Developing a Cross-National Index of Police Decentralization

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Abstract

In countries with multiple tiers of government, police systems can be more centralized or more decentralized. Since the 1990s, there have been calls for empirical studies of the effects of police systems on police performance, but the literature lacks a standardized typology of police systems. This study aims to develop a typology of police systems, the Police Decentralization Index, that integrates theories using new institutionalism and decentralization and can measure varying degrees of police decentralization across countries. The index focuses on vertical decentralization of policing and, instead of classifying the diverse police systems into binary categories of centralized and decentralized systems, it 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. The index not only conforms with existing typologies but also is more conducive to cross-national empirical studies.

Keywords: police system, policing, decentralization, local government

Background

Policing is "a process of preventing and detecting crime and maintaining order... [that] might be engaged in by any number of agencies or individuals" (Mawby, 2008, p. 17) and encompasses a wide range of services, from preventing offences and identifying offenders ranging from minor traffic offenses to international drug dealing networks. General-purpose or criminal police, those "with full powers of access, arrest, and investigation for any criminal offense throughout the territory of the authorizing government unit" (Bayley, 1992, p. 517), are the most common and the heart of policing in any country. A basic question in the literature and among government officials is: Does the structure and control of police among the 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. Thanks to the movement to decentralization, unitary countries that historically had been highly centralized now have decentralized some of their powers to lower government levels, and thus have carried out their public service duties through multiple tiers of government who function like their federal counterparts (Norris, 2008).

Decentralization refers to the transfer of authority, responsibility, and resources for public service provision from the national government to subordinate levels of government (Rondinelli *et al.*, 1983). Not only does decentralization aim to achieve more efficient and responsive public services provision, it also requires countries to alter their structural arrangements and relationships between the central and local governments (Cheema & Rondinelli, 2007). For a given country, its police system — the formal structural arrangements of public policing employed the country — can be centralized or decentralized. A centralized or national police system refers to a police system in which the national government is responsible for all law enforcement. In a decentralized police system, responsibility for law enforcement is shared by various levels of government with specific assignments of duties and defined coordination.

Because there are potential advantages and disadvantages related to each option, the decision to adopt a more centralized system or a more 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; Johnson *et al*., 2012), South Korea is considering moving toward decentralization to be more 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 proposed as a potential solution to the police problems (e.g., Chanruang, 2011).

As in many other countries, movements toward political, fiscal, and administrative decentralization emerged in Thailand in the 1980s (Dufhues *et al.*, 2011; Nagai *et al.*, 2008). But it was not until the late 1990s, after a series of decentralization law enactments, that substantial changes were 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.

Since the 1990s, there have been calls for empirical studies of the effects of structural arrangements on police performance (Bayley, 1992), but the literature still lacks cross-national generalizable studies of the effects of different police systems. Most cross-national, comparative studies on the subject are descriptive in nature, provide normative arguments, and/or emphasize a small set of countries. The typologies of police systems used in the 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 the various police structures.

This study fills in the gap in the literature by addressing the lack of standardized typology of police systems. In this study, we are developing and proposing a new index of police systems that can measure the varying degrees of police decentralization across countries.

Research Question and Objective

The research question of this study is: Given a typology of police systems, where does an individual country fit based on its structural arrangements of policing? Thus, this study aims to develop a typology of police systems that integrates theories and frameworks found in the literature of new institutionalism and decentralization.

Literature

Theoretical Framework

New institutionalism posits that institutions reduce individuals' uncertainties and risks and thereby shape individuals' behaviors and performances (North, 1990, 1991). 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). North (1991) argues that individuals need information when they are making decisions about any given issue but that they rarely have complete information. 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, because institutions reduce individuals' uncertainties and risks, they also shape individuals' behaviors and performances, and an institutional change changes individuals' behaviors and performances (North, 1990).

In the literature, the new institutionalist approach in the study of decentralization is employed to explain decentralized governing mechanisms (Bartley *et al*., 2008; Ostrom, 1990), to assess the values and implementation of decentralization (Hadiz, 2004) and to estimate the outcomes of decentralization (Ostrom, 1990; Voigt & Blume, 2012).

