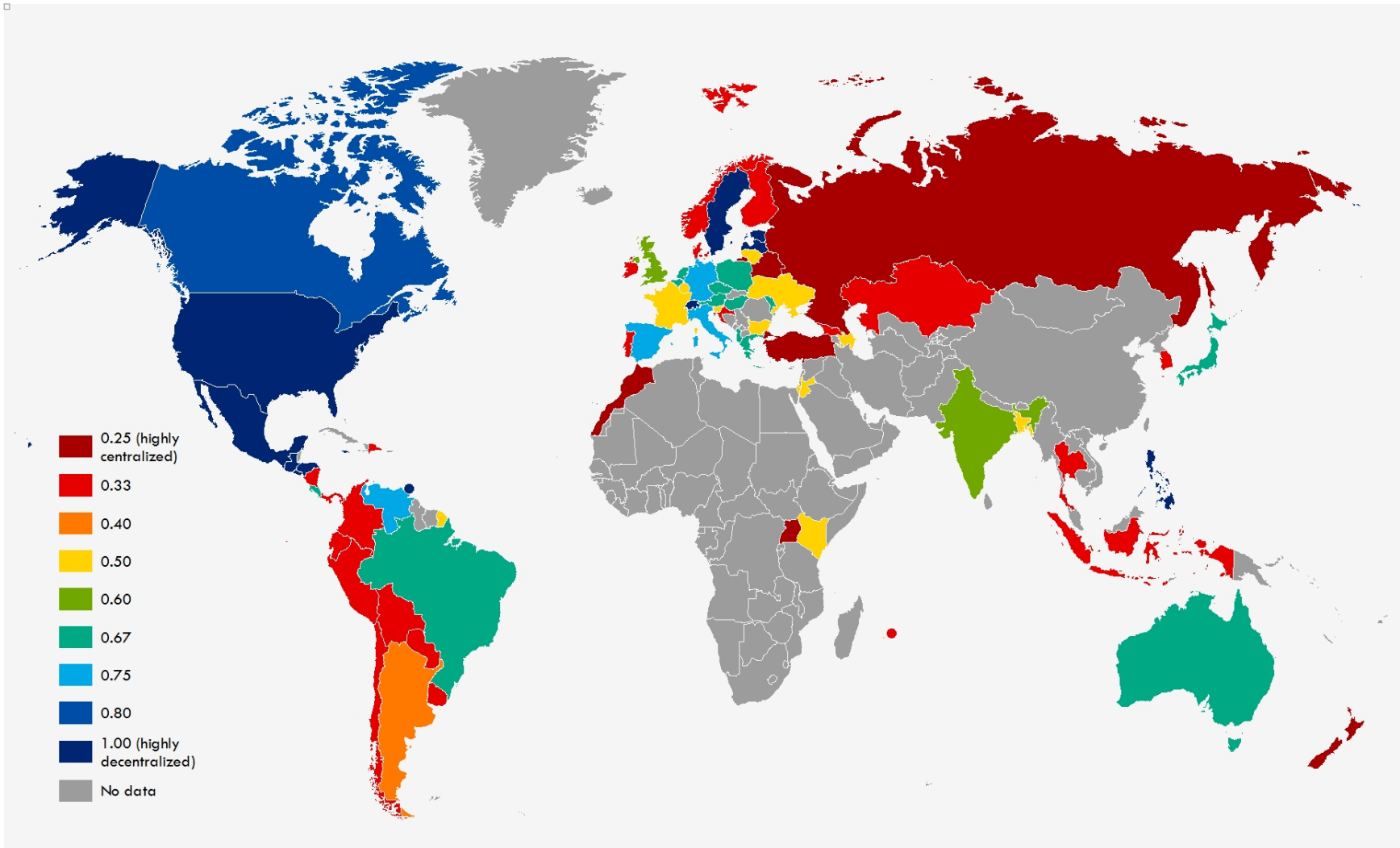
Figure A.1. A world map exhibiting the varying degrees of police decentralization in selected countries based on 2012 data.

ORGANIZATIONAL STRUCTURES OF THE POLICE BY COUNTRY

This appendix conceptualizes and graphically presents individual country profiles of the government and police system for the 72 countries included in this study. It illustrates the police organizational structures in relation to the tiers of government: each country is presented in a matrix of tiers of government and police operational jurisdictions. Figure B.1 elaborates how to interpret the country profile figures. The countries are presented below in alphabetical order.

Legends and Notes

Tiers of Government

Geographical subdivisions of governing bodies from the national to the lowest local level. Lower tiers of government are not necessarily subordinate–politically and/or administratively–to its immediate higher tiers. Certain tiers may not provide services to all areas of the country.

| **Tier** | Federal or national government |

| **Tier** | Regional or state government in federal country or devolved government in unitary country |

| **Tier** | First tier (geographical division) of local government |

| Tier | Second tier (geographical division) of local government |

| Tier | Third tier (geographical division) of local government |

⌐ Solid line denotes direct control of higher tier of government over its lower tier

- - -⌐ Dashed line denotes indirect relationship between tiers of government

Police Operational Jurisdiction

Geographical jurisdiction in which police agency operates.

| Agency | Police agency with full or substantial authority of law enforcement |

| Agency | Police agency with limited authority of law enforcement |

——— Solid line denotes direct chain of command from upper hierarchical agency to lower one

- - - - - Dashed line denotes partial existence of police agency

·········▶ Unidirectional, dotted line denotes indirect control over or relationship with police agency

Proper Names and Translation

Different countries use different terms to refer to their subdivisions of governing bodies and police agencies. This presentation adopts the terms used by each country and/or their translations commonly found in the literature. In some cases, original proper names are used with their translations provided in parenthesis.

Figure B.1. Legends and notes of the country profiles.

Albania *Republic of Albania*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	Albanian State Police	Regional Offices of State Police	Police Districts
Regions			
Communes & Municipalities			Communal & Municipal Police
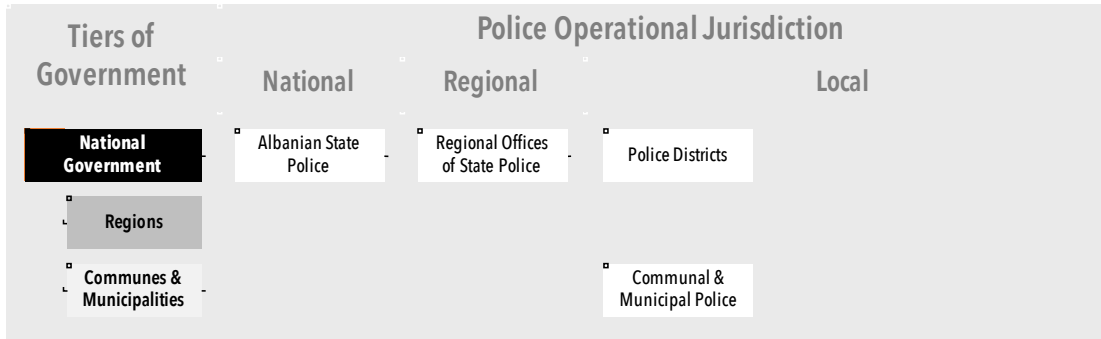
Figure B.2. Albania country profile.

Argentina *Argentine Republic*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
Federal Government	Argentine Federal Police		
	Argentine Federal Gendarmerie		
Provincial Governments		Provincial Police Forces*	Local Police Units
Municipalities*			
2nd Class Municipalities			
3rd Class Municipalities			
Communities, Committees & Delegations			

* Including Metropolitan Police in Buenos Aires (established in 2010).
** Some provinces have one-tier system of municipalities, others multiple-tier. One-tier municipalities make up about three fourth of all municipalities.

Figure B.3. Argentina country profile.

Australia *Commonwealth of Australia*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
Federal Government	Australian Federal Police		
States		State Police Forces	Police Regions or Districts — Police Districts or Sub-districts
Local Councils			
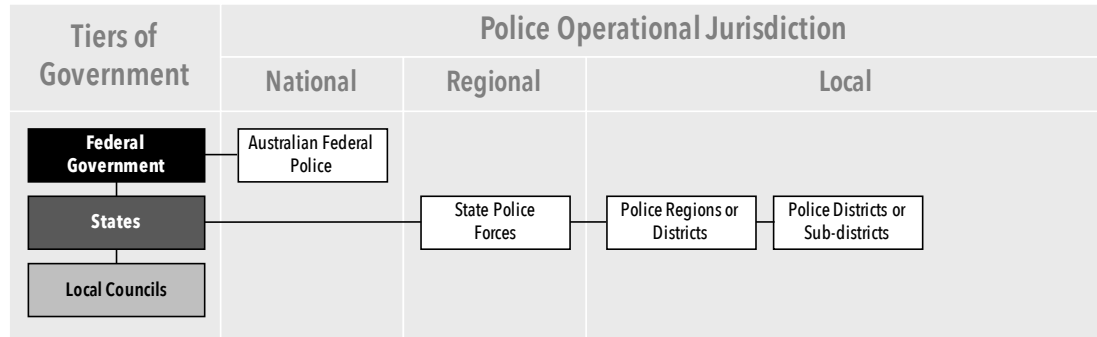
Figure B.4. Australia country profile.

Austria *Republic of Austria*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
Federal Government	Bundespolizei* (Federal Police) — Gendarmerie* (Rural Police)	State Commands of Federal Police	Federal Police District Commands
States			
Municipalities	*37 municipalities in 6 states*		Municipal Police
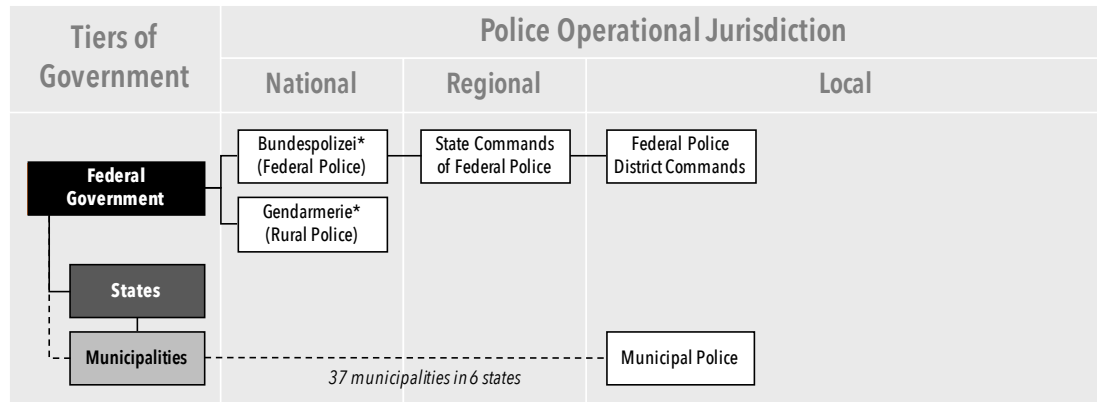
* Merged into the Austrian National Police in 2005

Figure B.5. Austria country profile.

Azerbaijan *Republic of Azerbaijan*

Tiers of Government	Police Operational Jurisdiction			
	National	**Regional**	**Local**	
National Government	Ministry of Internal Affairs	Regional Militia Departments	City Militia Departments	District Militia Departments
	Ministry of National Security			
Municipalities				
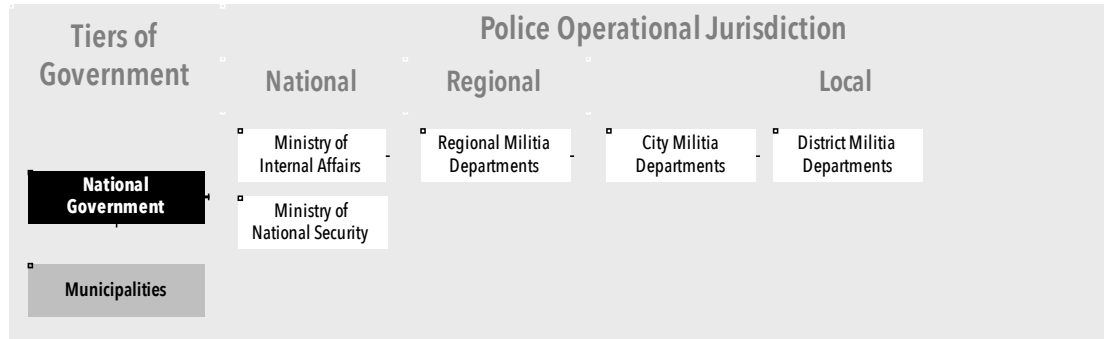
Figure B.6. Azerbaijan country profile.

