Ownership Choice, Contracts and Regulation:

Forestalling ownership irrelevance

A Law and Economics perspective

Eigendomskeuze, contracten en regulering:

Eigendomsirrelevantie nader bekeken

Een rechtseconomisch perspectief

Proefschrift ter verkrijging van de graad van doctor aan de
Erasmus Universiteit Rotterdam op gezag van
de rector magnificus
Prof.dr. R.C.M.E. Engels
en volgens besluit van het College voor Promoties

De openbare verdediging zal plaatsvinden op
donderdag 22 november 2018 om 11.30 uur
door

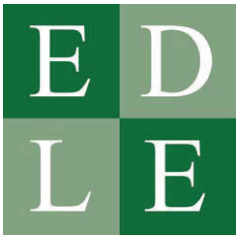
Ritchelle Jamodiong Alburo
geboren te Cabadbaran, Philippines

Erasmus University Rotterdam

Promotiecommissie

Promotoren:	Prof.dr. R. Orsini
	Prof.dr. R.J. Van den Bergh
Overige leden:	Prof.dr. N.J. Philipsen
	Prof.dr. L.A. Franzoni
	Prof.dr. E. Dijkgraaf

This thesis was written as part of the European Doctorate in Law and Economics programme



An international collaboration between the Universities of Bologna, Hamburg and Rotterdam.
As part of this programme, the thesis has been submitted to the Universities of Bologna, Hamburg and Rotterdam to obtain a doctoral degree.

CONTENTS

Figures and Tables

Acknowledgments

I would like to thank my supervisors, Prof. Roger Van den Bergh and Prof. Raimondello Orsini, for the helpful insights on how to approach the issue of privatization of water service delivery from a legal and economic standpoint. I also would like to thank the lecturers and fellow participants in the Russian Summer School on Institutional Analysis, particularly Prof. Marian Moszoro and Prof. John Nye for their highly valuable comments and suggestions. Lastly, many thanks to my family and friends who have kept me inspired and sane over the course of writing the dissertation. That being said, all inadequacies of the paper are mine.

Abbreviations and Acronyms

ADR	Appropriate Discount Rate
AEPA	Accelerated Extra-ordinary Price Adjustment
ADB	Asian Development Bank
AR	Average Revenue
BWSI	Balibago Waterworks System, Inc.
BWUI	Bohol Water Utilities, Inc.
BOT	Build-Operate-Transfer
CALABARZON	Calamba, Laguna, Batangas, Rizal and Quezon
CPC	Certificate of Public Convenience
COA	Commission on Audit
CA	Concession Agreement
CPI	Consumer Price Index
CIT	Corporate Income Tax
CL	Crystal Liquid
CSC	Civil Service Commission
DILG	Department of Interior and Local Government
EPA	Extra-ordinary Price Adjustment
FCDA	Foreign Currency Differential Adjustment
GOCC	Government Owned and Controlled Corporation
IBNET	International Benchmarking Network for Water and Sanitation Utilities
ICC	International Criminal Court
IFC	International Finance Corporation
LGC	Local Government Code
LCS	Labor Cost Share
LGU	Local Government Unit
LWUA	Local Water Utilities Administration
MDG	Millenium Development Goals
MLD	Million Liters per Day
MWSS	Metropolitan Waterworks and Sewerage System
MWSS-RO	Metropolitan Waterworks and Sewerage System- Regulatory Office
NEDA	National Economic Development Authority
NAWASA	National Waterworks and Sewerage Authority
NRW	Non-Revenue Water
NWRB	National Water Resources Board
OCR	Operating Cost Coverage Ratio
ODA	Official Development Assistance
OLS	Ordinary Least Square
OECD	Organization for Economic Cooperation and Development
PD	Presidential Decree
PCM	Per Cubic Meter
PPP	Public-Private Partnership
PSP	Private Sector Participation
PWS	Provincial Waterworks System
RA	Republic Act
RTC	Regional Trial Court
RCS	Residential Consumption Share

SC	Supreme Court
SWC	Subic Water Corporation
SWD	Subic Water District
TMC	Tawang Multi-purpose Cooperative
TWD	La Trinidad Water District
TWG	Technical Working Group
USAID	United States Aid for International Development
UOC	Unit Operating Cost
WB	World Bank
WD	Water District

OVERVIEW

With its impact on efficiency and welfare distribution, the relevance of ownership has unremittingly inspired and divided scholars and policymakers, especially in the heavily regulated water supply sector. Using the analytical tools of economics and legal concepts and doctrines, the study sets out to explicate the role of ownership in enhancing water service delivery in developing countries, particularly the Philippines. Concomitantly, I explore key contractual arrangements as an allocation of ownership rights and other contractual incentive devices and enforcement strategies to forestall the irrelevance of ownership.

Both theoretical and empirical studies yield inconclusive results on the relative desirability of private ownership and state ownership. Much of the intricacies in finding the optimal ownership structure in the water supply sector can be ascribed to the markedly high asset intensity of water supply systems, which makes long-term contracting efficient, albeit subject to contractual hazards as manifested by a high incidence of ex-post bargaining. With information, power and bargaining asymmetries and partially aligned goals, ex-post bargaining can be highly acrimonious, if not opportunistic. In developing countries, the bargaining asymmetries between the government and private operator/owner are wider and their goals are much less aligned, hence, the high likelihood of costly bargaining. About 75 percent of water concession contracts were renegotiated.[1] The renegotiation of the concession contracts often leads to the downscaling of performance targets, repudiation and termination of contracts.[2] Guasch et al. (2004) and Guasch et. al (2006) attributed the high incidence of renegotiation in developing countries to weak political and institutional support, noting the prevalence of renegotiation during elections and recessions. A concession-based privatization has shown to work in countries where the public sector has the competence and political commitment to provide the necessary infrastructure support to the reform process combined with a market that is sufficiently mature to attract potential investors.[3]

Intimating the intricacies of finding a suitable ownership structure, the ownership patterns in water supply sector have underdone intriguing shifts within and across countries, albeit it remains vastly state-owned. Approximately 90 per cent of (urban) water supply services in the world are

[1] See Guash, et al. (2004).
[2] See Guash, et al. (2004).
[3] See Trebilcock and Rosenstock (2013).

delivered by public water utilities, most of which are corporatized utilities.[4] In France, most water undertakings have been privately operated, but both ownership and responsibility of water remain within the public sector. In Germany and Italy, corporatization has been widespread, while a variety of ownership arrangements (*e.g., mixed companies, municipalities, private undertakings)* exist in Spain.[5] Private sector participation is relatively high in Latin America and Sub-Saharan Africa where privatization was aggressively promoted by international financial institutions in the 1990s. The disappointing outcomes of privatization *(i.e., limited improvement in service level and limited cost savings of privatization)*, however, prompted a reversion to state ownership, particularly corporatization in the developing world. Government ownership is averred to be back in vogue with the number of public enterprises growing since the 1990s.[6] Following the New Public Management (NPM) approach, state-owned utilities were reformed by adopting private operating principles that underpin the financial independence and efficiency of private corporations. The proponents of NPM believe that efficiency is a matter of managerial indoctrination and design of incentives (*e.g., gradual elimination of subsidies, separation of ownership, corporate oversight, and service provision, creating autonomous agencies, devolution of budgets and financial control and legal framework and transparency/disclosure*), dismissing, in effect, the necessity of shifting from public management to private ownership to modify performance incentives.[7]

A Review of Theoretical Underpinnings

From a bargaining perspective, the inconclusive empirical and theoretical findings on the relative efficiency of privatization and public management are not as confounding as they appear. Ownership is a policy choice and its implementation is continually shaped by bargaining dynamics between and among stakeholders (*e.g., politicians, bureaucrats, private operators and other stakeholders*) subject to myriad market, legal and social constraints. In this study, the author draws on several theoretical frameworks, namely, *the property rights theory, transaction cost economics, transaction cost politics, incomplete contracting, organizational theories, and political economy*, to account for the seeming irrelevance of ownership and the relative advantages and limitations of key ownership arrangements. There are two interlinked plausible explanations as to why a shift in ownership structure may not deliver the intended outcomes*: (i) the ownership*

[4] See Hall, et al. (2010).
[5] See Hall and Lobina (2008).
[6] See Mcdonald (2014).
[7] See Larbi (1999).

structure is not an incentive compatible-choice; and (ii) the choice of ownership is ill-motivated and poorly designed and implemented.[8] The property rights theorists view state-owned utilities as predisposed to inefficiencies on account of its insecure property rights spawning a bureaucracy that is overformalized and disabled by its own organization. Public ownership is thus depicted as an incompatible choice in situations that strongly demand efficiency and flexibility. Transaction cost politics, on the other hand, further elucidates the inferiority of publicly-owned firms based on the intensity of transaction cost owing to their susceptibility to the inherently inefficient workings of the political market, purporting that publicly-owned utilities are bound to be run according to the transaction cost-intensive political expediency rather than efficiency considerations.[9]

Within the paradigm of incomplete contracting, ownership of a productive asset affords the owner the possession of residual control rights over the asset, *i.e., the owner has the right to use the asset in any manner consistent with a prior contract, customs and other relevant laws*.[10] As modeled by Schmidt (1996), private ownership creates an inside information barrier to the government thereby limiting the scope for political interference. Subsidizing and squandering of profits is easier when the firm is state-owned than when it is privately-owned (Boycko et al., 1996). Likewise, a vote-maximizing government cannot credibly commit to the restructuring of a state-owned firm because it holds the residual property rights on the firm's assets. Private ownership thus serves as a commitment device for the government not to interfere in the operation of the utilities, reward the manager for a successful restructuring, and harden the budget constraint. Under excessive corruption, however, Hart, Shleifer and Vishny (1997) show that privatization and corporatization would not facilitate restructuring as the politician, deriving substantial political benefits from interference, would simply "buy" the ownership rights from the private and public managers to accommodate excess employment. But if corruption is a serious problem, Hart, Shleifer and Vishny (1997), maintain that privatization may be more socially inefficient than in-house provision, while the latter may be preferred when there is excessive political patronage. The suitable choice of ownership thus depends on the source of inefficiencies that must be constrained.