Cheema, Nellis, and Rondinelli's (Cheema & Rondinelli, 1983; Rondinelli, 1981; Rondinelli *et al*., 1983) works are among the first attempts to systematically classify decentralization. They classified 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 (Cohen & Peterson, 1997).

The World Bank has adopted and become the major proponent of the Cheema, Nellis, and Rondinelli classification approach (e.g., Silverman, 1992; World Bank, 2001a).

The approach has been widely employed by other international organizations e.g., the World Health Organization and OECD, and researchers around the globe (see Cohen & Peterson, 1997; Mills *et al*., 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 the types and forms of decentralization and classifies decentralization that essentially is related to the public provision of goods and services into three types: administrative, fiscal, and political (Figure 1).
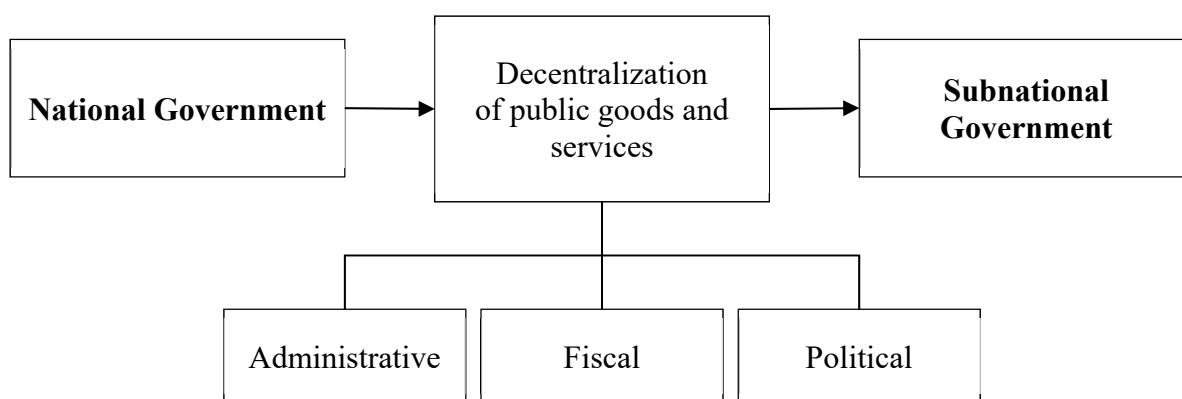
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┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│                     │     │   Decentralization  │     │                     │
│ National Government │ ──▶ │  of public goods and│ ──▶ │     Subnational     │
│                     │     │       services      │     │     Government      │
└─────────────────────┘     └─────────────────────┘     └─────────────────────┘
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        ┌──────────────────┬──────────┬──────────────────┐
   ┌────────────┐   ┌────────────┐   ┌────────────┐
   │Administrative│  │   Fiscal   │   │  Political │
   └────────────┘   └────────────┘   └────────────┘
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Figure 1 Theoretical framework

Administrative Decentralization. Administrative decentralization refers to the hierarchical and functional transfer of managerial responsibility, e.g., planning, 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, 2007; Cohen & Peterson, 1997; Rondinelli, 1990). 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.

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. This is because when authority and responsibility are transferred to lower

levels of government or the private sector, in order to make them 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).

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; 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 comparable degrees of administrative and 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 (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 levels of government; rather they must be governed by institutions of their locality (Smith, 1985). Second, the bodies that govern the decentralized governmental units must be popularly elected and organized (Smith, 1985). That is, they must be popularly elected in their local electoral jurisdictions. Because political decentralization is usually related to democratization, it is sometimes called democratic decentralization (e.g., in 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 countries tend to achieve decentralization through administrative deconcentration, rather than devolution or political decentralization, as it minimizes political participation (Rondinelli, 1990).

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 (Smith, 1985).

Existing Typologies of Police Systems

Dammer and Albanese (2011) argued 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) police systems.

The police system is the operational framework for police officers and affects their behavior and performance: it is an institution (North, 1990, 1991). In 1992, Bayley argued that the study of the effects of institutional arrangements on police performance was in its infancy. There were more descriptive case studies but fewer comparative ones, and Bayley called for more quantitative examinations of the effects of police institutional arrangements. More specifically, Bayley proposed that institutional 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.