Bangladesh *People's Republic of Bangladesh*

Tiers of Government	Police Operational Jurisdiction			
	National	**Regional**	**Local**	
National Government	Bangladesh Police	Police Divisions	Police Districts	Police Circles
City Corporations & Municipalities				
Zila Parishad (District Councils)				
Upazila Parishad (Subdistrict Councils)				
Union Parishad (Union Councils)			Union Parishad Police	
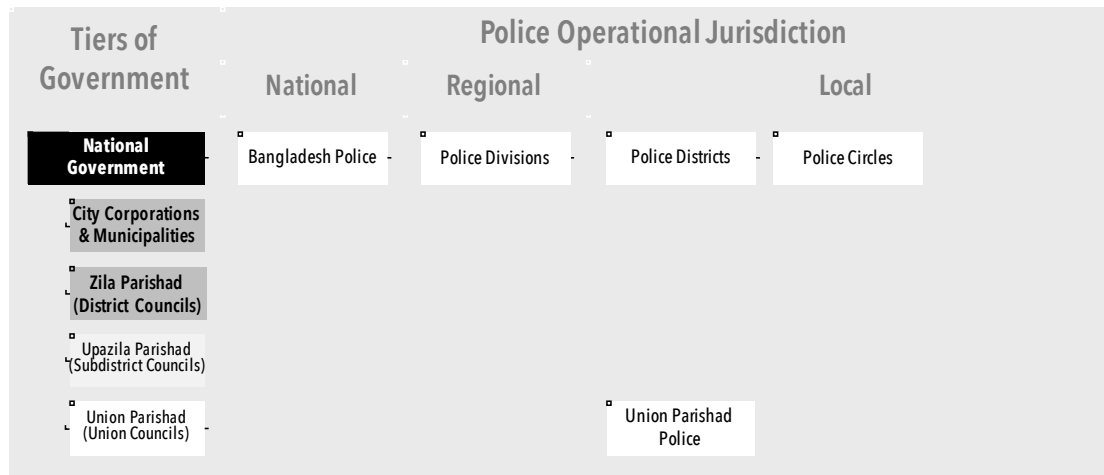
Figure B.7. Bangladesh country profile.

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Belarus *Republic of Belarus*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Militsiya (Public Security Police)	Police Regions	Police Districts
Oblasts (Regions)			
Raions (Cities & Districts)			
Towns and Villages			
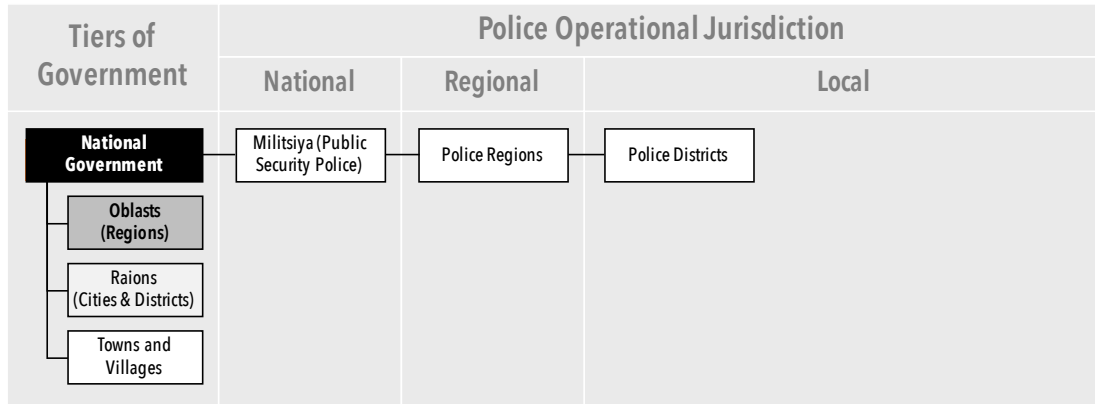
Figure B.8. Belarus country profile.

Belgium *Kingdom of Belgium*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
Federal Government	Federal Police		
Regions			
Municipalities			Local Police → Municipal Police (One-City Zones) / Rural Police (Multi-City Zones)
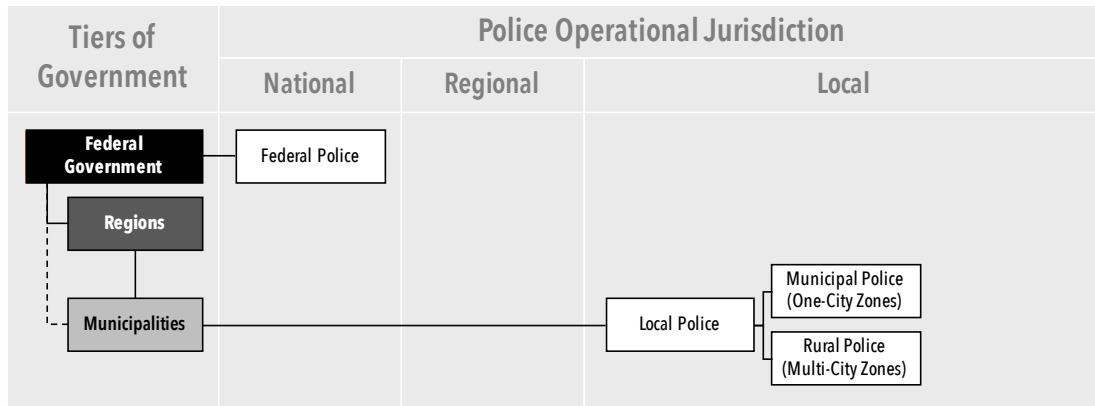
Figure B.9. Belgium country profile.
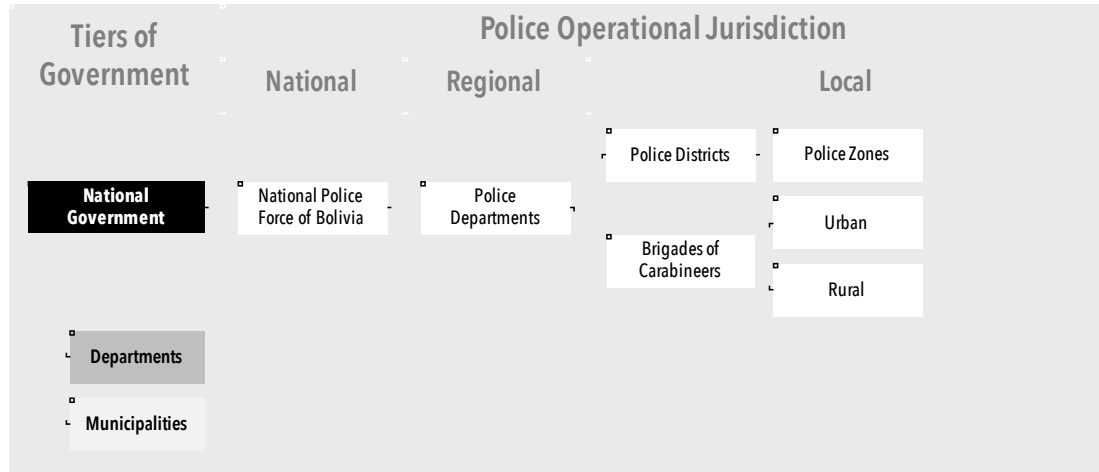
Figure B.10. Bolivia country profile.
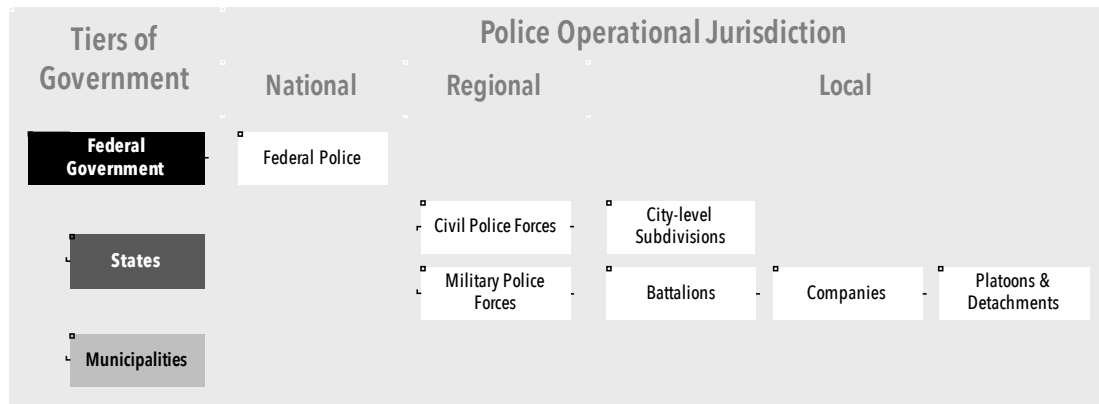
Figure B.11. Brazil country profile.

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Bulgaria *Republic of Bulgaria*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	National Police Service	Police Regions	Police Departments
Municipalities			
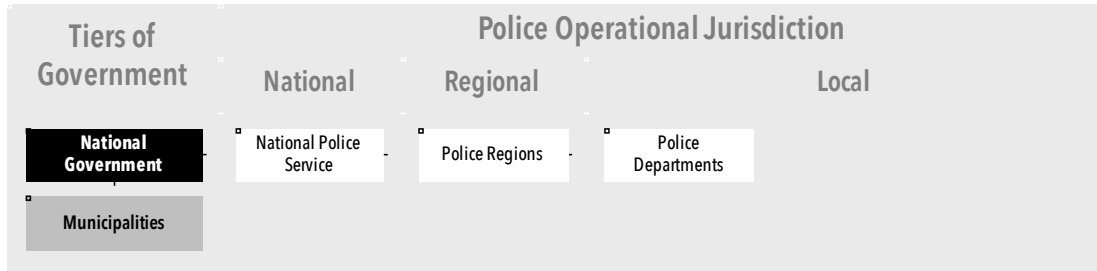
Figure B.12. Bulgaria country profile.

Canada *Canada*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
Federal Government	Royal Canadian Mounted Police	*Contract Out*	
Provinces and Territories		Own Provincial Police Forces*** *or* Contracted-Out Police Forces	*Contract Out*
Supra-regional Councils*			
Regional Councils**		Regional Police Forces	
			Own Municipal Police Forces**** *or* Contracted-Out Municipal Police
Municipalities			
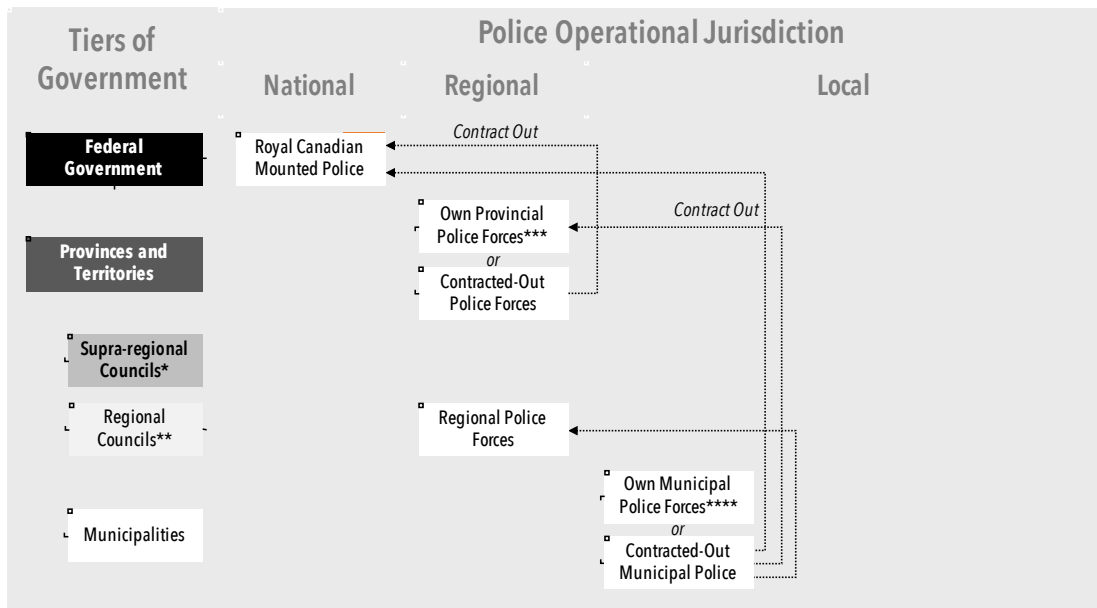
* Two in Quebec.   ** British Columbia, Ontario, and Quebec; names vary, i.e. regional, supra-local, and metropolitan authorities.
*** Ontario and Quebec.   **** Larger municipalities.

Figure B.13. Canada country profile.

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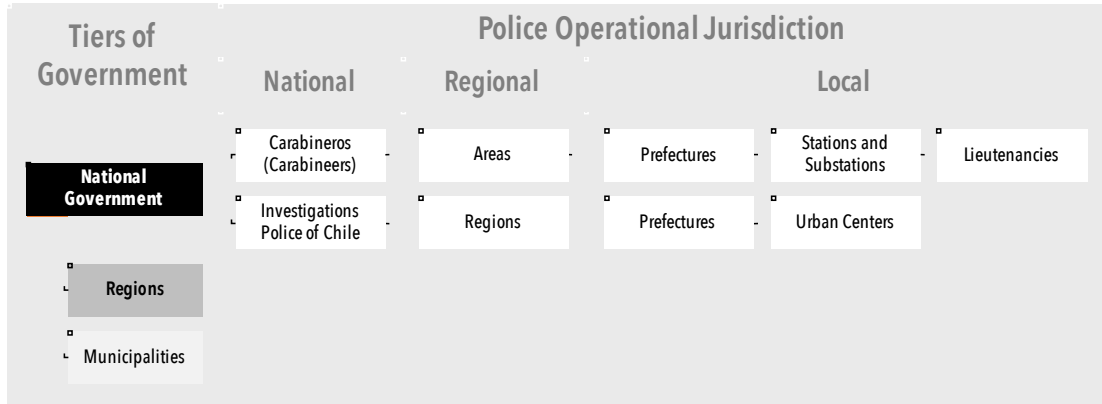
Figure B.14. Chile country profile.