Assuming a more nuanced perspective on the relative efficiency (i.e., transaction cost-economizing effect) of public ownership and private ownership, the transaction cost economics

[8] See Barzel (1997) for the linkages between property rights views with those of transaction cost economics and incomplete contracting.
[9] See Williamson (1999).
[10] See Grossman and Hart (1986), and Barzel (1997) and Tirole (1999).

(e.g., Williamson, 1979 and 1999) posits that private ownership is well suited to some transactions and poorly suited to others as transactions differ in their attributes and ownership structures vary in their cost and competence as a mode of governance. To find the suitable ownership arrangement, Williamson (1999) points to the necessity of explicating the discrete structural attributes that define and distinguish public bureaus and organizations and are responsible for their powers and limitations. Dynamic and autonomous adaptation would be difficult to undertake under public ownership on account of its hierarchical structure, low-powered incentives (arising from extensive sharing of gains and losses) and administrative controls. The administrative controls and low-powered incentive structure of public ownership, however, would be well suited to transactions where functions are costly to delineate, output is hard to measure or simply unquantifiable, and efficiency requirement is low (*e.g., foreign affairs, the military and other sovereign transactions*). The exigency of cooperative adaptation in such transactional setting would be attained at relatively low transaction cost under a hierarchical structure with extensive administrative controls.[11] As with property rights theory, the high-powered incentives of private ownership, such as a concession arrangement would be suitable where there is a strong demand for efficiency, flexibility and innovation; otherwise, long-term public contracting can be cumbersome and convoluted engendering various types of contractual failures.[12]

The Coase theorem, one of the most celebrated propositions in law and economics, purports that when rights are well-defined and the cost of transacting is zero, the initial allocation of property rights set by the legal system would be irrelevant in the presence of an efficient pricing market. When the pricing market works costlessly, the relevant parties, in accordance with the notion of opportunity cost, would reach the optimal results by rearranging their entitlements via private bargaining.[13] Private bargaining, however, may be constrained by the disparity in the valuation of the property rights by the transacting parties. A resource may have attributes that are difficult to measure and, concomitantly, the rights over the resource cannot be costlessly delineated and apportioned as emphasized in incomplete contracting. This results in a positive transaction cost, succinctly described by Barzel (1997), as the cost associated with transfer, capture and protection of rights; *i.e., the cost of enforcing property rights*. When the attribute of an asset cannot be sufficiently contracted for, the value of an asset is maximized if it is assigned to the party that has the capacity to maximize its value. As a (residual) control rights holder, the owner/investor

[11] See Williamson (1999).
[12] See Vincent-Jones (2007).
[13] See Schlag (2013) for an illuminating discussion of the Coase theorem.

acquires bargaining and informational advantage over hard-contract-for gains of his investment allowing him to capture investment gains without having to engage in costly bargaining. Ownership therefore matters and private ownership is favored where a sizable investment and other hard-to-contract-for assets (*e.g., technical competence*) are involved.

Delving into the political economy of privatization, Bortolotti and Pinotti (2003) and Biais and Perotti (2002) detail the political incentives and motivation for privatization. The choice of ownership is shown to be predetermined and its design bungled rendering the outcomes indeterminate. Bortolotti and Pinotti (2003) purport that majoritarian' political systems, as opposed to 'consensual-corporatist' democracies, have greater incentive to privatize, because they are more competitive and able to drive down political rents, thereby, reducing the opposition to privatization decisions. Biais and Perotti (2002), on the other hand, aver that the right-wing politicians privatize in order to gain future support from the constituency of shareholders of newly privatized firms, while the left-wing parties can strategically make privatization decisions in order to win future elections, but with the aim of maximizing privatization revenues and using them to carry out redistributive policies.[14]

Approaches and Methods of the Study

To establish the merits and limitations of private ownership in enhancing water service delivery, I take a dynamic bargaining perspective anchored on the insights of transaction cost economics and politics, property rights and incomplete contracting and the results of my empirical investigation on the differences in the pricing, staffing and spending behavior of privately-owned utilities and public utilities in the Philippines. Building on these empirical findings and pertinent theories, I explore two governance strategies to forestall the irrelevance of an ownership shift to public contracting: *(i) a partnership contracting underpinned by a government-led cooperative behavior bound by the legal doctrine of commercial impracticability and a proper mix of transactional and relational elements in the design and enforcement of public-private partnership (PPP) contracts, particularly a concession arrangement ; and (ii) a two-tiered unified regulatory framework where all ownership types and their regulators are placed under a common regulatory oversight.*

[14] See Cavaliere, et. al (2015) for a thorough review of the privatization literature, especially on the political economy of privatization. See also Shleifer (1998) for a summary of the economists' arguments for and against privatization over the years.

The effectiveness of the two governance strategies is anchored on the right choice of ownership. Ownership is depicted in the study as the utility's control structure with its corresponding incentive properties which set the bargaining dynamics between the contracting parties. Nestling the bargaining process in a contractual relationship under sufficient private ownership brings the bargaining game into the open and spurs an exploration of an arsenal of ex-ante and ex-post incentive devices (*e.g., price regulatory method, equity structure, and regulatory institutions*) which can be adapted to the shifts in the transactional setting. These incentive devices would have limited enforceability under public ownership where gains and losses are extensively shared via a political bargaining process which is subdued and made opaque by a hierarchy of authority and rigid administrative controls. In a concession arrangement, the government and the private entity, under the governance of a contract and third-party enforcement mechanisms, engage in a bargaining process on an equal legal footing. Such bargaining process would have the effect of keeping in check the respective biases of the private operator and the government (*i.e., the private operator is inclined to rake in excessive profits to an extent that it blunts his incentive to be efficient and the regulator fixes water rates at below cost-recovery level undermining long-term financial sustainability*) thereby inducing the appropriate balancing of the parties' interests. The sizable potential efficiency and investment gains from an incentive-compatible concession arrangement are argued to incentivize the parties to engage in cooperative bargaining. The efficiency and investment gains are further boosted by a right mix of transactional and relational[15] elements in the design and implementation of ex-ante and ex-post incentive devices embodied in the contract. Relational contracting shuns arm's length, adversarial undertakings bound by procedural requirements and promotes ex-post risk allocation that may override contractual provisions. Full accommodation of relational norms, however, may not be totally feasible in public contracts involving essential services where a third party (i.e., consumers) stands to be prejudiced in the absence of carefully crafted contractual checks and balances. Public agents are restricted by standing orders as well as public accountability and probity constraints; hence, deviations or variations from the contract are generally disallowed.[16]

As an illustrative case study, I probe into the role of ownership in enhancing the performance of water utilities in the Philippines. The Philippine water supply sector is an interesting case in several respects. Corporatization in the 1980s and the subsequent privatization in the last two

[15] Relational norms are embodied in governance structures, such as partnering, alliance, joint venturing, long-term contracting, joint risk-sharing mechanisms and other collaborative working arrangements that promote mutual trust, interpersonal attachment and commitment to specific partners.

[16] See Palaneeswaran and Kumaraswamy (2000).

decades has been used as a key reform strategy to enhance water service delivery under a polycentric ownership regime and a fragmented regulatory structure *(i.e., public and private utilities have their respective regulators)*. The Philippines is bucking the global trend towards renationalization and corporatization of water services; it has been promoting private sector participation since the late 1980s. The promotion of private sector participation under a polycentric ownership regime dominated by public utilities provides a lush environment for analyzing the role and limitations of ownership structure in improving utility performance. Although the Philippines' Progress Report on the Millennium Development Goals (MDG) suggests that the country is on track to attain its MDG commitments, more than fifteen million Filipinos still do not have access to safe and reliable water supply services. The use of traditional ODA-dependent financing channeled through government lending institutions to provide financing for publicly-owned utilities has limited success in terms of expanding access to reasonably-priced water supply services.[17] This prompts the government to explore ambitious PPP arrangements involving substantial private capital investment. Private sector participation, however, remains limited, despite continued efforts of the government to promote it through the enactment of various laws and policies.