Attempts to systematically analyze variations of national police systems trace back to Bayley (1985, 1992), who classifies police systems based on three components: the 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 (1992), 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" (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, the distribution of command, therefore concerns horizontal decentralization. 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 that 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 a "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 literature of new institutionalism and decentralization but also allows for varying degrees of centralized/decentralized structures.

Data and Methods

Data and Sources

This study employed a documentary research design and used purposive sampling to select related documents and research studies relevant to the research objective. Sources of secondary data can be divided into two groups: one for government structures, the other for policing and police systems. Data on government structures and intergovernmental relations were collected from a large number of print and online publications. The major sources included Commonwealth Local Government Forum (2013), United Cities and Local Government (2016), and United Nations Public Administration Network (2010).

Data on policing and police systems were collected from two major sources: research studies on policing and encyclopedias of policing. For the former, the focus was on books and journal articles that primarily compared structural differences in policing between or among multiple countries. The latter included 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 in countries around the world. Additional information about government and police structures was obtained from a number of other sources, including websites of national police agencies.

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). We employed document analysis to extract the information about government structures and police systems and followed 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. First, we set an overarching question about what we expected from the document and then read the document without labeling in order to derive an overview of the document. Second, we formulated several questions subordinate to the overarching question and then read the document for the second time to look for texts or phrases that correspond to the sub-questions. When found, we highlighted the corresponding texts or phrases and assigned labels to them. We then assembled texts or phrases that were similarly labeled to create themes or categories. Finally, we refined the outcomes obtained from the previous step.

New Typology of Police Systems

After reviewing and analyzing dozens of publications on government and policing structures, we have established a new typology of police systems. This typology is designed to measure the varying degrees of police decentralization in countries around the world. In line with the research objective and theoretical framework, the typology focuses on vertical decentralization of policing (i.e., multiple tiers of government) rather than horizontal decentralization (i.e., fragmented police agencies in the same tier) and is based on three criteria that measure different aspects of decentralization: 1) vertical 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, we assume 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.[i] 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 not officially labelled or referred to as "local government."
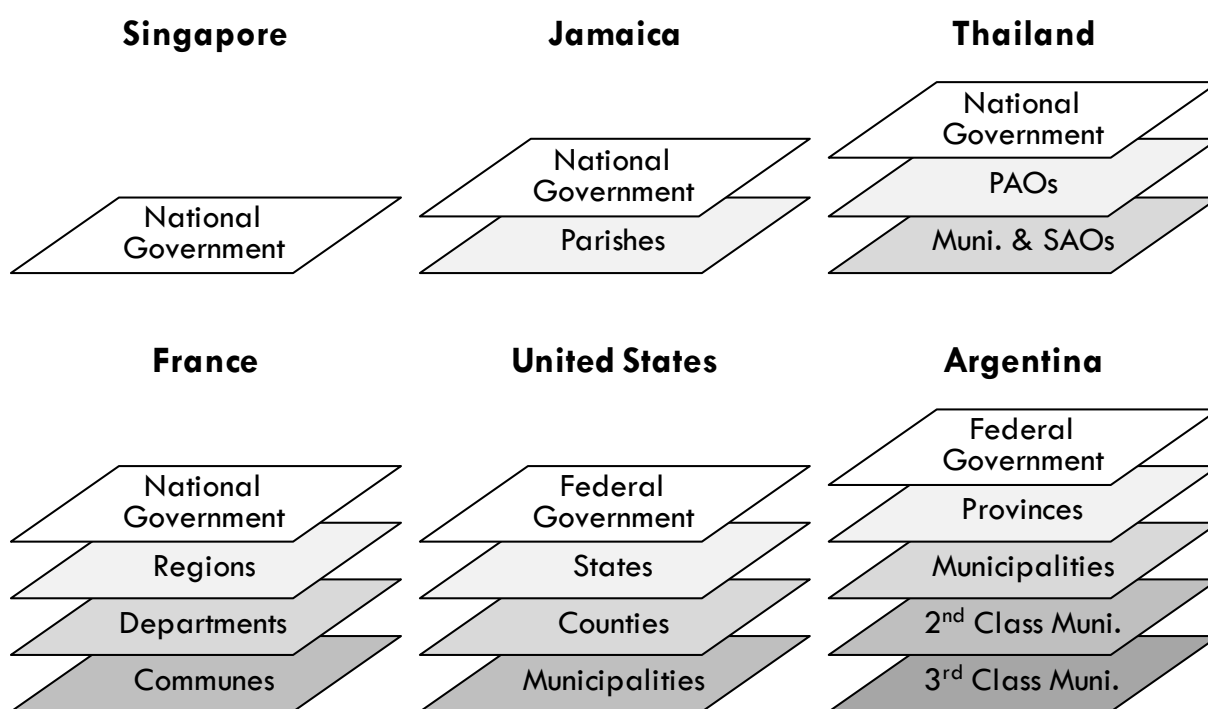