Figure B.15. Colombia country profile.

Costa Rica *Republic of Costa Rica*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Civil Guards		National and Provincial Capitals
	Rural Guards	Provincial Rural Guards	Canton Rural Guards — District Rural Guards
Cantons (Municipalities)			Municipal Police Forces
Districts			
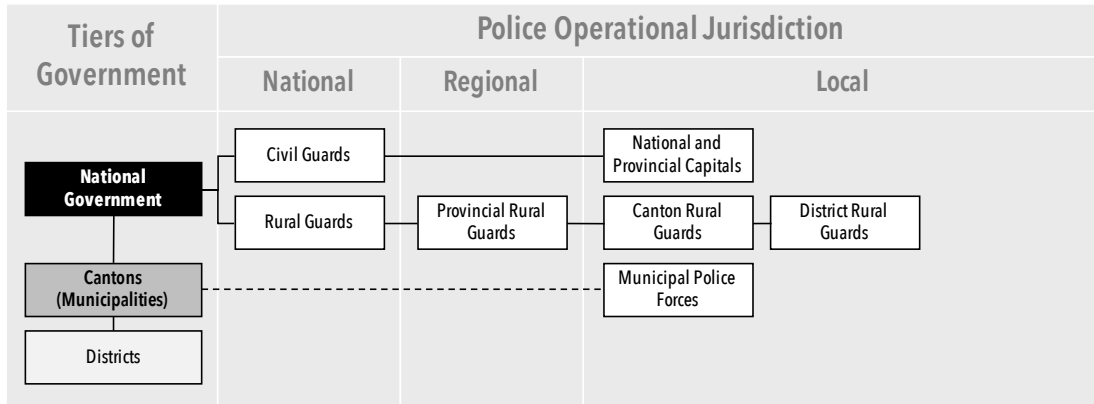
Figure B.16. Costa Rica country profile.

Croatia *Republic of Croatia*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	General Police Directorate		Police Administrations — Local Police
Counties			
Cities and Municipalities			
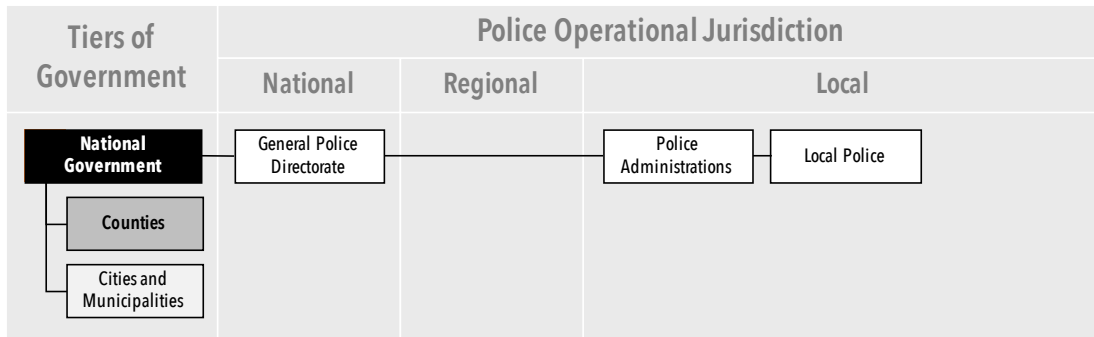
Figure B.17. Croatia country profile.

Czech Republic *Czech Republic*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Police of the Czech Republic	Police Regional Headquarters	Police Districts — City-Level Police
Regions			
Municipalities			Municipal Police Forces
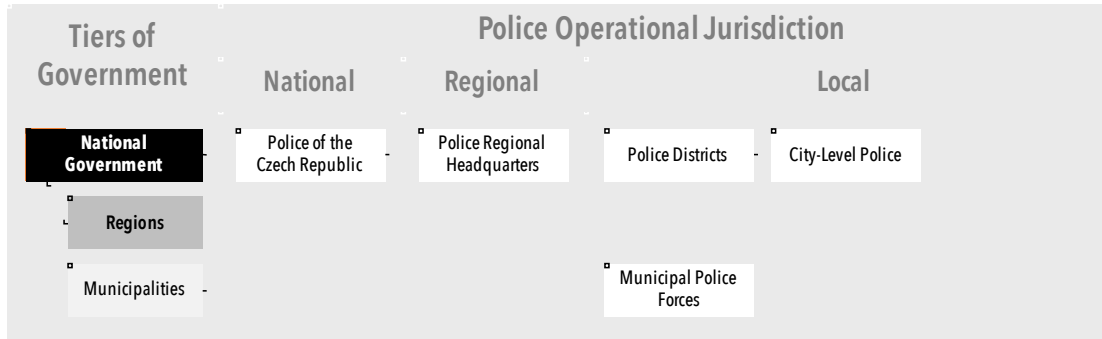
Figure B.18. Czech Republic country profile.

Denmark *Kingdom of Denmark*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Danish National Police		Police Districts — Local Police
Regions*			
Municipalities			

* 2007 reform replaced 14 counties (1970-2007) with 5 regions.

Figure B.19. Denmark country profile.

Dominican Republic *Dominican Republic*

Tiers of Government	Police Operational Jurisdiction				
	National	Regional	Local		
National Government	National Police	Police Regions	Provinces	Companies	Detachments
Municipalities					
Municipal Districts					

Figure B.20. Dominican Republic country profile.

Ecuador *Republic of Ecuador*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Police	Police Districts	Police Provinces	Police Regiments/Corps
Provinces			
Cantons (Municipalities)			
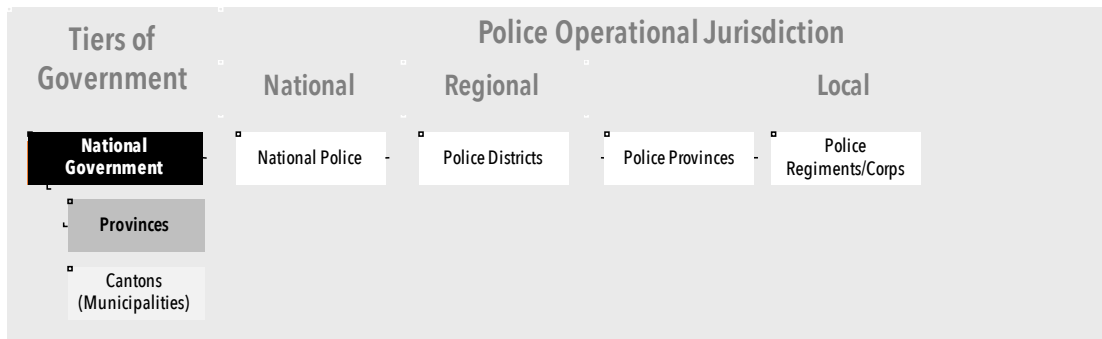
Figure B.21. Ecuador country profile.

El Salvador — Republic of El Salvador

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Police (Urban)	National Police Regions	Divisions
	National Guard (Rural)	Infantry Commands	Companies
Municipalities			Municipal Police Forces
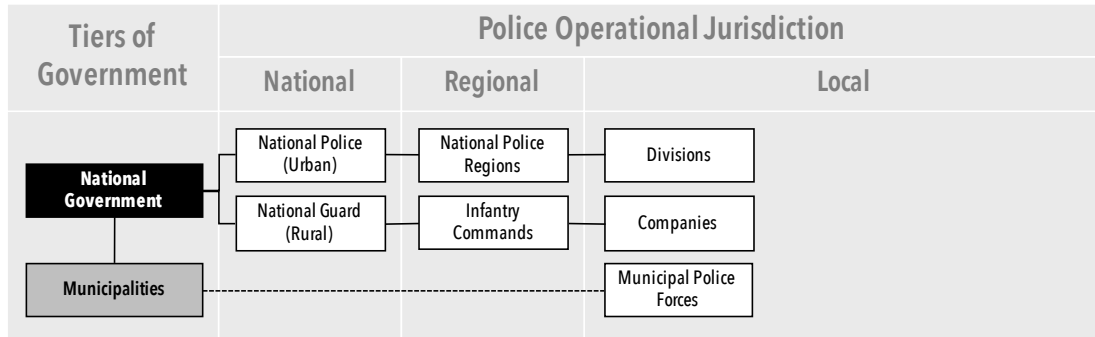
Figure B.22. El Salvador country profile.

Estonia — Republic of Estonia

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Estonian Police	Police Prefectures	Constable Stations — Subdivisions
Municipalities			Municipal Police Forces*
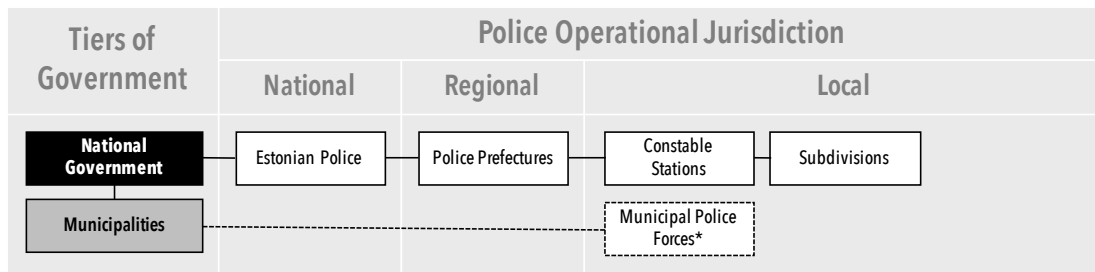
* Since 2003.

Figure B.23. Estonia country profile.

✚ Finland *Republic of Finland*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Police	Regional Police Departments	Police Districts — Local Police
Regions*			
Municipalities			

* Regional Councils have two functions: regional development and land use planning.

Figure B.24. Finland country profile.

🇫🇷 France *French Republic*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Police (Urban)		Departmental Police — Districts
	National Gendarmerie (Rural)	Legions (Regional)	Departmental Gendarmerie — Cantons
Regions			
Departments			
Communes		Municipal Police Forces	
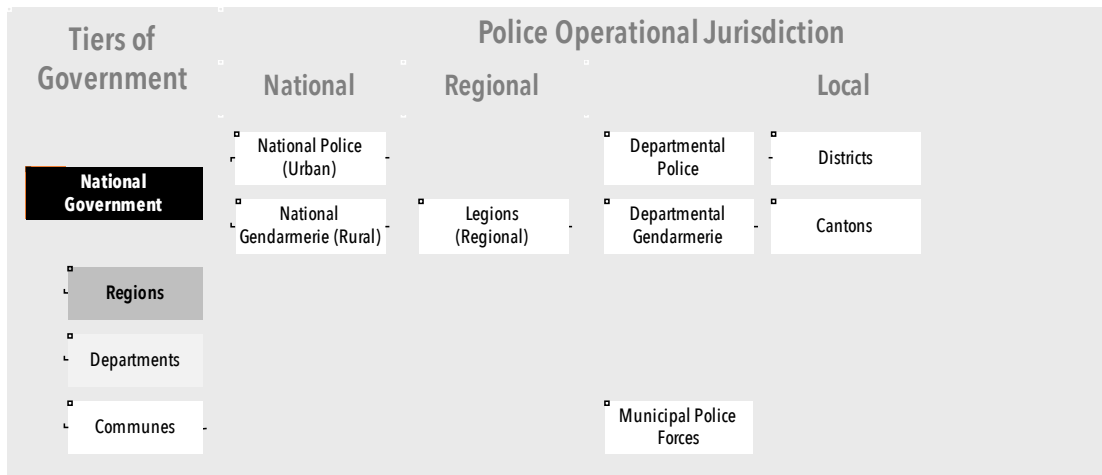
Figure B.25. France country profile.

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Georgia *Georgia*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	Ministry of Internal Affairs	Police Divisions	Police District Units — Police Sub-units
Districts & Cities			
Communities Towns & Villages			
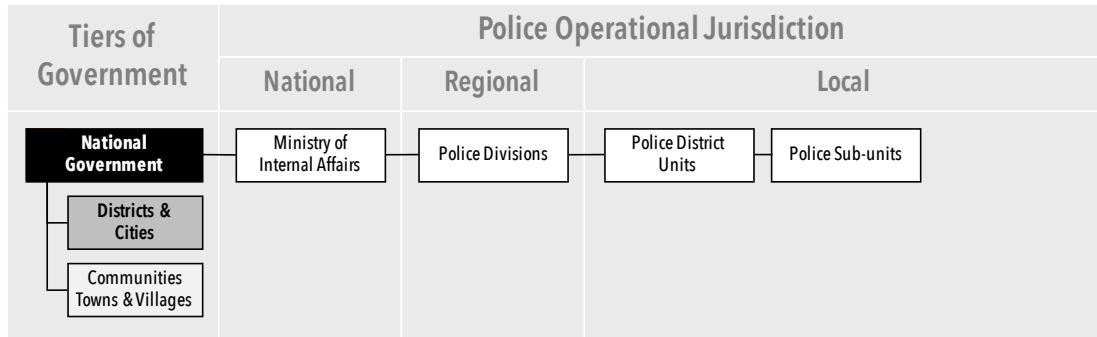
Figure B.26. Georgia country profile.