Key Contributions of the Study

The study attempts to table new perspectives on the fundamental differences between public and private ownership within the framework of contract as an allocation of ownership rights and the associated bargaining between transacting parties with a special focus on developing country context. While there exist voluminous studies on private contracting, there is a sparse body of literature delving into contracting between a private firm and the government. The benefits of contracting can be maximized and its hazards reduced by meeting the *private ownership suitability conditions* and a proper mix of transactional and relational elements in the choice of contractual techniques and incentive devices. This underpins the partnership approach to contracting which seeks to reconcile the ex-ante efficiency and investment incentive motive of transferring control rights to the private operator with the ex-post transaction cost-economizing motive (*i.e., cooperative adaptation*) in the long run. As a result, sufficient private ownership via a concession arrangement is averred in the study to be more desirable in the long run than it

[17] See Llanto (2013).

appears in the incomplete contracting and transaction cost literature. Contracting cost, especially the high incidence of costly renegotiation is often discussed in disjunction of structural bargaining deficiencies of public management which has shown to engender severe incentive problems making state-owned utilities difficult to regulate.

A partnership contracting propounded herein underscores the importance of contract law in minimizing the cost of enforcing incomplete contracts; it explores an optimal mix of relational and transactional norms in the application of the legal doctrine of commercial impracticability. Up until recently, relational norms which involves continuous engagement between the contracting parties lay at the fringes of regulatory law and economics. Over-reliance on the efficiency of the predetermined terms and conditions of the initial contract under the assumption that the contract is sufficiently complete portrays ex-post bargaining as a source of inefficiencies. Although the doctrine of impracticability has been invoked in a litany of cases, the problem of excuse for non-performance caused by the emergence of unbargained-for contingencies remains one of the vaguest, most difficult doctrinal concept areas of law and legal practice.[18] Likewise, incomplete contracting has been attacked for not having a modeling consensus similar to the one that developed around the moral hazard and adverse selection paradigms.[19]

The principle of impracticability permits ex-post negotiation of a contract that has become disproportionately burdensome to either party on account of the emergence of an equilibrium-distorting event, the non-occurrence of which constitutes the basic assumption of the contract. The application of the doctrine involves judicial or third-party inference on what the parties would have provided had they anticipated the event in question based on the terms and conditions of the initial contract.[20] The promisor's absolute liability is not diminished but merely made to account for implied conditions to preserve contractual balance. To restore the equilibrium and preserve its desired incentive structure, the doctrine of impracticability accommodates burden-sharing by contract adaptation, *i.e., excusing partial or non-performance*. The judicial defense of impracticability is hinged on the recognition that it is counterproductive *(i.e., it undermines incentives for efficiency, investment and cooperation)* to disregard equilibrium-distorting economic disruptions and political upheavals that render performance commercially impracticable.

[18] See Kovac (2011).
[19] See Tirole (1999).
[20] See Walter (2012).

The doctrine of impracticability has been invoked in a litany of cases. At the beginning of twentieth century, the test of impracticability was introduced in *Mineral Park Land v. Hoard*.[21] In Mineral Park, the promisor undertook to remove from the promisee's land all the gravel and earth necessary to comply with the requirements of the contract with the public authorities for the construction of a bridge. But after having removed half of the amount necessary for building the bridge, the promisor abandoned the site and obtained the remaining gravel from another source. The promisee filed an action for damages, alleging that there remained enough gravel to fulfill the contract. But the promisor contended that his performance should be excused as the remaining gravel was underwater and the cost of dredging and drying the underwater gravel was about ten to twelve times the expense of obtaining the same gravel above ground from another source. The court ruled in favor of the promisor on the ground that the definition of "available" gravel applied to that gravel which could be obtained in a practical and reasonable way. The disparity in the expenses of obtaining gravel from the prescribed source and the alternate source is deemed sufficiently large to excuse the promisor from liability for non-performance. Another insightful case on the application of the doctrine of impracticability is the case of *Republic of the Philippines v. Luzon Stevedoring Corporation*. In said case, the appellant sought to be excused from paying damages for the collision of its barge with the piers of the Nagtahan bridge on the ground that it was caused by a fortuitous event, *i.e., a typhoon*. As held by the Court, however, the Nagtahan bridge was an immovable and stationary object and provided with adequate openings for the passage of water craft, including barges like that of appellant's, the collision with the bridge support thus raises the presumption of negligence on the part of the appellant or its employees manning the barge or the tugs that towed it. The appellant, Luzon Stevedoring Corporation, knowing and appreciating the perils posed by the swollen stream and its swift current, voluntarily entered into a situation involving obvious danger; it therefore assumed the risk, and cannot evade responsibility merely because the precautions it adopted turned out to be insufficient.

In this study, I endeavor to further explore the wisdom of the doctrine of impracticability and provide a framework for its application in an incomplete long-term water concession contract in developing countries. Focusing on the influence of ownership and contractual arrangement on the incentives for efficiency, investment and cooperative adaptation, I utilize the concept of the English doctrine of frustration of purpose to determine when the contract may be adjusted and when it should be terminated. The English doctrine of frustration of purpose is a more liberal way

[21] See Walter (2012).

of interpreting the doctrine of impracticability relative to the American jurisprudence, which requires an ascertainment of whether the parties intended to be bound by the contract despite the fundamental change in circumstances as exemplified by the ruling of the court in *Republic of the Philippines v. Luzon Stevedoring Corporation*.[22] In the landmark case of *Paradine v. Jane*, the promisor was freed from his contractual obligation on the ground that the performance of the contract relies on the continued existence of a particular chattel and this chattel was accidentally destroyed, while in the widely cited coronation case of *Krell v. Henry*, the Court held that further performance, *i.e., the payment of the balance*, was excused as the coronation, which was the *raison d'etre* of entering into a contract of leasing the rooms with a view of the King's processional route, was canceled due to the illness of the King.

Within the framework of a partnership contracting, I attempt to show how the legal doctrine of impracticability can effectively govern incomplete long-term contracts. Anchored on the optimal choice of ownership, a partnership-based application of the doctrine of impracticability is shown to reduce the threat of double-sided opportunism and preserve the incentive for efficiency, investment and cooperation *(i.e., public authorities setting unfair regulatory policies, depriving the private operator of reasonable rent, and private operator exploiting his informational and bargaining advantage to rake in excessive profits)*. Cooperation is thus depicted herein as a product of formal (*i.e., enforcement of express contractual provisions and application of legal doctrine of commercial impracticability and arbitral institutions*) and informal (*i.e., good faith and constructive negotiation and liberal interpretation of contractual provisions)* and legal and non-legal influences with the threats of litigation depicted to be not necessarily antithetical to relational norms.

To further govern the design and enforcement of different ownership structures, I argue for the aptness of a two-tiered regulatory set-up whereby the special regulators are placed under a common regulatory oversight that is vested with well-defined adjudicative and policymaking powers. In effect, I have made a refocusing of the role of a regulatory agency, making it a regulatory oversight with well-targeted adjudicative and policy-making functions over ownership and regulatory conflicts. A regulatory oversight is shown to hold far greater relevance in a polycentric ownership regime, especially in developing countries where the set of ownership choices is constrained by market and political biases against private sector participation thus

[22] See Walter (2012) and Kovac (2011).

requiring proper adjudication of ownership shifts and regulatory conflicts. By promoting strategic and fair competition between different ownership types and regulators via adjudication, a regulatory oversight is envisioned to promote efficient ownership choices and facilitate proper design of ex-ante and ex-post incentive devices *(i.e., regulatory principles and procedures and financing scheme of utilities)*.

Structure of the Study

The dissertation is organized into three key chapters. Chapter 1 motivates the analysis of the relevance of ownership structure through an empirical investigation *(i.e., regression analysis and case studies)* on systematic differences in the pricing, staffing, spending behavior of publicly-owned utilities and private utilities. Chapter 2 endeavors to account for the gaps in the intended and actual behavior of the three ownership types by delving into the institutional details of each ownership arrangement and regulatory framework, and explore the relevance of a regulatory oversight within a two-tiered regulatory structure in promoting proper functioning of all ownership types. Chapter 3 discusses a partnership approach to contracting and the key ex-ante and ex-post incentive devices to realize the gains from public contracting. The study concludes with the role and limitations of private ownership in enhancing service delivery and potential areas for further research.

CHAPTER 1

Allocation of Control Rights and Water Utility Behavior:
An Empirical Evidence from the Philippines

Abstract

The disappointing outcomes of privatization in the water supply sector in developing countries have ushered in a shift in policy preference towards the introduction of private sector operating principles to publicly-owned utilities via corporatization. The policy refocusing towards commercialization of utilities sans sufficient private ownership, however, has feeble theoretical and empirical support. Using econometric tests and case studies, I set out to exploit the polycentric ownership regime of the water supply sector in the Philippines to find systematic differences in the pricing, staffing and spending behavior of three key ownership types *(i.e., local government-run utilities, corporatized water districts, and private utilities)* and elucidate the influence of ownership as an allocation of control rights on utility behavior. Of principal interest is whether efficiency and equity motives are better achieved through regulation under sufficient private ownership or via corporatization under public ownership.