Figure 2 Tiers of government in selected countries. Muni = municipalities; PAO = provincial administration organization; and SAO = sub-district administration organization

For better understanding of how this component is coded, consider the following cases of the US and Thailand (Figure 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 jurisdictions within the state 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 2).[ii] 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). 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.
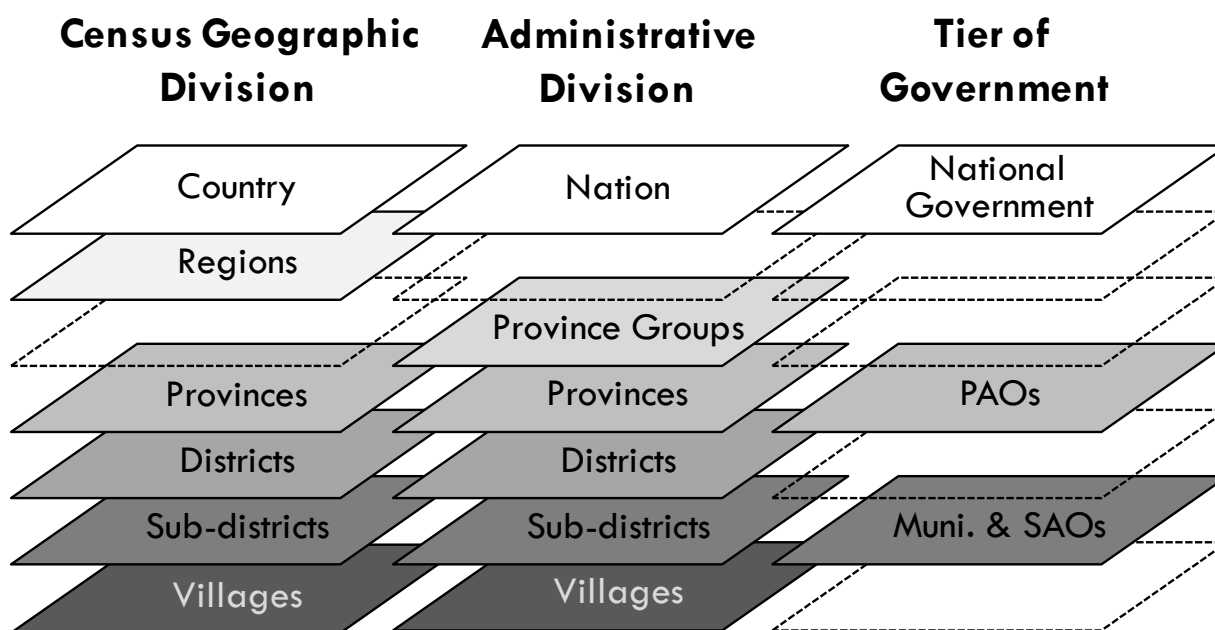
Figure 3 Territorial divisions in Thailand. Muni. = municipalities; PAO = provincial administration organization; and SAO = sub-district administration organizations