Germany *Federal Republic of Germany*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
Federal Government	Federal Crime Agency / German Boarder Guard		
State Governments		Landespolizei (State Police)	Direktionen (Police Districts) — Inspektion (Local Stations) — Revier (Precincts)
Districts			
Cities and Municipalities			Municipal Police Forces
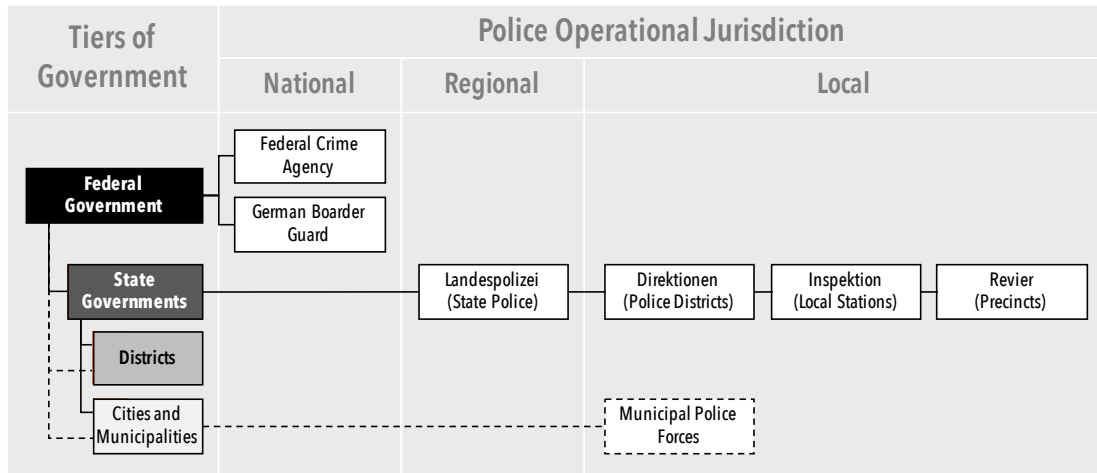
Figure B.27. Germany country profile.

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Greece *Hellenic Republic*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Hellenic Police	General Police Directorates/ Inspectorates	Prefectural Police Departments — Local Police
Prefectures*			
Municipalities & Communities			Municipal Police Forces
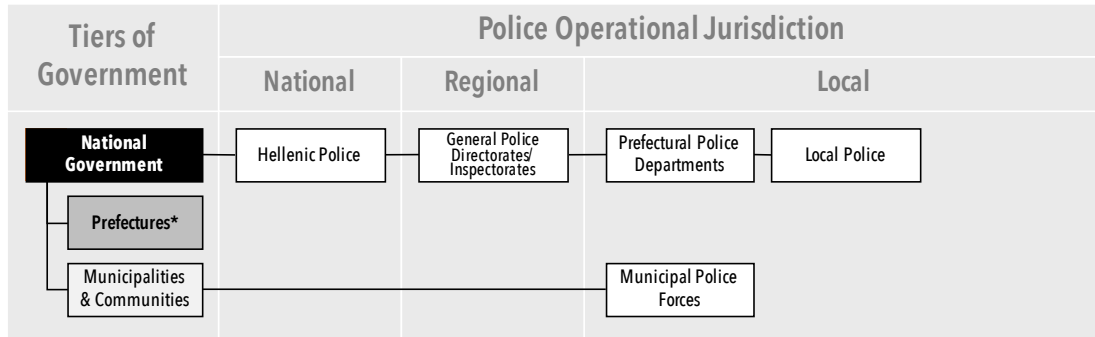
* 2010 reform replaced prefectures with regional units

Figure B.28. Greece country profile.

Guatemala *Republic of Guatemala*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Civil Police	Police Districts/Regions	Departmental Police
Municipalities			Municipal Police Forces
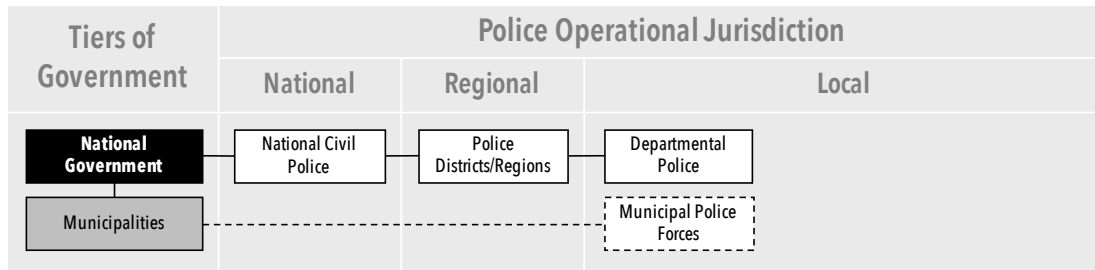
Figure B.29. Guatemala country profile.

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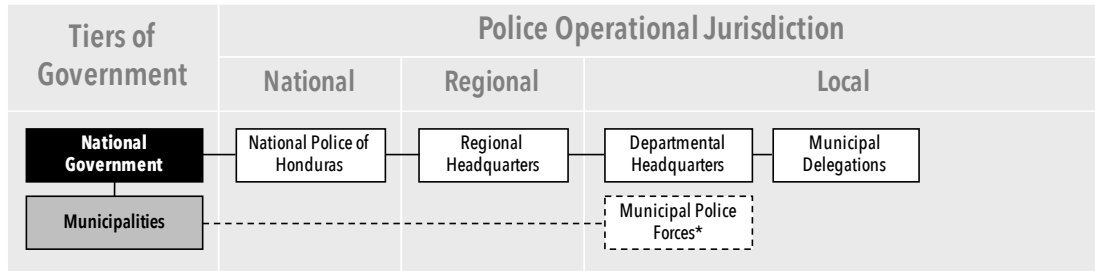
Figure B.30. Honduras country profile.
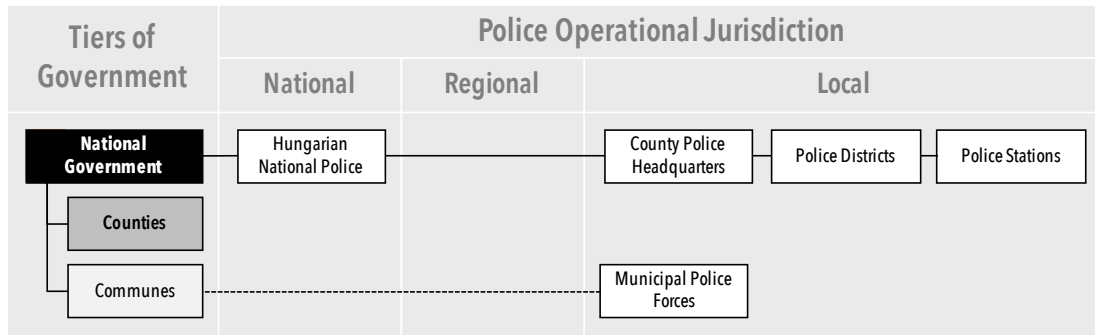
Figure B.31. Hungary country profile.
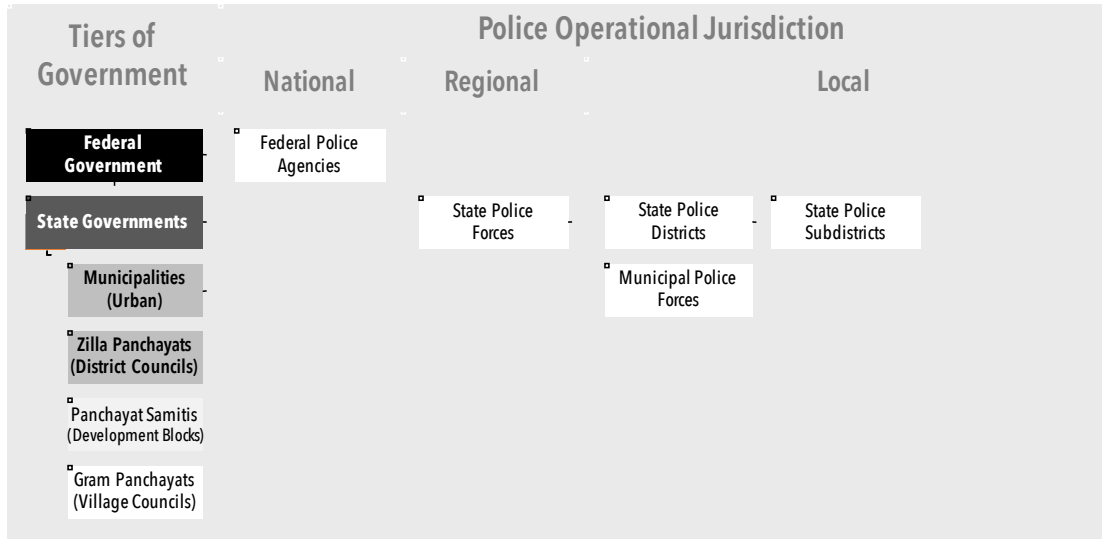
Figure B.32. India country profile.

Figure B.33. Indonesia country profile.

Ireland *Ireland*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	An Garda Síochána (Guardian of the Peace)	Police Regions	Police Divisions — Police Districts
Counties			
Municipalities			

Figure B.34. Ireland country profile.

Israel *State of Israel*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Israel Police		Police Districts — Police Sub-districts
Municipal Councils			
Local Councils			
Regional Councils			
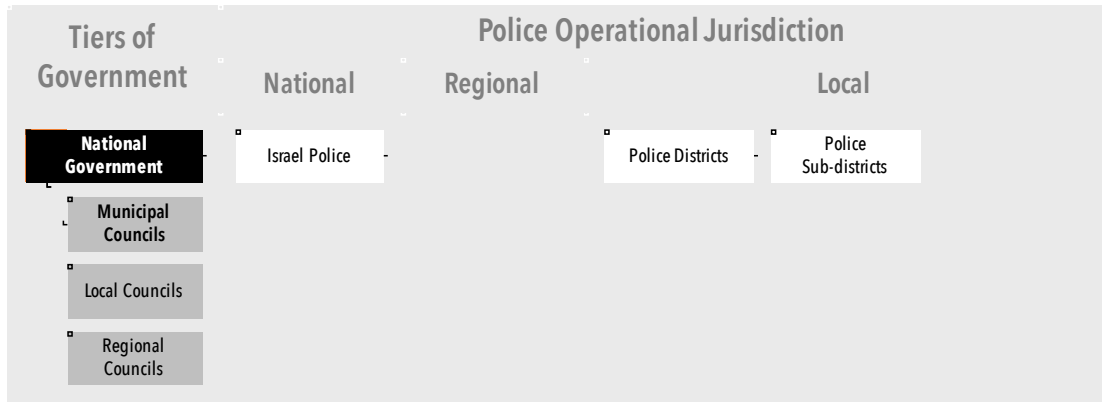
Figure B.35. Israel country profile.

Italy *Italian Republic*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Public Security or State Police	Interregional Directorates	Questura (Provincial Police)
	Carabinieri (Carabineer)	Divisions — Regions	Provinces — Groups — Lieutenant Bureaus and Stations
	Finance Police		
Regions			
Provinces			Provincial Police Forces
Municipalities			Municipal Police Forces

Figure B.36. Italy country profile.

Jamaica *Jamaica*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Jamaica Constabulary Force		Police Areas — Police Divisions
Parishes*			Municipal Police Forces**
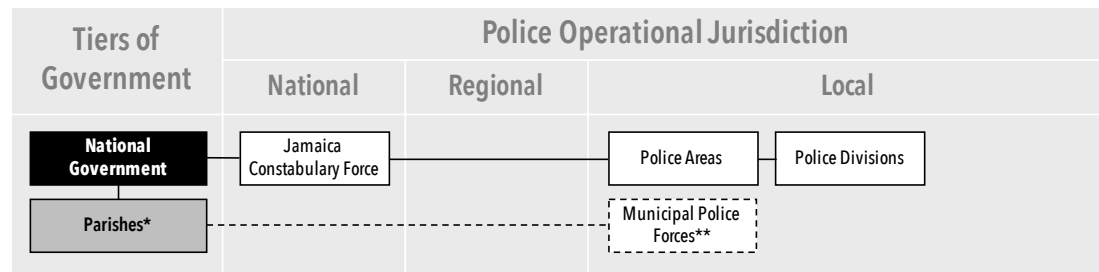
*One-Tiers system: 12 parish councils, 1 municipal council, and 1 corporation (of 2 parishes)
** In larger cities; Enforce local laws

Figure B.37. Jamaica country profile.