Key words: privatization; corporatization; ownership; control; regulation; regulated industries; new public management; water utilities; water service coverage, non-revenue water

JEL Classification: K23; M52; L11; L25; L32; L33;

1. Introduction

Water supply services have traditionally been provided by state-owned monolithic organization. During the 1980s, however, a new paradigm called New Public Management (NPM) gained popularity whereby utilities are transformed into professional service delivery organizations via corporatization (Baietti, et al., 2006). By shifting crucial decision rights from politicians to independent public managers, corporatization is argued to help limit redistributive political interference and enhance efficiency incentives, while still providing adequate scope for public scrutiny. Corporatized utilities adopt an entrepreneurial orientation towards management and other corporate governance principles to promote transparency, flexibility and accountability. The NPM, in effect, abstracted away from the relevance of ownership structure, *i.e.,* it purports that it is the adoption of a corporate approach and not a shift to private ownership that matters. Through the lens of NPM, public ownership and private ownership are not fundamentally different; they can be subject to a set of rules and organized according to the same principles (Rainey and Bozeman, 2002).

Economic theories, however, are less sanguine about the adoption of private sector operating principles sans an ownership shift on account of complex agency relationship inherent in any hybrid ownership arrangement. For many economic scholars, political interference is intrinsically inefficient that a soft reallocation of control rights via corporatization would fail to meaningfully alter the control and incentive structure of utilities; it may even undermine transparency and accountability due to complex agency relations. Instead of transplanting private sector operating principles to publicly-owned utilities to serve efficiency and equity motives, economists propound variants of private ownership *(i.e., concession arrangement and institutional public-private ownership, such as joint ventures*). This begs for an empirical investigation of whether imposing public purposes on private corporations via contractual techniques and other incentive devices is more effective in enhancing service delivery than the transfer of management techniques of private corporations to public utilities.

Empirically, several case studies have shown positive impact of corporatization on the performance of utilities. One of the key findings is that political will crucially matters, *i.e., soft reallocation of control rights would suffice when political interference is constrained* (Lobina and Hall, 2014). In this regard, the Philippine water supply sector would be an interesting illustrative case study. The Philippines was one of those countries that ventured to corporatize water utilities through a water district model in the late 1970s. After almost four decades of being the dominant ownership arrangement, especially in urban areas, however, a significant segment of the population has remained unserved or underserved. In view of the disappointing outcomes of corporatization, there has been a proposal to privatize water districts, while local government unit (LGU)-run utilities are given more financial and technical support to professionalize service delivery. The policy environment in the last six years has been marked by an increasing policy bias against corporatized public utilities and towards private utilities and LGU-run utilities. Notably, the policy drift towards private sector participation in the Philippine water supply sector contrasts with the global trend towards corporatization. There has been an increase in the overall number of public enterprises around the world as more governments opt to take back control of services previously sold or contracted out to the private sector (McDonald, 2014).

In this article, I probe into the relative effectiveness of corporatization vis-à-vis sufficient private ownership in improving service delivery using economic tests and case studies. Taking advantage of the polycentric ownership regime of the Philippines and shifts in ownership of a few local utilities, I empirically investigate systematic differences in the pricing, staffing and spending behavior of three ownership types, namely, *LGU-run utilities, corporatized water districts and private utilities*. Most of the questions addressed in this article have been dealt with separately in various policy and academic studies using different methodologies with a different motivation and focus. Since the 1970s, the performance evaluation of water utilities has been carried out using several key performance indicators *(e.g., scorecards as in Tynan and Kingdom, 2002; financial ratios, Guerrini et al., 2011; non-parametric methods like data envelopment analysis as in Thanassoulis, 2000 and Marques et al. 2011; and parametric methods like regression analysis as in Zschille and Walter, 2012).* Single dimension indicators are intuitive and easy to compute, but they are susceptible to some misinterpretation as they do not cover all relevant inputs, outputs, and explanatory factors

that influence the performance of decision-making units.[22] Both parametric and non-parametric methods have been used to study the influence of ownership focusing on efficiency. The results of these studies, however, waded through the difficulties of controlling for concurrent policy reforms (*e.g., market liberalization and regulatory reforms*) that would have an influence on the effectiveness of ownership shifts. Given data constraints and the policy drive of the article, I employ basic multiple linear regression analysis and case studies to find systematic differences in the behavior of the LGU-run utilities, water districts and private utilities. The performance of LGU-run utilities, water districts and private utilities has been assessed in various studies conducted by the World Bank and local research institutions *(e.g., Water and Sanitation Program 2005 and 2009).* Most of these studies are case studies using financial indicators and the findings have consistently been in favor of private utilities. Compared with existing studies on the water utilities in the Philippines, the article examines various dimensions of the pricing, spending and staffing attributes of the utilities to help identify specific policy interventions.

Given the limited sample size and issues relating to data reliability and selection bias, the policy insights drawn from the results and findings assume an indicative standpoint rather than a directive one. At the very least, the article serves as a motivation for deeper analysis of the institutional details of each ownership type to gain better perspectives on the functioning of different ownership types, especially in water supply services. The rest of the paper is organized as follows. The first section presents the theoretical underpinnings of the influence of ownership on utility behavior and the institutional details of the three ownership structures of water utilities in the Philippines. The second section discusses the methodological approach of the paper, while the third section presents the key results and findings of econometric tests and case studies. The study concludes with the policy implications of the findings.

2. Theoretical Background and Institutional Context

2.1. Theoretical background. The study empirically tests the influence of ownership on utility behavior and performance. Ownership is defined herein in terms of control and decision-making

[22] See Ferreira, et al. (2014).

structures having their respective incentive properties. As purported by organizational theorists (e.g., Savas, 1982; Zald, 1978; Dahl and Lindblom, 1953), private ownership and public ownership are fundamental decision systems which represent modes of social control. Under private ownership, social control is exercised through relatively decentralized, autonomous organizational forms between buyers and sellers in economic exchanges who have less organized intent to control the trade and whose decision choices are largely driven by economic considerations.[23] Public organizations, on the other hand, operate within the bounds of politically constituted hierarchy or *polyarchy*. State-owned utilities are vastly subject to pressure from non-governmental political actors and interest groups exerted mainly through elected government officials (*e.g., groups lobbying city chief executives to intervene in a decision made by a bureau*). The fundamental differences between market and polyarchic controls are evinced in the organization's rules for establishment and termination, mission and goals, geographical sphere of operations, major technologies and operating procedures *(e.g., personnel systems and top executive appointments, purchasing/procurement systems, and budgeting/financial systems)*.

Defining ownership in terms of funding sources, economists have analyzed the incentive effects of ownership on private managers and public managers based on the resulting exposure of the agents to political and market risks and incentives. Political and market institutions, however, are not static and homogeneous; public managers could have disparate levels of exposure to market and political risks; they may have different responses to various types of commercial and political risks and incentives depending on a suite of institutional constraints. Politicians and civil servants may be imperfect welfare maximizers, but this does not preclude englightened policy interventions. Ascertaining the desirability of an ownership structure would therefore require a thorough comparative institutional analysis with a heavy micro-analytic dose of the characteristics of markets and polyarchies. The economic theories and organization literature provide instructive insights on the merits and drawbacks of different ownership structures.

Public Ownership. Property rights theorists (e.g., Alchian and Demsetz, 1972; and Demsetz, 1967) attribute the differences in the performance and behavior of public and private utilities to the ease of transferability of ownership and extent of risk-sharing. Unlike privately-owned utilities where

[23] See Perry and Rainey (1988) for a detailed review of organizational theories.

owners can easily sell their equity shares if they are not satisfied with the performance of the manager, the transfer of public ownership via the political market (*e.g., electoral process*) is much less straightforward. In the private sector, management constitutes a productive input of which value is determined in largely efficiency-driven economic exchanges. Among public organizations, the distribution of managerial ability is weakly correlated with the economic value of managerial input on account of multiple public policy goals and extensive external influence; hence, the inferiority of public entities in terms of efficiency. In the principal-agent literature, public ownership is considered inferior on account of the lack of profit motive. As succinctly explained by Hart, Shleifer and Vishny (1997), the private manager-owner can be a residual claimant for his own cost savings, but the public sector manager cannot; hence, the low-powered incentive for cost minimization of the latter. In Haskel's and Szymanski's (1993) bargaining model, employees of public organizations tend to enjoy higher salary than their private counterparts as public employees capture more of the internal rent. As social welfare maximizers, public firms do not demand as much from their employees in terms of effort as private firms whose survival critically depends on efficiency. In Scandinavia, for instance, public sector agreements are more generous than those negotiated in the private sector.

The susceptibility to external influence and accommodation of multiple objectives of public organizations are not necessarily undesirable (*e.g., where the goals are highly interlinked it would be efficient to jointly pursue them as the case is with water service provision in rural areas where water utilities is an important source of employment*; *and there exists a sufficiently efficient political market)* unless the political market is highly inefficient as posited by public choice theorists (e.g., James Buchanan, Gordon Tullock, William Niskanen, and Mancur Olson). The accommodation of various interests would lead to highly inferior trade-offs between goals. Although politicians may promise to keep prices at highly affordable rates, they rarely back those promises with sufficient funding (Berg, 2013). As a result, excessive political involvement in utility operations often leads to underinvestment and huge efficiency losses. Under-investment in network maintenance results in more service interruptions, making consumers less willing to pay for the service.