Component 2: Administrative and Political Control

This component asks the question: "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 the question: "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.
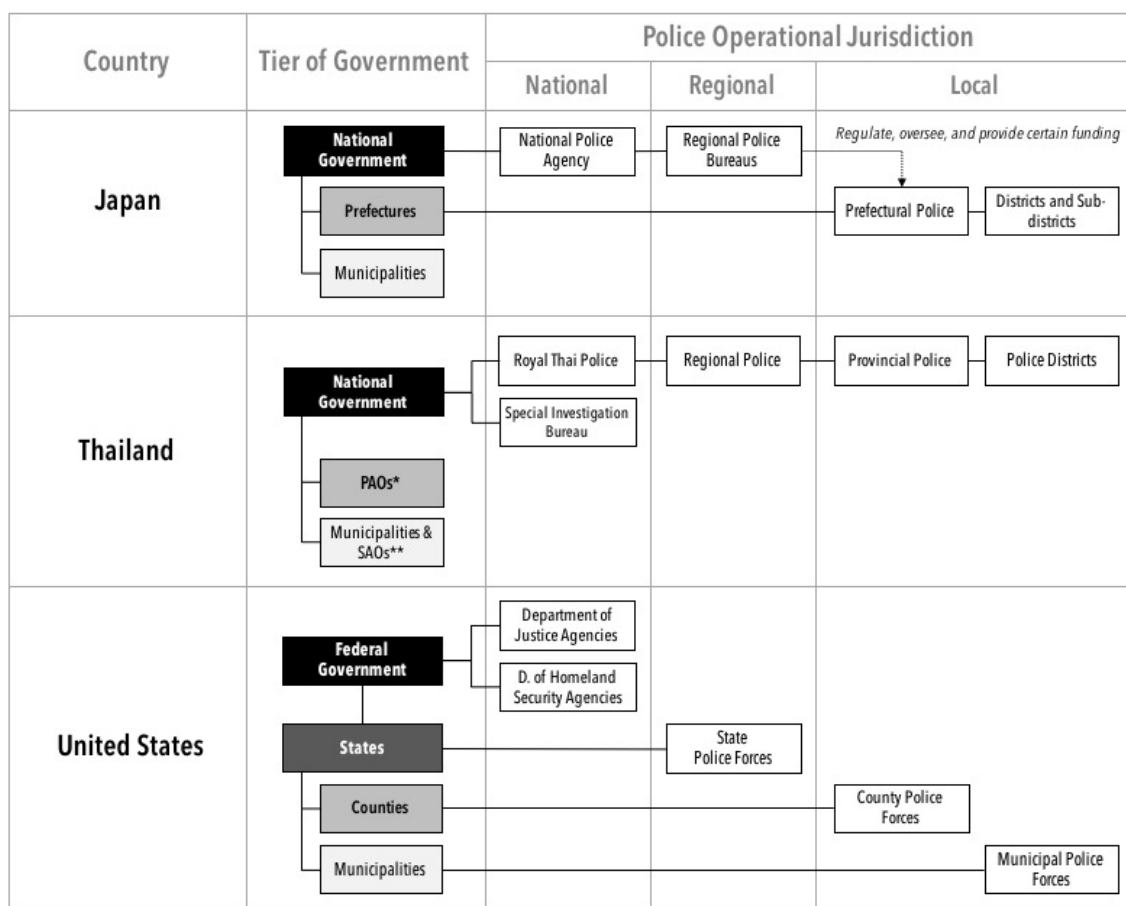

Figure 4 Police operation jurisdictions by tier of government in Japan, Thailand, and the United States. PAO = provincial administration organization and SAO = sub-district administration organization

Consider the following examples. In the US (Figure 3), lower tiers of government may receive funding from other tiers but all 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, the municipal governments also finance some local police programs.

Table 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.

Table 1 Summary of the Components of the Typology of Police Systems

Component (Supporting Theory)	Definition	Code Range
1. Governmental Structure (federalism, political autonomy, decision-making 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 encompass 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

Table 1 Summary of the Components of the Typology of Police Systems (Cont.)

Component (Supporting Theory)	Definition	Code Range
		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 administration and officers. • To whom the police report and are accountable.	
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

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. We expected to find some variations among the two latter components. However, when we 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.[iii] 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). Table 2 shows the Police Decentralization Index of selected countries and Figure 5 is a world map exhibiting the varying degrees of police decentralization.