Japan *Japan*

Tiers of Government

Police Operational Jurisdiction

Tiers of Government	National	Regional	Local		
National Government	National Police Agency	Regional Police Bureaus	*Regulate, oversee, and provide certain funding*		
Prefectures			Prefectural Police	Districts	Sub-districts
Municipalities					
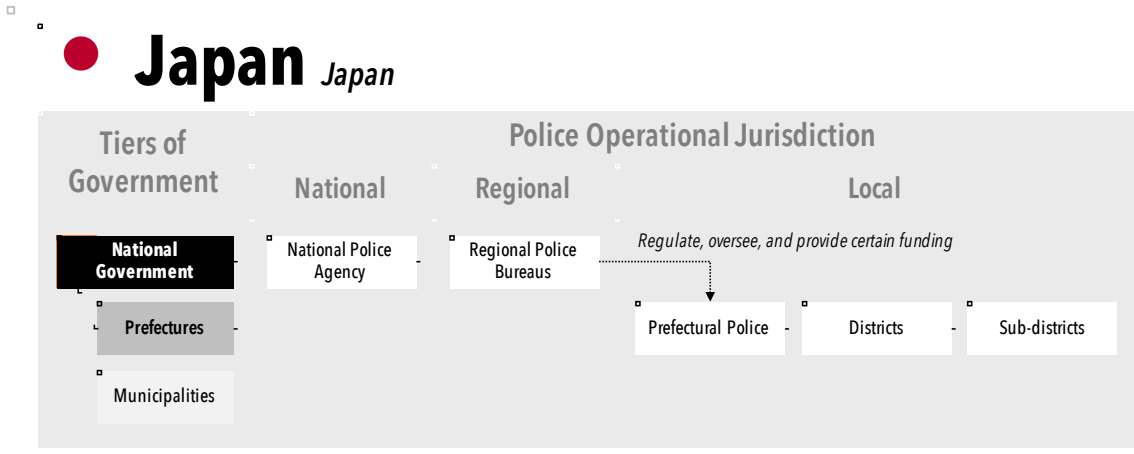
Figure B.38. Japan country profile.

Jordan *Hashemite Kingdom of Jordan*

Tiers of Government

Police Operational Jurisdiction

Tiers of Government	National	Regional	Local	
National Government	Public Security Force	Metropolitan and Rural Directorates / Desert Directorates	Police Sub-districts	Police Precincts
Municipalities				
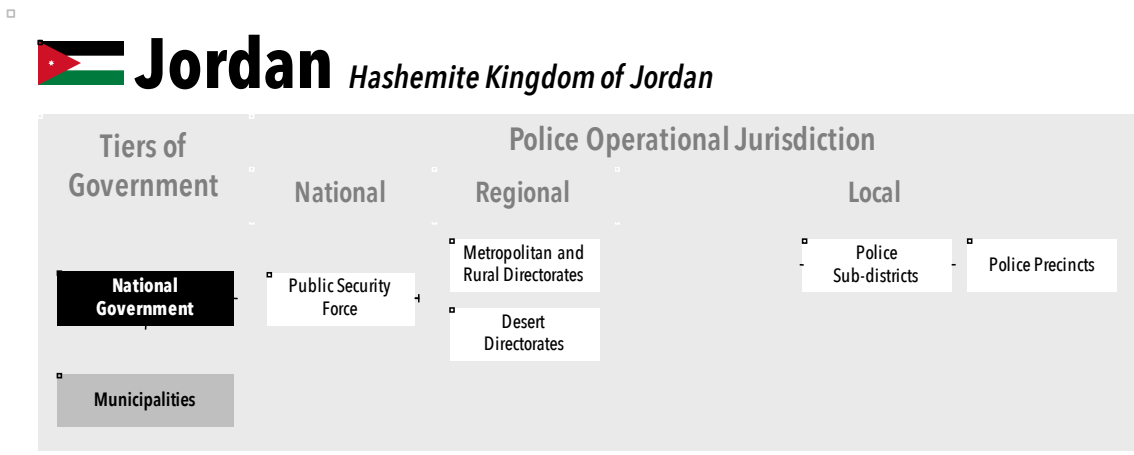
Figure B.39. Jordan country profile.

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Kazakhstan *Republic of Kazakhstan*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Ministry of Internal Affairs* →		
Oblasts (Regions)			
Rayons (Cities)			

Information about police subdivision not available.

Figure B.40. Kazakhstan country profile.

Kenya *Republic of Kenya*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Kenya Police Force	Provincial Commands	Divisional Headquarters / Local Police
City Councils			
Municipal Councils			
Town Councils			
County Councils (Rural)			
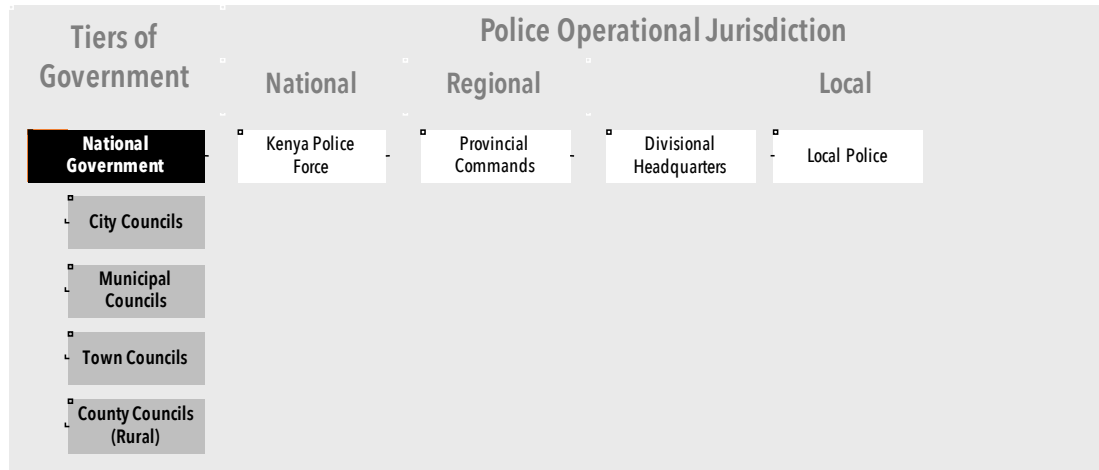
Figure B.41. Kenya country profile.

Latvia *Republic of Latvia*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	State Police / Security Police	Regional and City Districts	
Districts & Counties*			County Police Forces
Municipalities*			Municipal Police Forces
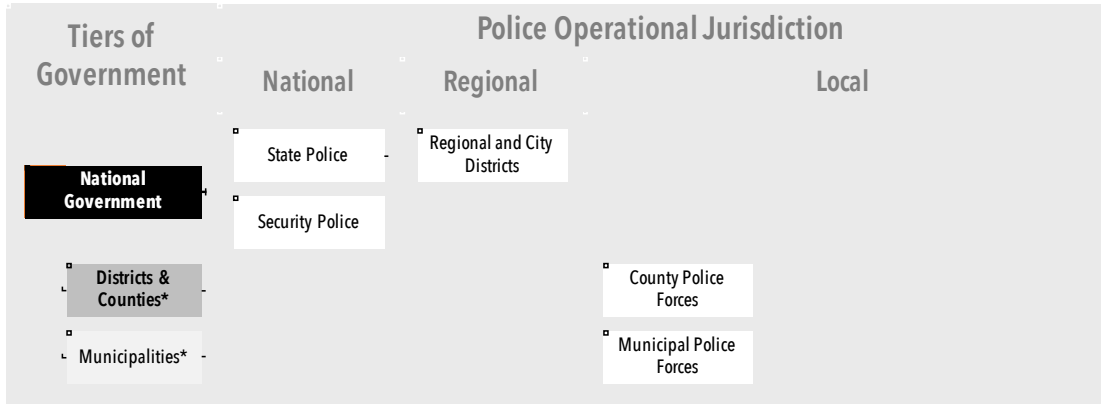
* Change from two-tier system to one-tier system took place in 2009

Figure B.42. Latvia country profile.

Lithuania *Republic of Lithuania*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	MOI Department of Police	County Headquarters	Local Police Units
Municipalities			*Partially finance local police programs*
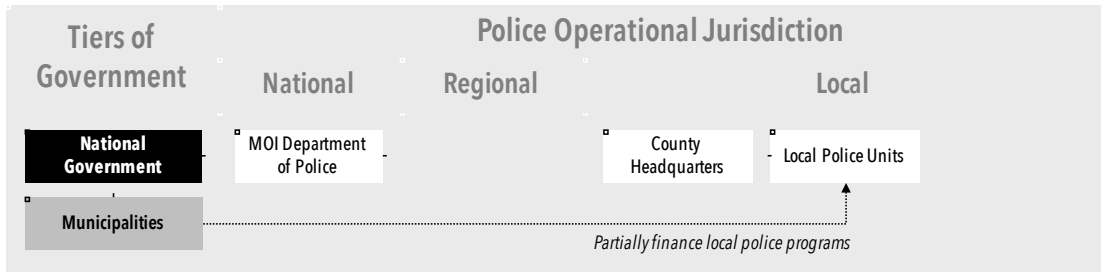
Figure B.43. *Lithuania country profile.*

Luxembourg *Grand Duchy of Luxembourg*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Police of the Grand Duchy	Regional Police Districts	Intervention Centers — Proximity Police
Communes			
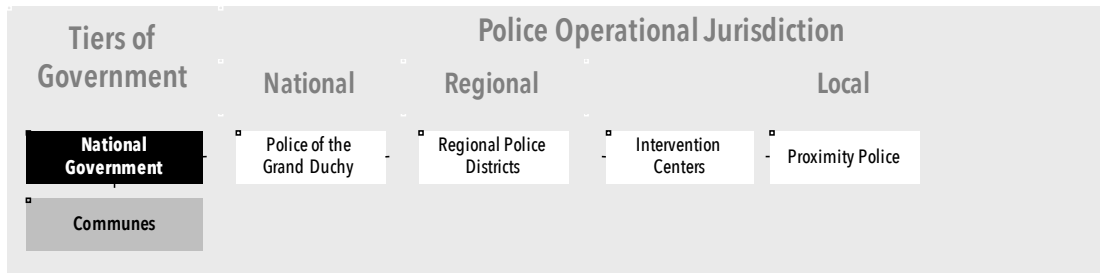
Figure B.44. Luxembourg country profile.

Mauritius *Republic of Mauritius*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Mauritius Police Force		Police Districts — Police Branches and Units
Municipalities (Urban)			
District Councils (Rural)			
District Councils			
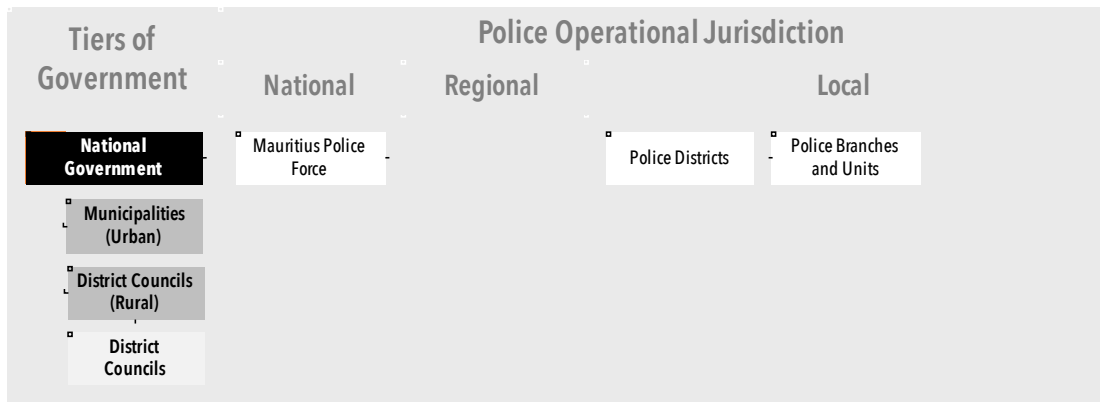
Figure B.45. Mauritius country profile.

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Figure B.46. Mexico country profile.

Figure B.47. Moldova country profile.

Morocco *Kingdom of Morocco*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	Sûreté Nationale (National Police)	Regional Sûreté (Regional Police)	Local Police Districts
	Royal Gendarmerie	Regional Gendarmeries	Companies
Regions			
Provinces and Prefectures			
Municipalities			

Figure B.48. Morocco country profile.