The adverse impact of an inefficient political market on the functioning of state utilities is magnified in water supply sector on account of the long life span, high capital intensity and

invisibility of water infrastructure. These characteristics of water supply systems reinforce the political bias towards short-term objectives (*e.g., hiring many or transitory staff and below-cost pricing)* at the expense of long-term goals (*e.g., network expansion and reduced water distribution losses*) (Baietti, 2006). The long life span and invisibility of water infrastructure makes it expedient for politicians to scrimp on network maintenance and rehabilitation and accommodate below-cost pricing and overstaffing, which yield immediate and tangible political benefits.

Public Regulation. To overcome the incentive problems of public ownership, water service delivery is taken out of administrative hierarchies by transferring virtually all control rights *(i.e., investment, management and operational rights)* to the private sector subject to external regulation. Given limited competition in water supply sector, external regulation is aimed at inducing profit-maximizing private utilities to keep prices in line with cost (Berg and Tschirhart, 1988). Although regulated private utilities are also subject to governmental authority (*i.e., a framework of laws, chartering provisions, regulations*) and external pressures, (*e.g., from industry associations, consumer groups, professional associations*), the influence of these actors are amply restrained. With public regulation, public control is exercised through regulatory contracts and institutions. But while shifting the control rights to the private sector may limit inefficient political interference, it lays the transaction bare to costly regulatory bargaining. When regulatory capacity is weak, the regulatory bargaining may inefficiently benefit the private operator. Drawing on the capture and interest group theory, however, the problem of regulatory capture can be moderated by the presence of a contending force, such as a powerful consumer group (Tullock, 1993; Peltzman, 1976; and Stigler, 1971). In the case of water supply sector, the chronic underpricing may constrain private operator from exploiting his monopoly position, (*i.e., charging water rates that are not commensurate with service level and the consumers' willingness and ability to pay)*.

Corporatization. Corporatization seeks to minimize the cost of adversarial regulatory bargaining while precluding excessive political interference. To insulate the utility from external influence and induce efficiency, corporatized utilities are granted a separate juridical identity and financial autonomy; they are run based on corporate governance principles *(i.e., gradual elimination of subsidies; prioritizing financial sustainability and performance-based salary schemes; separation of ownership, corporate oversight and service provision; selection and appointment of board of directors;*

performance orientation; and legal framework and transparency/disclosure) as put forth by NPM (Eisendrath 2012; Andrés, Guasch and Azumendi, 2011). To further reduce external influence (i.*e., multiple governmental authorities, interest groups and other political actors*), the NPM approach is sometimes combined with the bureaucratic model, *i.e., pre-eminence of rules, employment of civil servants with civil service careers in public administration* (Schwartz, 2006; Guasch et al., 2010).

But while corporatization is designed to overcome the drawbacks of administrative hierarchies, the adoption of the management structure of private organization without sufficient private ownership may complicate the governance process. The adoption of commercial principles (*e.g., cost-recovery and performance-based compensation*) may not induce efficient utility behavior without sufficient private ownership owing to the problem of credible commitment. The social welfare maximizing state cannot credibly commit to faithfully implement the private sector operating principles, particularly the hardening of the budget constraint and full operational independence as the welfare of employees and the water users and other stakeholders carries a disproportionately large weight in public authorities' utility function (Dewatripont and Roland, 1999). The proper functioning of corporatized utilities is also hampered by enforcement problems brought by complex agency relations *(i.e., board of directors, regulators, and other government agencies)*. Incentives for effective regulation are likewise diminished as corporatization distorts the balance of risks and rewards; it accommodates profit motive without political and financial risks making public managers much less constrained than private managers to engage in rent-sharing with political authorities.

2.2. The Institutional Context. With varied schemes of corporatization and privatization across countries, it is imperative to discuss the key institutional features of the three ownership types of water utilities in the Philippines to explicate the differences and similarities of the findings of the study with those of other studies. Under the Local Government Code of 1991, the local government units have the responsibility of providing potable water services with an option to directly operate its own utility through its municipal engineering or city administration department or delegate it to a water district or a private utility.

LGU-run utilities. LGU-run utilities exemplify the archetypical municipal waterworks departments found in many countries (Braadbaart, Blockland and Schwartz, 1999). LGU-operated utilities are owned, managed and operated by local government units. The elected officials via the *Sangguniang Bayan*, which is the local legislative body, oversees the performance of LGU-run utilities. LGU-run utilities are heavily subsidized. The operating expenditures of LGU-run utilities are partially drawn from tariff revenues, while funding for capital improvements are obtained from the budget of the municipal government or sourced from loans obtained by the LGU from government and multilateral financing institutions. With limited resources of local governments, LGU-run utilities are operated alongside other economic enterprises such as markets, bus terminals, and slaughterhouses and compete for financial resources with these enterprises (WSP, 2008).

Water districts. Water districts are "statutory body" organizations that are granted corporate powers and an *exclusive franchise* to operate a water supply system in a province, or one or several cities and municipalities. Presidential Decree 198 enacted in 1973 provides for the establishment, operation and dissolution of water districts. Water districts are formed through a resolution issued by the local legislative body and approved by the local chief executive with final approval from the Local LWUA. Upon approval of the resolution, the LWUA issues a Conditional Certificate of Conformance (CCC) which entitles the water district to LWUA's comprehensive assistance programs. The corporatization of the utilities via a water district model primarily aims to develop self-sustaining utilities. The LWUA requires the water rates of water districts to be sufficiently high to cover annual operating expenses, the maintenance and repairs of the works and a reasonable surplus for replacement, extension, and improvements and payment of interest and principal. Water districts must also provide sinking fund for the payment of debts as they become due as well as fund for reasonable reserves. To further enable water districts to achieve financial sustainability, LWUA also sets operating standards *(e.g., quality of construction materials, staff size and personnel training).*

The water district has a board of directors which exercises policy making powers, while the manager of the district is granted autonomy over the operation of the utility, including the hiring and firing of employees. In 1991, the Supreme Court declared water district as a government-

owned and controlled corporation (GOCC) of which board members, management and staff are subject to civil service rules, government compensation policies, and auditing rules. As provided in Section 45 of PD 198, as amended by Sec. 19, PD 768, a water district may be dissolved by resolution of its board of directors on the condition that another public authority has acquired the assets of the district and has assumed all its obligations and liabilities with the consent of the creditors and that a court of competent jurisdiction has found said dissolution to be in the best interest of the public.

Privately-operated utilities. Privately operated utilities cover all privately-owned utilities as well as state-owned water utilities that are currently being managed by a private operator under various public-private partnership schemes. Two of these systems, *Maynilad and Manila Water*, are in Metro Manila; the two largest water service providers have been operated under a concession agreement since 1997. The three other private utilities operate as public-private joint ventures in Tagbilaran, Subic Bay and Clark area in Pampanga (WSP, 2008). Private water utilities are regulated by the National Water Resources Board (NWRB) which sets essentially the same principles for setting tariffs as LWUA's (*i.e., a block tariff system to service equity goals)*. All private utilities are required to secure a certificate of public convenience (CPC) from the NWRB before they can operate and maintain waterworks system. Documentary requirements for securing CPC include a list of existing assets and actual financial statement and balance sheet for water operations and projected financial statements for five years, including a proposed tariff schedule. The CPC can be renewed every five years provided the utility complies with the rules and regulations of the NWRB.

3. Methodology

To explore the influence of ownership on water utility behavior and performance, I investigate systematic differences in the pricing, staffing and spending behavior of LGU-run utilities, water districts and private utilities using two simple methods: (i) regression analysis, *i.e., ordinary least square (OLS) estimation*; and (ii) case studies. The case studies are conducted to further validate the regression results and explore various aspects of the market and ownership structure.

3.1. Data Description. The data used in the econometric tests are drawn from the database of the International Benchmarking Network for Water and Sanitation (IBNET). The quality of IBNET database depends on the quality of the data submitted by the utilities. To ensure that the data sufficiently reflect the reporter's performance, IBNET subjects the data to data checking procedures; albeit data accuracy cannot be guaranteed. The data are essentially financial ratios and accounting data used as performance indicators for benchmarking purposes. The utilities used for OLS estimation include seven LGU-run utilities; six private utilities (*two large private operators serving Metro Manila under a concession agreement; two private utilities with mixed financing; and two fully privately-owned water utilities*); and 20 water districts covering periods 2003, 2004, 2008 and 2009.

For the case studies, the data were obtained from the financial reports submitted by the utilities to the regulatory agencies, except for one LGU-run utility which were directly provided by the utility to the author. The financial reports underwent checking procedures by the regulatory agencies and/or audited by the Commission on Audit. The utilities included in the case studies are two LGU-run utilities, eight private utilities, and nine water districts. The utilities are divided into three size categories, namely, small, medium-sized and large, to control for the size effect. Except for one private water utility and one LGU-run utility, the water utilities selected in the case studies are located in four provinces: *Pampanga, Batangas, Laguna and Bulacan*. They are among the most progressive provinces that are closest to the capital of the country where the regulatory agencies are headquartered. Batangas and Laguna are neighboring provinces which form part of the CALABARZON[24]. *Pampanga and Bulacan*, on the other hand, are both in the north of Manila. As these water utilities operate in geographically proximate provinces, they share similar operating environment, *i.e.*, *comparable water production cost*, thus allowing the author to focus on the management aspect of the water utilities.