Table 2 Police Decentralization Index in Selected Country for 2012

Country	Tier1	Tier2	PDI	Country	Tier1	Tier2	PDI
Albania	3	2	0.67	Japan	3	2	0.67
Argentina	5	2	0.40	Jordan	2	1	0.50
Australia	3	2	0.67	Kazakhstan	3	1	0.33
Austria	3	2	0.67	Kenya	2	1	0.50
Azerbaijan	2	1	0.50	Korea, Republic	3	1	0.33
Bangladesh	2	1	0.50	Latvia	2	2	1.00
Belarus	4	1	0.25	Lithuania	2	2	0.50
Belgium	3	2	0.67	Luxembourg	2	1	0.50
Bolivia	3	1	0.33	Mauritius	3	1	0.33
Brazil	3	2	0.67	Mexico	3	3	1.00
Bulgaria	2	1	0.50	Moldova	3	2	0.67
Canada	5	4	0.80	Morocco	4	1	0.25
Chile	3	1	0.33	Netherlands	3	2	0.33
Colombia	3	1	0.33	New Zealand	4	1	0.25
Costa Rica	3	2	0.67	Nicaragua	3	1	0.33
Croatia	3	1	0.33	Norway	3	1	0.33
Czech R.	3	2	0.67	Panama	3	1	0.33
Denmark	3	1	0.33	Paraguay	3	1	0.33
Dominican Republic	3	1	0.33	Peru	3	1	0.33
Ecuador	3	1	0.33	Philippines	3	3	1.00
El Salvador	2	2	1.00	Poland	3	1	0.33
Estonia	2	2	1.00	Portugal	3	1	0.33
Finland	3	1	0.33	Russia	4	1	0.25
France	4	2	0.50	Slovenia	2	1	0.50
Georgia	3	1	0.33	Spain	4	3	0.75
Germany	4	3	0.75	Sweden	3	3	1.00
Greece	3	2	0.67	Switzerland	3	3	1.00
Guatemala	2	2	1.00	Thailand	3	1	0.33
Honduras	2	2	1.00	Trinidad & Tobago	2	2	1.00
Hungary	3	2	0.67	Turkey	4	1	0.25
India	5	3	0.60	Uganda	4	1	0.25

Table 2 Police Decentralization Index in Selected Country for 2012 (Cont.)

Country	Tier1	Tier2	PDI	Country	Tier1	Tier2	PDI
Indonesia	3	1	0.33	Ukraine	4	2	0.50
Ireland	3	1	0.33	United Kingdom	5	3	0.60
Israel	2	1	0.50	United States	4	4	1.00
Italy	4	3	0.75	Uruguay	3	1	0.33
Jamaica	2	2	1.00	Venezuela	4	3	0.75