Netherlands *Netherlands*

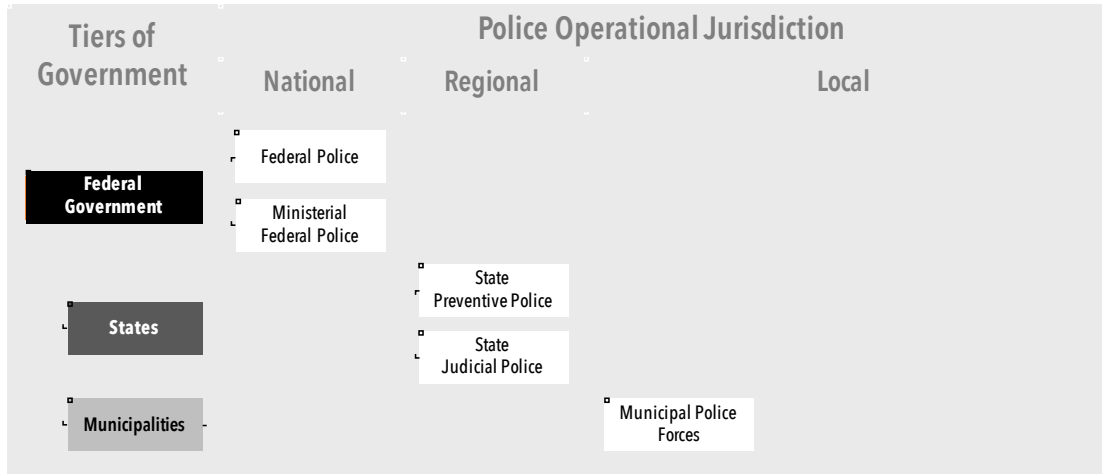| Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	National Police	Regional Police Forces	Districts	Base Units
	National Police Services Agency	*Mayors* in the region are members of regional police board; Mayor of largest municipality in the region is the police force manager*	*Mayor administers local police in his/her municipality*
Provinces			
Municipalities			

* Appointed by the Crown

Figure B.49. Netherlands country profile.

New Zealand *New Zealand*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	The New Zealand Police		Police Districts · Community-Based Stations
Unitary Councils			
Regional Councils			
City & Districts Councils			
Community Boards			

Figure B.50. New Zealand country profile.

Nicaragua *Republic of Nicaragua*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Police* ——————————————→		
Autonomous Regions			
Municipalities			
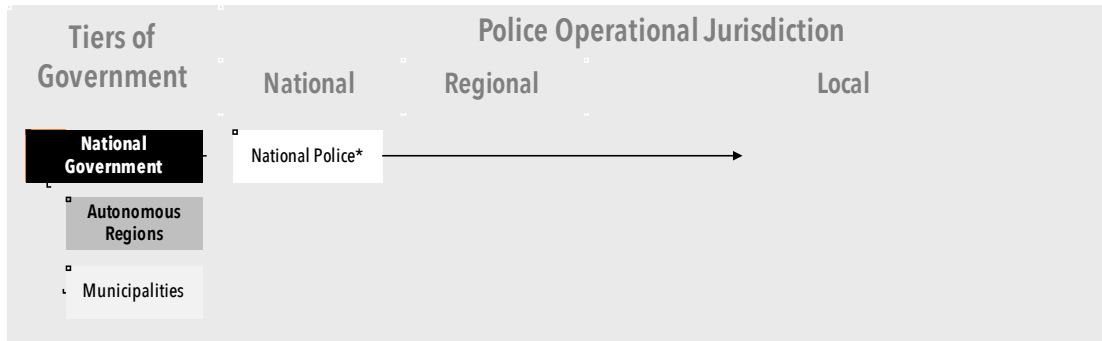
* Information about police subdivision not available.

Figure B.51. Nicaragua country profile.

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Norway *Kingdom of Norway*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Police		Police District Headquarters — Local Police — Lensmann (Sheriff)
Counties			
Municipalities			
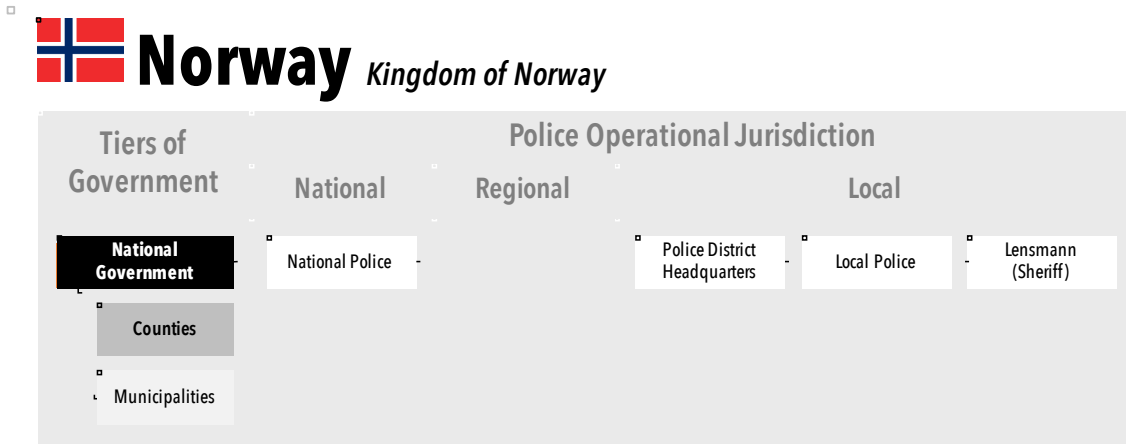
Figure B.52. Norway country profile.

Panama *Republic of Panama*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Panamanian National Police	Police Zones (Provincial)	Police Areas — Local Police
Districts or Municipalities			
Corregimientos (Village Areas)			
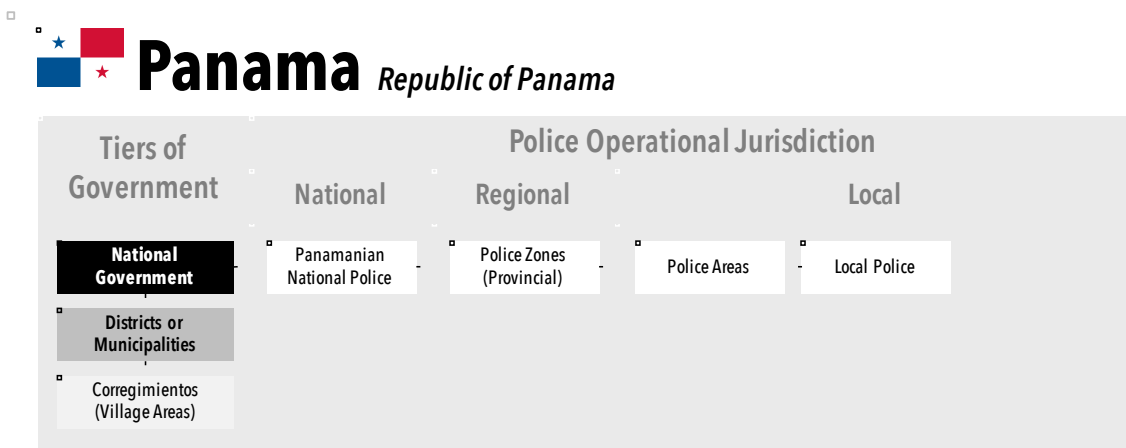
Figure B.53. Panama country profile.

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Paraguay *Republic of Paraguay*

Tiers of Government	Police Operational Jurisdiction			
	National	**Regional**		**Local**
National Government	Paraguayan National Police	Police Commands	Police Departments	Local Police
Departments				
Municipalities				
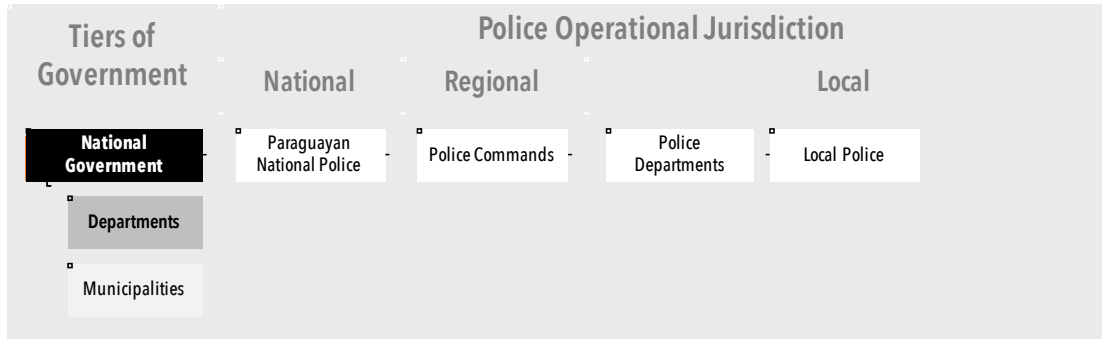
Figure B.54. Paraguay country profile.

Peru *Republic of Peru*

Tiers of Government	Police Operational Jurisdiction			
	National	**Regional**		**Local**
National Government	Peruvian National Police	Police Directorates	Police Regions	Police Sub-regions
Regions*				
Provincial & District Muni.**				
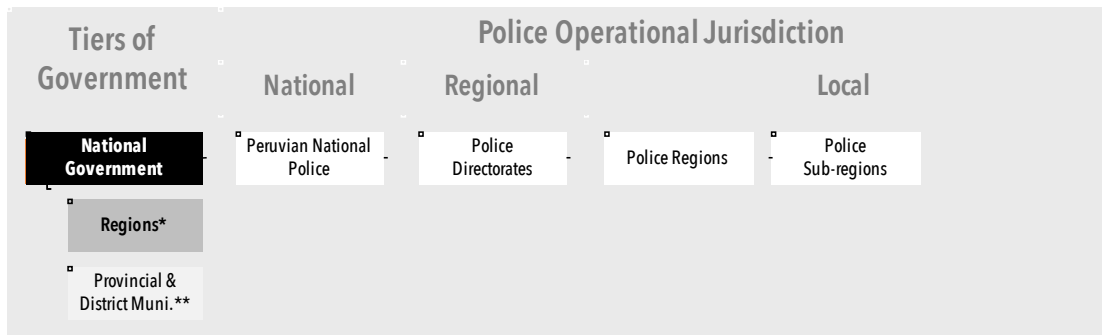
* Reform in 2002 replaced Departments with Regions.
** Provincial municipalities and district municipalities are at the same tier: the former responsible for urban area, the latter rural.

Figure B.55. Peru country profile.

Figure B.56. Philippines country profile.

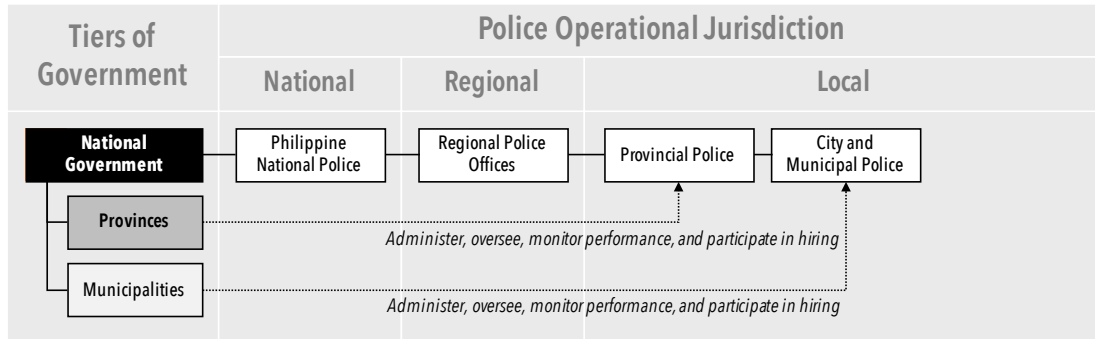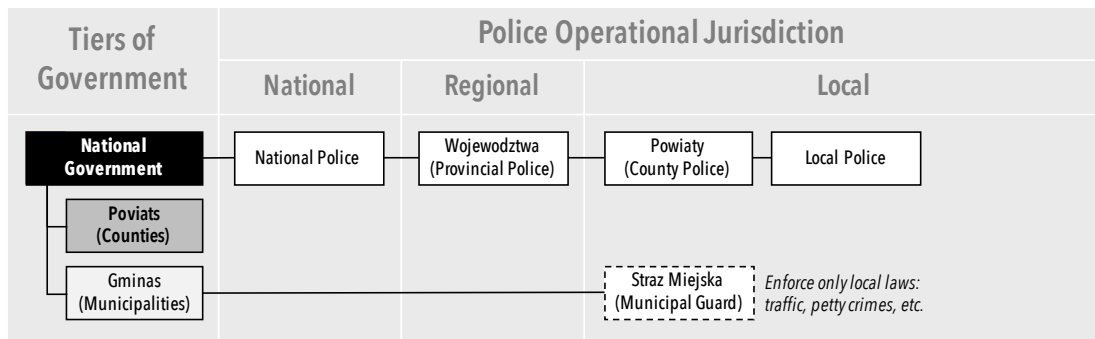*Figure B.57.* Poland country profile.