3.2. Ordinary Least Square Estimation. Using Ordinary Least Square (OLS) method, I test for systematic differences in *pricing (including profit orientation and cost efficiency), staffing and spending behavior* of LGU-run utilities, water districts and private utilities.

[24]CALABARZON is a region composed of first-class five provinces, namely Cavite, Laguna, Batangas, Rizal and Quezon.

3.2.1. Key Aspects of Utility Performance. As a general assessment of the relative efficiency of pricing, staffing and spending behavior of LGU-run utilities, water districts and private utilities, I investigate how key aspects of the behavior of the three ownership arrangements correlate with their performance in service coverage and non-revenue water by regressing to performance indicators, *service coverage (WC) and non-revenue water (NRW),* on five measures of utility behavior: *average revenue (AR); operating cost coverage ratio (OCCR); unit operating cost (UOC); staff productivity (Staff); and labor cost share (LCS)*: $WC_i, NRW_i, = \beta_0 + \beta_{wd}O_{wdi} + \beta_{pr}O_{pri} + \beta_k X_{ki} + \beta_n C_{ni} + \varepsilon_i$, where: *O* refers to ownership; *X* to the five behavioral variables of interest; and *C* to control variables; *k* and *n* are the number of coefficients of the behavioral and control variables, respectively; *i* the utilities included in the sample, subscripts *wd* and *pri* refer to water district and private utility, respectively; LGU-run utilities are used as the base ownership.

Control variables include utility size measured by the number of connections (*Conn*) and market conditions proxied for by average monthly water consumption *(WCon)* and residential consumption share *(RCS).* These control variables affect utility performance and bear strong association with the ownership type of the utility *(i.e., private utilities operate in relatively favorable markets and LGU-run utilities are comparably small).* Utility size is an important control variable as there are substantial economies of scale in water supply services. Large water systems, measured in terms of number of connections, can produce, treat, and deliver water at lower unit cost due to economies in the use of labor and raw water supply, water treatment and financial and operating services (US National Research Council, 2002). Water systems, however, may also exhibit diseconomies of scale in the transmission and distribution of water as it is heavy and incompressible. But while water transported farther from the source and treatment facilities requires additional pumping facilities, long-distance transmission of water becomes more economical when water availability and water quality are considered. The impact of utility size on water rates would therefore depend on whether scale economies in the use of resources dominates the diseconomies of scale in water distribution. On the other hand, favorable market conditions do not necessarily discourage illegal water connections *(i.e., industrial users may have better means of engaging in water theft)* making its impact on non-revenue water indeterminate.

Service coverage. Service coverage is the percentage of the total population under the utility's nominal responsibility with access to water services either through direct service connection or within reach of a public water point. Irrespective of ownership type, an increase in average revenue of an efficiently managed utility, holding other relevant variables constant, is likely to expand service coverage. A negative association between average revenue and service coverage may indicate cost inefficiencies and/or excessive profit orientation. The service coverage of efficiently managed water utilities also tends to increase when staff productivity improves and spending bias towards personnel expenses as indicated by labor cost share is reduced. The sign and strength of influence of behavioral variables on service coverage hint at the level of efficiency of the utilities. With its performance-driven control structure as discussed in Section 2.1, private utilities are likely to exhibit efficient pricing, staffing and spending behavior than water districts and LGU-run utilities, *i.e., service coverage of the same is likely to respond strongly and positively to any increase in average revenue and staff productivity and a reduction in labor cost share*. With the introduction of corporate governance principles, water district are less vulnerable than LGU-run utilities to inefficient political interference, but pricing, spending and staffing behavior of the former may not be more efficient than the latter due to complex agency relationship and distorted incentive structure arising from accommodation of profit motive sans the corresponding regulatory and market risks as detailed in Section 2.1.

Non-revenue water. Non-revenue water refers to water that has been produced and is "lost" before it reaches the customers due to leaks, illegal connections, faulty meters and under-billing. Non-revenue water tends to increase as distribution systems age, especially if not properly maintained.[25] Urban systems lose 10 to 15 percent water from distribution systems but in geographically unstable areas losses could be as high as 50 percent.[26] Part of this "lost" water can be recovered by appropriate technical and managerial actions, such as the adoption of new technologies for leaks detection and community involvement to fight water theft. Water management can also compensate leaks in the short run by increasing the pressure or the amount of water input albeit increasing variable cost. Low NRW figure is an indication of managerial efficiency. Reducing non-revenue water can contribute to meeting unsatisfied water demand

[25] See US National Research Council (2002)
[26] See van den Bergh and A. Danilenko (n.d.)

which in turn reduces the required future capital expenditures to expand service coverage. An efficiently managed utility would have low NRW when unit operating cost, water rates and operating cost coverage ratio are high and labor cost share is low, *ceteris paribus*. As with service coverage, such efficient association between non-revenue and behavioral variables is more likely to be exhibited by private utilities than state-owned utilities.

3.2.2. Water Utility Behavior. To further elucidate the relative efficiency of three ownership types, I make further investigation on their spending, staffing and pricing behavior by estimating their association with pertinent variables.

3.2.2.1. Pricing and Profit Orientation. Water rates reflect demand and cost conditions and profit orientation of water utilities. The extent to which price responds to demand and cost circumstances may vary as a result of differences in ownership structure and associated regulatory policies of the utilities as discussed in Section 2.1. To find systematic differences in the pricing behavior and profit orientation of the three ownership types, I regress *average tariff* and *operating cost coverage ratio* on ownership type and demand and cost variables controlling for utility size: $AR_i, OCR_i, = \beta_0 + \beta_{wd} O_{wdi} + \beta_{pr} O_{pri} + \beta_k X_{ki} + \beta_n C_{ni} + \varepsilon_i$

<u>*Average Revenue.*</u> The Philippines adopts a rising block tariff system whereby residential users pay less than commercial users and higher water consumption level is charged more. As tariffs vary across consumer categories, the average revenue (*i.e., total water revenues divided by water consumption or revenue per unit of water sold*) is used to approximate the average tariff paid by water users. Under a rising tariff block system, the average revenue increases when average monthly consumption *(WCon)* increases and residential consumption share (RCS) decreases, assuming that residential units have lower consumption than commercial users. Unlike private utilities and water districts which are prescribed to adopt a rising tariff block system, LGU-run utilities are at liberty to set their own pricing scheme. As a result, the ownership dummies capture the relative effectiveness of the implementation of the rising tariff block system among private utilities vis-à-vis water districts and dissimilarity of the pricing orientation of LGU-run utilities.

Although all ownership types have to overcome historic underpricing, which compels utilities to avoid or postpone the cost of maintaining a reliable water supply system, LGU-run utilities are highly susceptible

to political pressure to lower prices on account of their ownership structure. With excessive political interference, corporatization may not adequately insulate utilities from inefficient political interference and may even engender perverse incentive effects (i.e., excessive spending incited by the virtual absence of commercial risks and strong profit orientation may result in high tariffs). Effective insulation from political interference on account of assignment of crucial control rights to private entities and increased enforceability of external regulation lead to efficient pricing patterns among private utilities.

Operating Cost Coverage Ratio. To further assess the profit orientation of water utilities, I probe into systematic differences in the operating cost coverage ratio of the utilities. Operating cost coverage ratio is the ratio of total operating revenues to total operating expenses *(e.g., power costs, personnel expenses, and maintenance expenses*). An operating cost coverage ratio that is greater than one means that operating revenues more than cover operating costs, indicating low or zero subsidies and adequate reserves for network maintenance and expansion The operating cost coverage ratio of a utility can be improved by increasing the revenues via increased tariffs or reducing unit operating costs. Absent any subsidy, operating cost coverage ratio of a well-managed utility improves when average revenue increases and unit operating cost decreases. If pricing and costing behavior, however, is inefficient, *i.e., price is not commensurate to service quality and/or willingness to pay thereby discouraging consumption*, operating cost coverage ratio would be less responsive to an increase in average revenue or a decrease in unit operating cost. Irrespective of ownership type, however, water tariffs weakly respond to unit operating cost as fixed costs vastly account for water supply costs due to the capital intensity of water infrastructure; the scope for cost adjustment is therefore limited in the short run. Short-run marginal cost is unusually smaller than long-run marginal cost in water supply services, especially in a simple surface-water supply system with minimal treatment of drinking water.[27] As financially self-sufficient entities, the operating cost coverage ratio of private utilities is expected to be more responsive to changes in unit operating cost and average revenue compared to water districts and LGU-run utilities.