Note. This index changed for only three countries between 2001 and 2012: Estonia in 2003, Switzerland in 2002, and Uruguay in 2010. Tier1 = number of tiers of government; Tiers2 = number of tiers of government with administrative/political control over the police; PDI = Police Decentralization Index (for 2001).
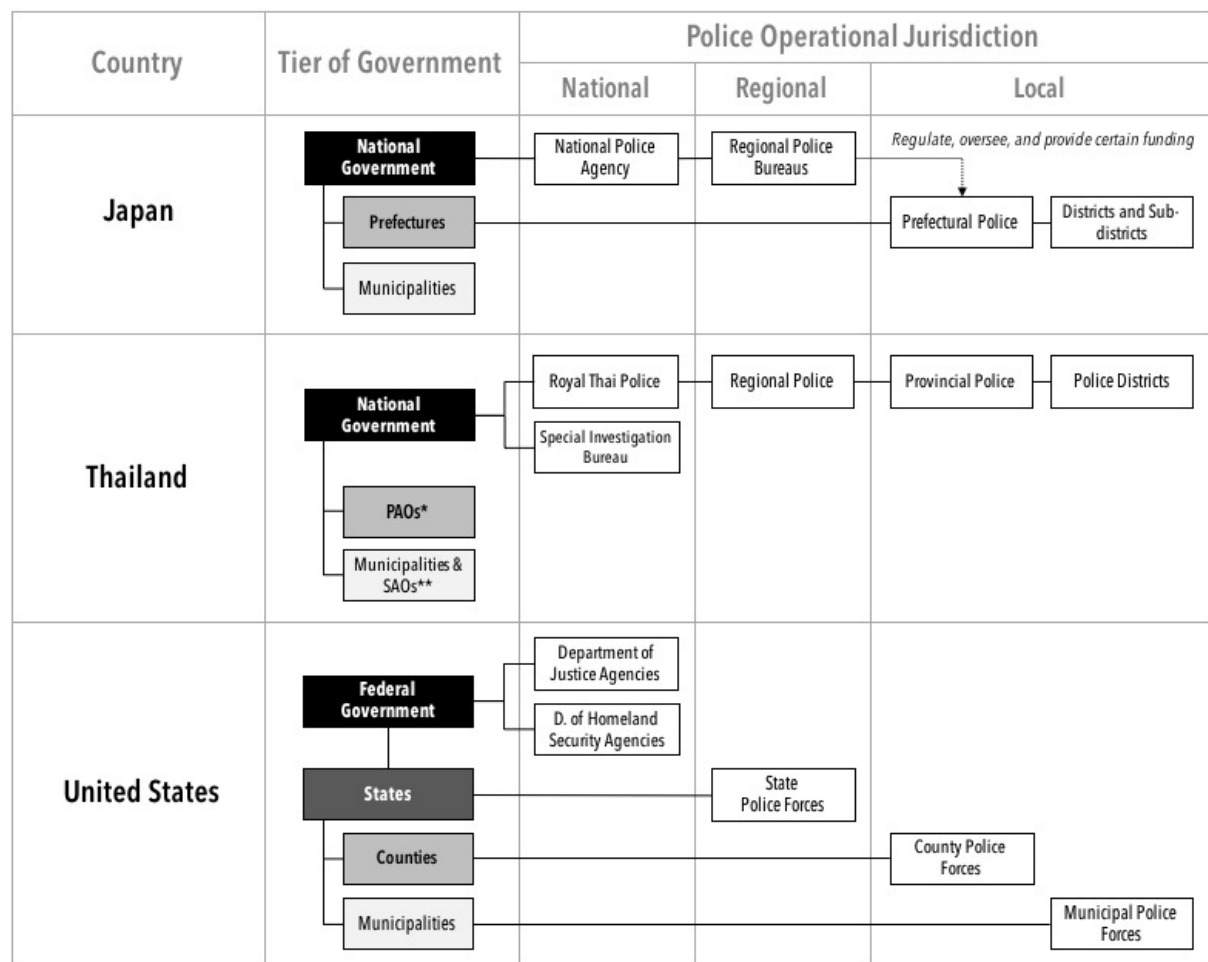

Figure 4 Police operation jurisdictions by tier of government in Japan, Thailand, and the United States. PAO = provincial administration organization and SAO = sub-district administration organization

Conclusions

This study fills in the gap in the literature by addressing the lack of standardized classification of police systems. We develop and propose a new typology of police systems, the Police Decentralization Index, that not only takes into account the literature of new institutionalism but also measures the varying degrees of police decentralization across countries. The index focuses on vertical decentralization of policing because, in countries with multiple tiers of government, police services might be provided exclusively by the national government or they may be the responsibility of the various tiers of government. 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 the use of fiscal control as a component of the index.

The Police Decentralization Index yields the following advantages:

First, the Police Decentralization Index measures varying degrees of police decentralization that denote differences among government and policing structures of countries around the world. Existing typologies do not account for that.

Second, the Police Decentralization Index is more conducive to empirical, comparative studies. The index allows for continuous data rather than categorical data or sets of binary variables. For example, if you are to employ Bayley's (1985) typology, you would need to create five binary variables, each for a type of police system (Table 3), that would reduce the degrees of freedom of your analysis. Likewise, the UNAFEI and Esparza typologies would need three and two binary variables, respectively. The Police Decentralization Index, thus, can be included simply as an explanatory variable when conducting cross-national, empirical analyses.

Third, the Police Decentralization Index conforms with existing typologies. When compared with Bayley's (1985) typology, the index appears to well match the classification: Bayley's centralized systems tend to have police decentralization indices not more than 0.50, decentralized ones 0.60 and above (Table 3).

Table 3 A Comparison between Bayley's (1985) Typology and the Police Decentralization Index*

Country	World Classification of Types of Police Structures (Bayley, 1985, p. 59)	Police Decentralization Index
Finland	Centralized, multiple, coordinated	0.33
Ireland	Centralized, single	0.33
Poland	Centralized, single	0.33
France	Centralized, multiple, coordinated	0.50
Israel	Centralized, single	0.50
India	Decentralized, multiple, coordinated	0.60
United Kingdom	Decentralized, multiple, coordinated	0.60
Belgium	Decentralized, multiple, uncoordinated	0.67
Japan	Decentralized, multiple, coordinated	0.67
Netherlands	Decentralized, multiple, coordinated	0.67
Germany	Decentralized, multiple, coordinated	0.75
Italy	Centralized, multiple, uncoordinated**	0.75
Canada	Decentralized, multiple, coordinated	0.80
Switzerland	Decentralized, multiple, uncoordinated	1.00
United States	Decentralized, multiple, uncoordinated	1.00

Note. *Sorted by Police Decentralization Index. **There were substantial changes in Italy's police system after 1986 which were not accounted in Bayley's 1985 book.