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Portugal *Portuguese Republic*

Tiers of Government

Police Operational Jurisdiction

	National	Regional	Local	
National Government	Public Security Police	Police Districts	Police Divisions	Sections or Squads
	National Republican Guard	Brigades	Groups	Detachments
	Judicial Police			Posts
Parishes				
Municipalities				
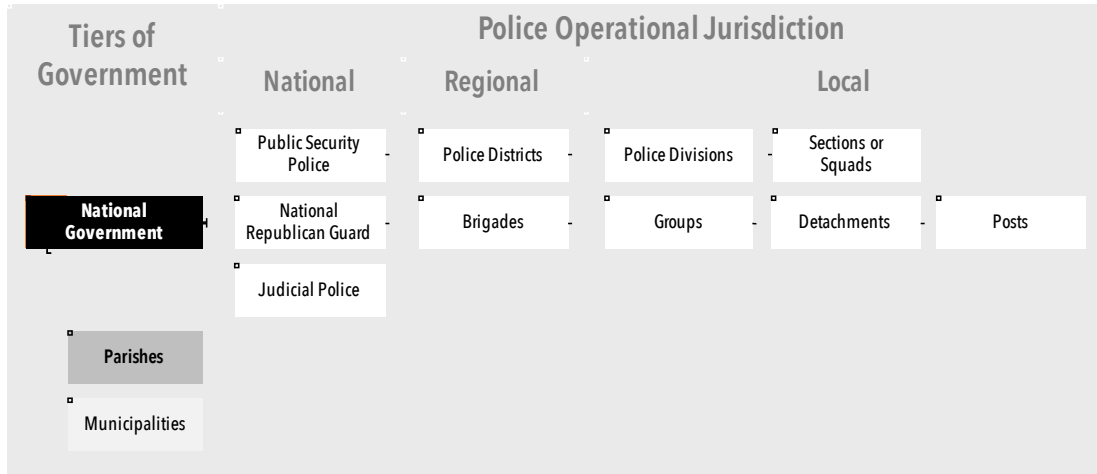
Figure B.58. Portugal country profile.

Russia *Russian Federation*

Tiers of Government

Police Operational Jurisdiction

	National	Regional	Local
Federal Government	Politsiya* (Russian Police)	Federal Districts	City and Municipal Police
	Federal Security Service		Local Police
	Federal Guard Service		
Federal Subjects			
City Districts			
Municipal Districts			
Urban & Rural Settlements			
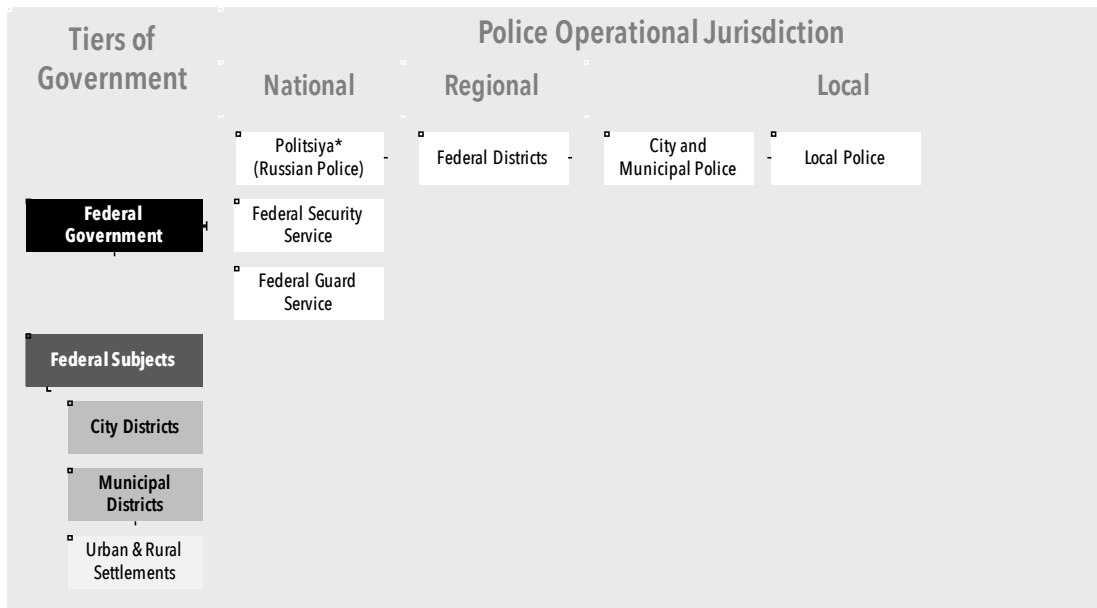
* *Reform in 2011 replaced Militsiya (Militia) with Politsiya (still under the Ministry of the Interior)*

Figure B.59. Russia country profile.

Slovenia *Republic of Slovenia*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Slovene Police		Police Directorates — Local Police
Municipalities			

Figure B.60. Slovenia country profile.

South Korea *Republic of Korea*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Korean National Police Agency		Provincial and Metropolitan Police — Local Police — Police Branch Offices
Provinces & Metropolitan Cities			
Counties, Districts & Cities			
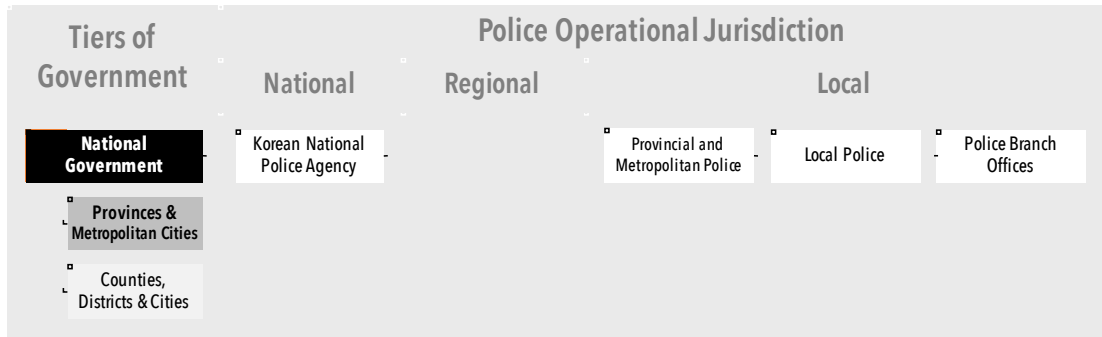
Figure B.61. South Korea country profile.
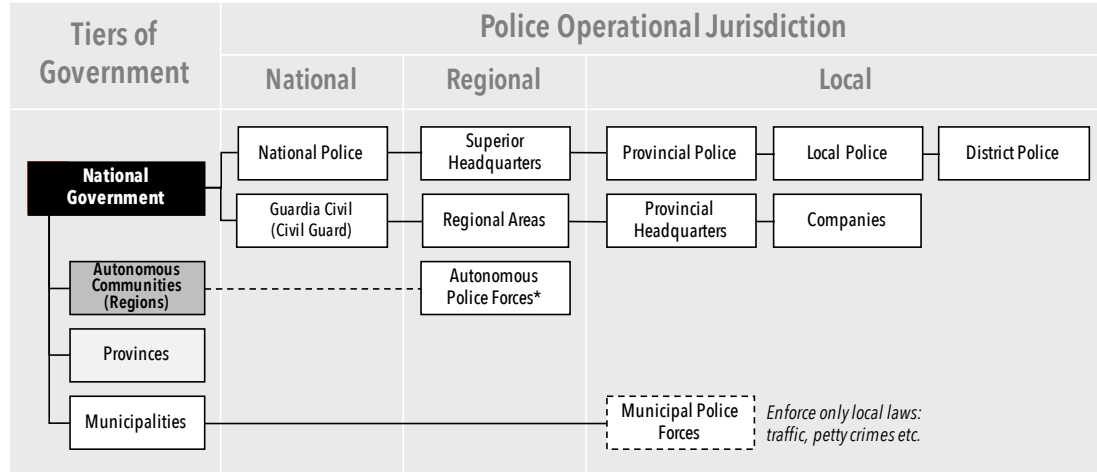
Figure B.62. Spain country profile.
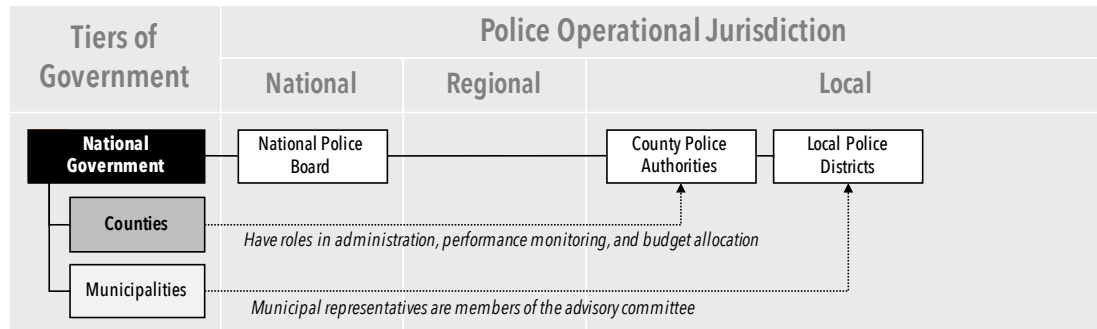
Figure B.63. Sweden country profile.

Switzerland *Swiss Confederation*

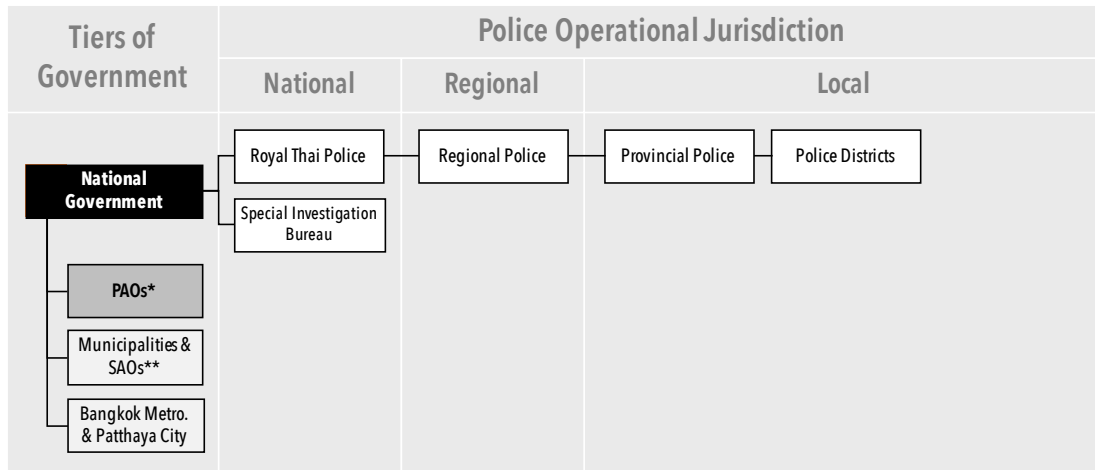| Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
Federal Government	Fedpol (Federal Office of Police)*		
Cantons		Cantonal Police Corps**	Communal Police Corps — *Some cantons*
Communes			Communal Police Corps — *Some communes*
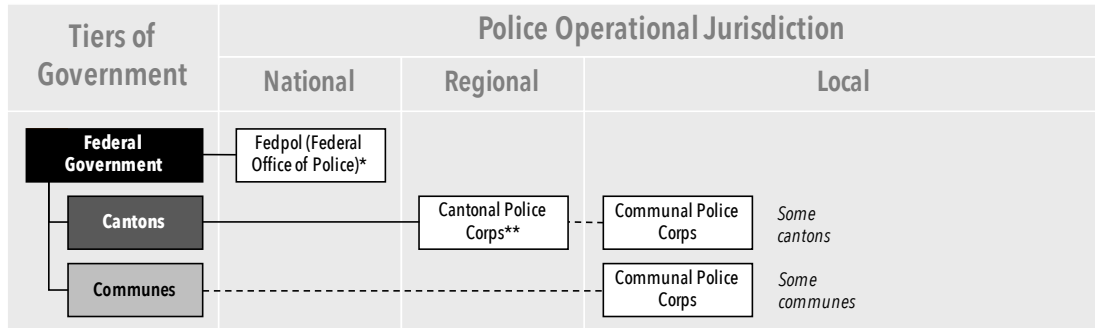
* Established in 20002
** Main police forces

Figure B.64. Switzerland country profile.