3.2.2.2. Costing, Staffing and Spending Behavior. To ascertain significant differences in the costing, staffing and spending behavior of the three ownership types, I regress unit operating cost, staff per 1,000 connections and labor cost share of the utilities on ownership type and other relevant

[27] See W. M. Hanemann (n.d.).

staffing and spending variables, controlling for utility size and demand conditions. To assess the overall costing behavior of the utilities, I estimate the responsiveness of unit operating cost to staff productivity and labor cost share of the utilities and delve further into their staffing and spending behavior:$UOC_i, LCS_i, Staff_i = \beta_0 + \beta_{wd}O_{wdi} + \beta_{pr}O_{pri} + \beta_k X_{ki} + \beta_n C_{ni} + \varepsilon_i$.

Unit Operating Cost. The unit operating cost captures both the geophysical costs (*e.g., source of water supply*) and management-related costs, such as personnel expenses, power costs, and repairs and maintenance cost. In some regions, the low-cost sources of water may have been developed leading to low unit operating cost. Unit operating cost is affected by utility size and market conditions *(i.e., lucrative markets demand high service quality which requires large operating expenses resulting in high unit operating cost),* hence, these two variables are controlled for. Irrespective of ownership type, unit operating cost of water utilities can be reduced by enhancing staff productivity or minimizing operating expenses. Financial sustainability requirements are also expected to induce utilities to reduce unit operating cost of which impact on performance depends on how the utility minimizes unit operating cost, i.e., whether by enhancing staff productivity or scrimping on network maintenance. Scrimping on network maintenance to reduce unit operating cost is set to undermine service quality and affordability in the long run.

With constrained political interference and enhanced viability of external regulation, private utilities are likely to exhibit efficient spending and staffing patterns and sound financial management yielding low unit operating cost as argued in Section 2.1. Depending on the extent of political interference and implementation capacity, corporatization via water district may not be able to overcome spending and staffing biases towards personnel expenses of state-owned utilities resulting in cost inefficiencies.

Staff Productivity and Labor Cost Share. To find systematic differences in the staffing and spending patterns of the three ownership types, I delve into the association between salary, staff productivity and labor cost share controlling for utility size and demand conditions. Large water utilities require substantial capital improvements resulting in low labor cost share, hence, the need to control for utility size. Also, utility size affords economies of scale yielding high staff productivity and low labor cost share. In lucrative markets, water users demand high service level, requiring hefty non-personnel expenses, particularly in network maintenance and power costs. LGU-run utilities tend to operate in less favorable demand conditions which could generate

a biased estimate of the ownership influence on staffing and spending behavior of the utilities, making demand circumstances an important control variable.

Staff productivity-based personnel compensation constitutes an efficient staffing and spending behavior. While salaries may enhance worker performance, exceedingly high salary may lead to low staff productivity as personnel expenses are increased by shrinking non-personnel expenses (*i.e., network maintenance and expansion*) under tight profit constraint. An efficiently managed utility maintains optimal levels of personnel and non-personnel expenses that would afford high staff productivity and salaries. High labor cost share comes with low staff productivity if salary is weakly tied to staff productivity.

Insulated by his bargaining and informational advantage from inefficient political interference, private utilities are likely to exhibit efficient spending and staffing patterns marked by high staff productivity level and low labor cost share. Depending on the prevalence of political interference and implementation capacity as noted earlier, water districts may not be able to sufficiently address the spending and staffing biases towards personnel expenses of state-owned utilities. With the adoption of commercial principles, particularly the accommodation of profit motive and the consequent strong revenue stance, the bias towards personnel expenses among water districts would have limited impact on non-personnel expenses. As a result, labor cost share of water districts may be lower and their staff productivity higher than LGU-run utilities.

3.3. *Case Studies.* The case studies use the same financial indicators as in the regression analysis plus a few additional variables. As pointed out earlier, however, the set of utilities being considered in case studies have higher degree of comparability as they operate in provinces that have similar geophysical and economic conditions. Specifically, the market and regulatory environment is more favorable being located close to Manila where the regulatory agencies are headquartered. The performance of the utilities is therefore expected to be better and less dissimilar than in the regression results.

4. Estimation Results and Findings

The regression results have shown systematic differences in the pricing, staffing and spending orientation of LGU-run utilities, water districts and private utilities. This translates to disparate trade-offs between key areas of performance *(i.e., affordability, financial sustainability, service coverage and non-revenue water):*

i. *Private utilities. Private utilities have shown to yield better trade-offs between said key areas of performance than the other two ownership types, albeit not to an extent that the same can perfectly substitute for LGU-run utilities and water districts. Also, the strong performance of private utilities in service coverage has shown to be chiefly a consequence of high staff productivity and efficient overall spending behavior;*
ii. *Water districts. The strong performance of water districts in non-revenue water has shown to be driven by exceedingly high personnel and non-personnel expenses, which, in turn, undermine service affordability. Water districts have registered high average revenue consequent on high service level, cost inefficiencies and strong profit orientation; and*
iii. *LGU-run utilities. The remarkably low water rates of LGU-run utilities have shown to reflect poor service level and subdued profit orientation. In fact, the price differential of private utilities and LGU-run utilities is significantly explained by disparities in service level and market conditions, i.e., ability of users to pay.*

4.1. Water Utility Performance: Service Coverage and Non-Revenue Water

4.1.1. Service Coverage: Private utilities have registered the highest service coverage and number of new connections followed by water districts and LG-run utilities. Although water districts and LGU-run utilities have comparably high service coverage, the former have recorded a much larger number of new connections.

Table 1. Service Coverage of Utilities by Ownership Type

Utilities	Water Service Coverage (%)			No. of New Connections	
	Mean	Standard deviation	Min	Max	Mean No. of New Conn./Yr.
LGU (13)	41	28	9	97	314
WD (46)	43	19	10	91	723
Private (16)	57	20	18	87	997

Table 2. Ownership Effect to Service Coverage

Model: OLS	Private	WD	WCon	Conn	RCS	LCS	OCR	Staff	UOC	AR	No. of Obs.	R^2
WC	n.s.	n.s.	.01 (.02)**	n.s.	.49 (.09)*	n.s.	n.s.	-.03 (.004)***	1.8 (.04)**	-1.3 (.03)**	73	.64

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Covera Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Sources of Coverage Differential. There appears to be no systematic difference in how demand and cost conditions affect service coverage across three ownership types. Irrespective of ownership type, utilities that have high staff productivity and expenditure levels and operate in favorable demand conditions tend to have high service coverage. Interestingly, water service coverage is negatively associated with average revenue, *i.e., utilities that have high average revenue tend to have low service coverage*. A plausible explanation is that increases in water rates of most water utilities may have been driven by cost inefficiencies or inability to exploit economies of scale. With cost inefficiencies, it would be more profitable for water utilities to concentrate in lucrative areas where they can increase water rates than expand service coverage.

Table 3. Factors Affecting Service Coverage by Ownership Type

Model: OLS	AR	UOC	WCon	RCS	Conn	OCR	LCS	Staff	Sal	No. of Obs.	R^2
LGU-Run	-3.3 (.07)*	1.9 (.10)*	n.s.	1.8 (.05)**	n.s.	n.s.	n.s.	n.s.	n.s.	12	.76
Private	n.s	n.s.	.03 (.04)**	n.s.	n.s.	-.06 (.03)**	n.s	n.s	n.s	15	.94
Water District	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	-.05 (.02)**	n.s.	45	.73

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Although the coefficients of ownership dummies are statistically insignificant, the results of a separate regression for each ownership type point to interesting differences in how the variables affect service coverage of LGU-run utilities, water districts and private utilities:

i. The service coverage of private utilities has shown to be strongly driven by staff productivity and market conditions, *i.e., private utilities that have high staff productivity and favorable demand conditions tend to also have high service coverage*;
ii. Staff productivity also drives service coverage of water districts. Unlike private utilities, however, service coverage of water districts does not appear to be affected by variations in demand conditions. Water districts have low service coverage even if they operate in lucrative markets; and
iii. Notably, LGU-run utilities that have high service coverage tend to have low average revenue. This is partly because LGU-run utilities have shown to expand service coverage in areas where there are more residential users than commercial users, suggesting market preference or segmentation with LGU-run utilities serving low-income areas, while private utilities and water districts operate in high-income areas. Unlike private utilities and water districts, staff productivity did not figure as a significant determinant of the service coverage of LGU-run utilities, plausibly on account of the latter's pervasively low staff productivity and reliance on external funding.

4.1.2. Non-Revenue Water. Water districts have registered the lowest non-revenue water. LGU-run utilities and private utilities have comparably large water distribution losses. The difference in the non-revenue water of water districts and LGU-run utilities can be essentially explained by the disparity in their size, demand circumstances, while said variables cannot account for the gap in the non-revenue water of LGU-run utilities and private utilities, suggesting that ownership structure and other aspects of the market environment may have played a role. Irrespective of ownership type, water utilities that have high non-revenue water also tend to have a strong bias towards personnel expenses and those

Table 4. Non-Revenue Water of Utilities by Ownership Type (%)

Model: OLS	Mean	Standard deviation	Min	Max
LGU (16)	32	19	7	68
WD (42)	26	10	5	42
Private (14)	36	18	10	68

Source: IBNET

that have vast supply network also have large water distribution losses. Areas with high consumption level and more commercial users also tend to register large water distribution losses, highlighting the need to improve efficiency in water management, especially in large service areas. As with service coverage, high water rates and strong revenue stance of water utilities do not translate to a reduction in non-revenue water.