Now that we have an index that more accurately measures police decentralization, we can conduct empirical studies assessing the relationships between centralized and decentralized police systems and police performance indicators, such as crime rates and citizen trust. If cross-national fiscal data related to policing become available, a revision of the Police Decentralization Index would deem necessary. We believe that the creation of typologies such as this one helps us better understand the impact of policing structural arrangements on police behavior and performance.
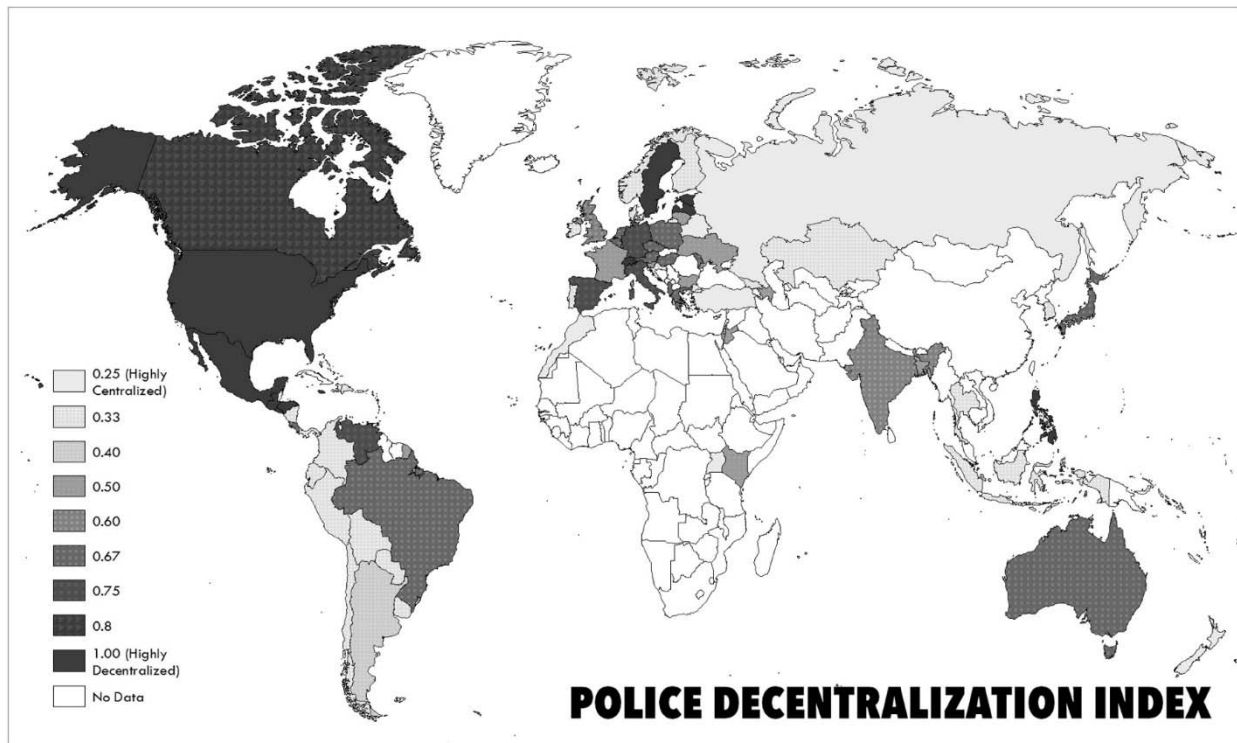
Figure 5   A world map exhibiting the varying degrees of police decentralization in selected countries for 2012

[1] 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).

[2] Thailand—as 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.

[3] The five countries are Lithuania, the Netherlands, the Philippines, Sweden, and Ukraine.

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