Thailand *Kingdom of Thailand*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Royal Thai Police / Special Investigation Bureau	Regional Police	Provincial Police — Police Districts
PAOs*			
Municipalities & SAOs**			
Bangkok Metro. & Patthaya City			

* Provincial administrative organizations
** Sub-district administrative organizations

Figure B.65. Thailand country profile.
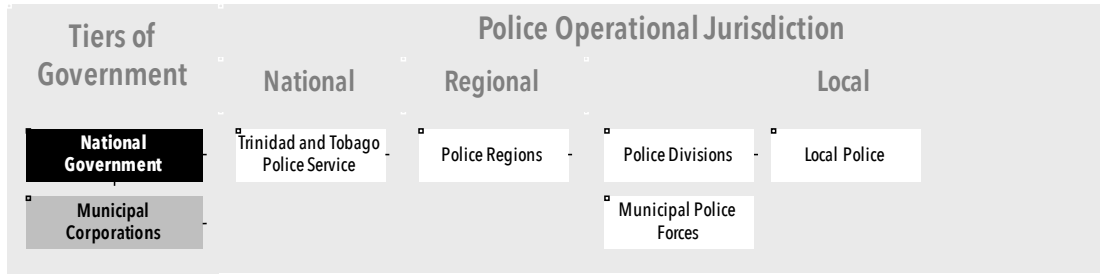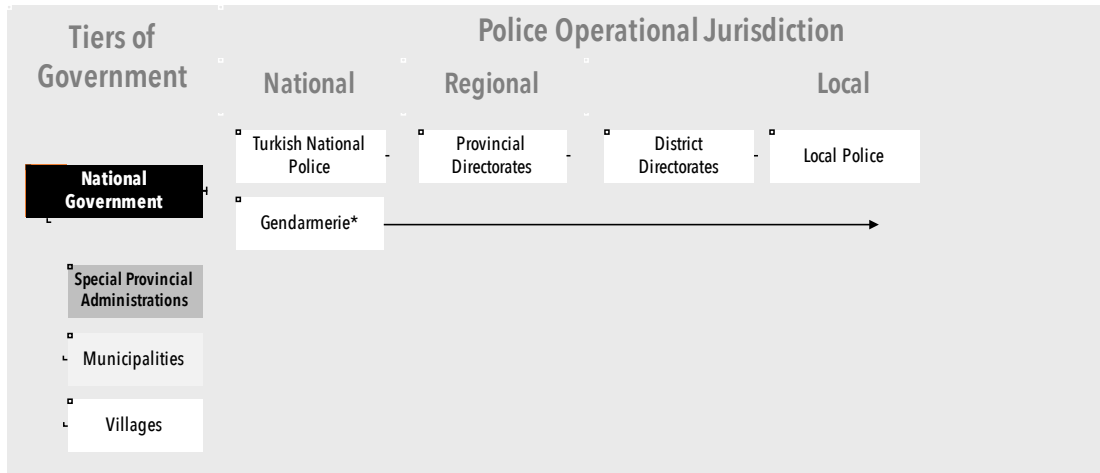
Trinidad and Tobago
Republic of Trinidad and Tobago

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Trinidad and Tobago Police Service	Police Regions	Police Divisions — Local Police
Municipal Corporations			Municipal Police Forces

Figure B.66. Trinidad and Tobago country profile.

Turkey
Republic of Turkey

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	Turkish National Police	Provincial Directorates	District Directorates — Local Police
	Gendarmerie* →		
Special Provincial Administrations			
Municipalities			
Villages			

* Information about police subdivision not available.

Figure B.67. Turkey country profile.

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Uganda *Republic of Uganda*

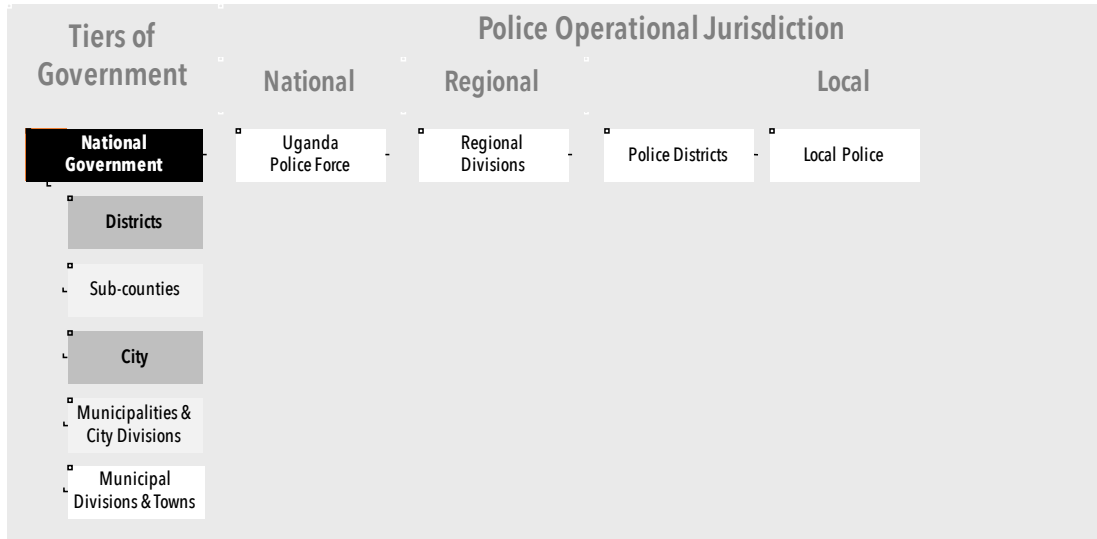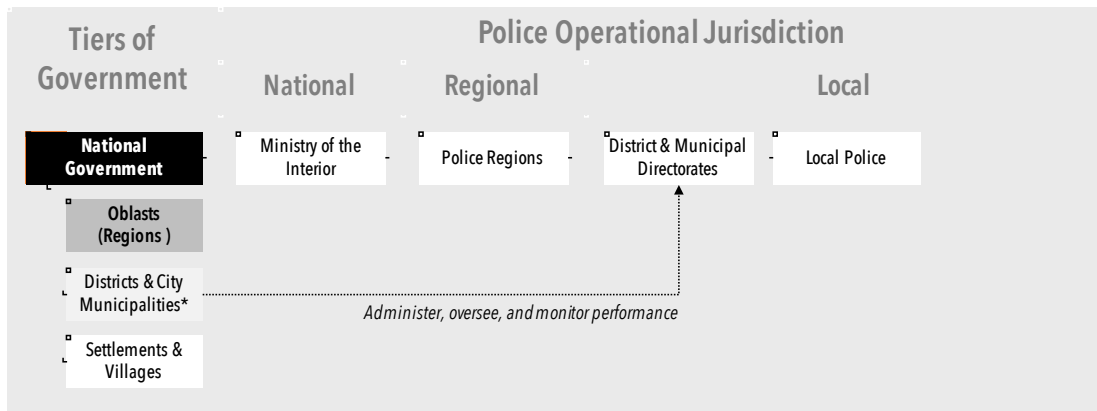| Tiers of Government	Police Operational Jurisdiction			
	National	**Regional**	**Local**	
National Government	Uganda Police Force	Regional Divisions	Police Districts	Local Police
Districts				
Sub-counties				
City				
Municipalities & City Divisions				
Municipal Divisions & Towns				

Figure B.68. Uganda country profile.

Ukraine *Ukraine*

Tiers of Government	Police Operational Jurisdiction			
	National	**Regional**	**Local**	
National Government	Ministry of the Interior	Police Regions	District & Municipal Directorates	Local Police
Oblasts (Regions)				
Districts & City Municipalities*		*Administer, oversee, and monitor performance*		
Settlements & Villages				

* Municipal police forces were established in major cities in 2015.

Figure B.69. Ukraine country profile.

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🇬🇧 United Kingdom *United Kingdom of Great Britain and Northern Ireland*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
National Government	National Agencies		
England / **N. Ireland, Scotland & Wales**		Country Police Agencies	Police Divisions — *Scotland and Northern Ireland*
Districts, Council Areas or Unitary Authorities			Local Police Forces — *Wales*
Unitary Authorities*			Local Police Forces
Counties and Greater London			Local Police Forces
District, Borough & City Councils			
Parishes**			

* Including metropolitan districts, metropolitan boroughs, and London boroughs.
** Responsible for smaller services: parks, communities centers etc.

Figure B.70. United Kingdom country profile.

🇺🇸 United States *United States of America*

Tiers of Government	Police Operational Jurisdiction		
	National	Regional	Local
Federal Government	Department of Justice Agencies / D. of Homeland Security Agencies		
States		State Police Forces	
Counties			County Police Forces
Municipalities			Municipal Police Forces
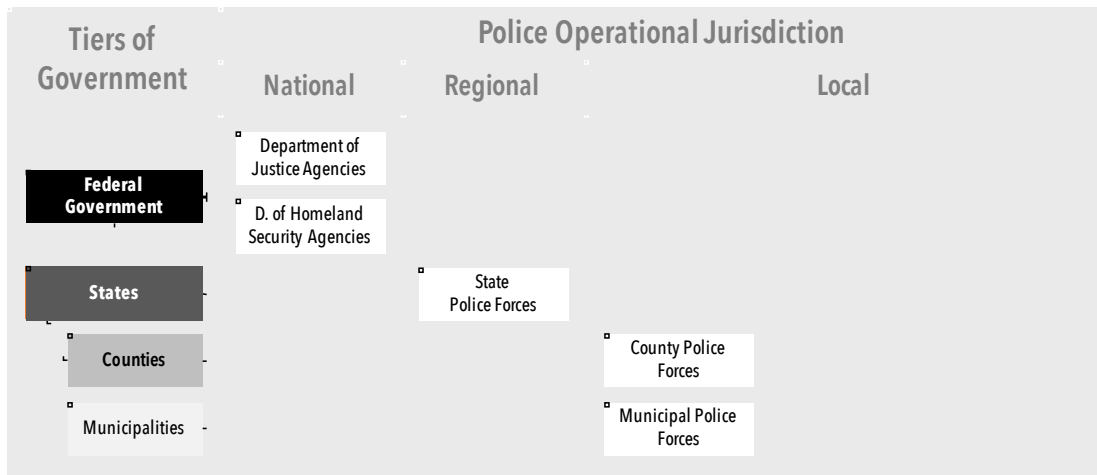
Figure B.71. United States country profile.

Uruguay *Eastern Republic of Uruguay*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
National Government	National Police	Departmental Police	Local Police
Departments			
Municipalities*			
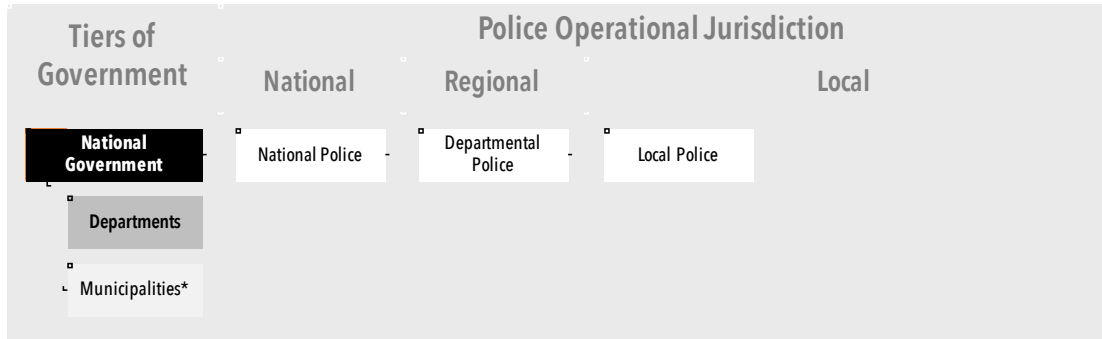
* Introduced in 2010

Figure B.72. Uruguay country profile.

Venezuela *Bolivarian Republic of Venezuela*

Tiers of Government	Police Operational Jurisdiction		
	National	**Regional**	**Local**
	Bolivarian National Police		City-level National Police
Federal Government	National Guard		
	CICPC (Judicial Police)		
	SEBIN (Political Police)		
States		State Police Forces	
Municipalities			Municipal Police Forces
Parishes			
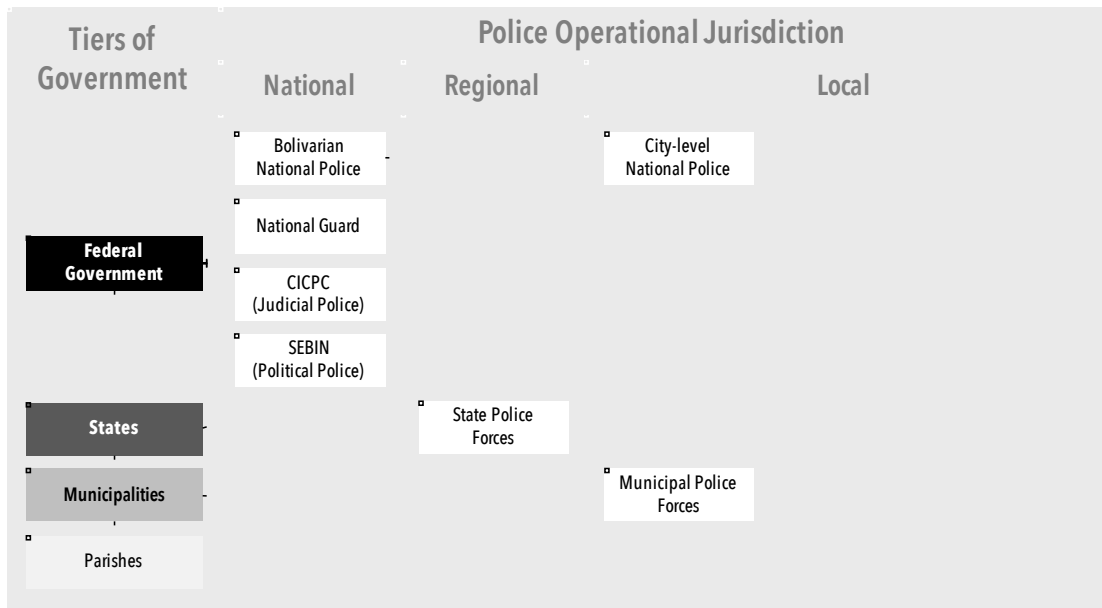
Figure B.73. Venezuela country profile.

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