Further investigation on the behavior of the three ownership types has shown that the high non-revenue water of private utilities can be traced to utility size. The sample includes two large water concessionaires that serve over 10 million users. Interestingly, the negative impact of a large ratio of personnel expenses to non-personnel expenses as measured by labor cost share on non-revenue water holds strongly among water districts, suggesting an inefficient spending bias towards personnel expenses, while LGU-run utilities that operate in areas that have more commercial users tend to register high non-revenue water.

Table 5. Ownership Effect to Non-Revenue Water

Model OLS	Private	WD	WCon	Conn	RCS	LCS	OCR	Staff	UOC	AR	No. of Obs.	R^2
NRW	.15 (.006)***	n.s.	n.s.	.8 (.000)***	-.44 (.01)**	.26 (.009)***	n.s.	n.s.	n.s.	n.s.	73	.51

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Table 6. Factors Affecting Non-Revenue Water by Ownership Type

Model: OLS	AR	UOC	WCon	RCS	Conn	OCR	LCS	Staff	Sal	No. of Obs.	R^2
LGU-Run	n.s.	n.s.	n.s.	-1.3 (.05)**	n.s.	n.s.	n.s	n.s	n.s.	12	.85
Private	n.s.	n.s.	n.s.	n.s.	.008 (.04)**	n.s.	n.s.	.05 (.08)**	n.s.	13	.73
Water District	n.s.	n.s.	n.s.	n.s.	.002 (.004)**	n.s.	.23 (.07)*	n.s.	n.s.	42	.57

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

4.2. Water Utility Behavior: Pricing, Costing, Staffing and Spending Behavior

4.2.1. Pricing Behavior of Utilities: As can be gleaned from summary statistics, LGU-run utilities have remarkably low average tariff of USD.13 followed by private utilities, USD.25 and water districts, USD.38. Interestingly, the gap between the lowest average tariff of LGU-run utilities and the lowest average tariff of private utilities is even wider, reflecting the extent of subsidization and low service level of LGU-run utilities. Also, the gap in the maximum average tariff of LGU-run utilities and private utilities is much smaller, conveying proper regulation of tariff increases and/or cost efficiency of private utilities. Quite the opposite of LGU-run utilities, water districts manifest a high-pricing behavior; the mean, minimum and maximum average tariff of water districts are higher than those of LGU-run utilities and private utilities.

Table 7. Average Revenue/Tariff (In USD) by Ownership Type

Utilities	Mean	Standard deviation	Min	Max
LGU	.13	.09	.05	.32
WD	.38	.13	.20	.72
Private	.25	.10	.12	.44

Source: Raw data from IBNET

<u>*Sources of Price Differential.*</u> Average tariff of the utilities systematically varies across ownership types. Irrespective of ownership type, water utilities, on the average, increase their rates by USD1.12 cents given a one cent increase in unit operating cost, an average mark-up of 12 percent. Given similar demand and cost conditions, average tariff of water districts is higher by 10 cents than LGU-run utilities and by five cents relative to private utilities. Ownership is estimated to account for nearly 67 percent of the difference in the average tariff of water districts and LGU-run utilities and 42 percent of the gap in the average tariff of private utilities and LGU-run utilities. As suggested by the low statistical significance of ownership dummies, the price differential of private utilities and LGU-run utilities has shown to be principally driven by variations in demand conditions.

Table 8. Ownership Effect to Pricing Behavior of Water Utilities

Model: OLS	Private	WD	UOC	RCS	Wcon	Conn
Average Revenue	.05 (.08)*	.10 (.000)***	1.12 (.000)***	.11 (.24)	.002 (.07)*	n.s.
No. of Obs.	73					
R^2	.90					

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Table 9. Factors Affecting Average Tariff by Ownership Type

Model: OLS	UOC	WCon	RCS	Conn	OCR	LCS	Staff	Sal	No. of Obs.	R^2
LGU-Run	n.s.	-.004 (.09)	-.13 (.12)	2 (.09)*	.12 (.002)***	-.25 (.002)***	.02 (.03)**	.0068 (.02)**	13	.99
Private	1.3 (.000)***	.001 (.08)*	.11 (.14)	-.004 (.09)*	.18 (.000)***	n.s.	n.s.	n.s.	15	.99
Water District	1.21 (.000)***	-.002 (.07)*	n.s.	-.002 (.10)	.15 (.000)***	-.23 (.01)***	.01 (.06)*	2 (.000)***	45	.97

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Further investigation on the average tariff of the three ownership types indicate distinct pricing behavior:

i. The high average tariff of water districts is chiefly a consequence of their sensitivity to various cost components, which in turn can be attributed to the financial sustainability requirements imposed on water districts;

ii. The average tariff of LGU-run utilities appears to also respond to the variations in different cost components, albeit they are less sensitive to changes in cost components compared to water districts. Average tariff of LGU-run utilities and water districts tend to increase when non-personnel expenses (relative to personnel expenses) increase, *i.e., increased spending on network maintenance and rehabilitation*. Akin to water districts, the average tariff of LGU-run utilities also tend to increase when staff productivity decreases and salary increases. The water rates of LGU-run utilities and water districts thus appear to be driven by cost inefficiencies, which explains the negative association of water rates with service coverage and non-revenue water; and

iii. In stark contrast to water districts and LGU-run utilities, the average tariff of private utilities responds to changes in overall unit operating cost rather than to variations in individual cost components. This indicates that cost variables may have been anchored on each other, meaning salary increases of private utilities may have been tied to staff productivity improvement and productivity-enhancing expenses. Although the average tariff of private utilities is highly sensitive to variations in operating cost coverage ratio and unit operating cost, water rates remain low on account of restrained profit orientation

and efficient spending and staffing patterns which in turn preclude substantial increases in unit operating cost.

Table 10. Operating Cost Coverage Ratio, Length of Distribution Network and Capital Formation by Ownership Type (In USD)

Utilities/Indicators	Mean	Standard deviation	Min	Max
Operating Cost Coverage Ratio				
LGU	1.08	.37	.37	1.68
WD	1.46	.45	.90	4
Private	1.28	.27	.71	1.86
Length of Distribution Network				
LGU	23.4	18	2.3	58.1
WD	174	258	23.45	1,162
Private	670	1242	26	3,710
Gross Fixed Capital Formation				
LGU	11.2	14.6	2.46	48.4
WD	40.3	22.9	13	94
Private	37.14	25.4	.05	90
Source: IBNET				

4.2.1.1. Operating Cost Coverage Ratio. The profit orientation of the three ownership types is also reflected in the operating cost coverage ratio. In view of their financial sustainability requirements, water districts have the highest operating cost coverage ratio followed by private utilities. Both the minimum and maximum operating cost coverage ratio of water districts are higher than that of private utilities and LGU-run utilities. Mean operating revenues of water districts are substantially higher than their operating expenses, thus, affording greater spending in network improvement and expansion. Indeed, average fixed capital formation of water districts is higher compared to private utilities and LGU-run utilities, albeit the average length of distribution network of the former is shorter than that of the latter.

Table 11. Ownership Effect to the Operating Cost Coverage Ratio of Water Utilities

Indicators	Private	WD	AR	UOC	WCon	RCS	Conn
OCR	n.s	n.s.	4.6 (.000)***	-6.7 (.000)***	-.01 (.03)**	-1.14 (.000)***	n.s.
No. of Obs.	73						
R^2	.72						

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Table 12. Factors Affecting Operating Cost Coverage Ratio by Ownership Type

Model: OLS	AR	UOC	RCS	WCon	Conn	LCS	No. of Obs.	R^2
LGU-Run	4.0 (.06)	-3.9 (.03)	n.s.	n.s.	n.s.	n.s.	13	.72
Private	5.3 (.000)***	-7.5 (.000)***	n.s.	n.s.	n.s.	n.s.	15	.98
Water District	5.1 (.000)***	-8.3 (.000)***	-1.4 (.01)**	-.03 (.01)**	n.s.	.65 (.02)**	45	.82

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per Household Connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 Connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Factors Influencing Operating Cost Coverage Ratio. The operating cost coverage ratio of the utilities is driven by unit operating cost and average revenue. The regression results do not indicate a significant difference in the operating cost coverage ratio of the three ownership types. Irrespective of ownership type, water utilities operating in lucrative markets as indicated by the number of commercial users tend to have high operating cost coverage ratio. Interestingly, operating coverage ratio is negatively related with average monthly water consumption, which may have been occasioned by the negative impact of sizable water distribution losses in large, lucrative areas on the revenues of the utilities.

A separate regression for each ownership type has shown that while the operating cost coverage ratio is driven by average revenue and unit operating cost, the degree of sensitivity of the operating cost coverage ratio of the three ownership types to said two variables differ:

i. As expected, the operating cost coverage ratio of LGU-run utilities are less sensitive to variations in average revenue and unit operating cost, indicating other sources of revenues and expenses.
ii. The variations in the operating cost coverage ratio of private utilities are better explained by changes in unit operating cost and average revenue compared to the other two ownership types, plausibly a reflection of their financial self-sufficiency and independence and sound accounting system. The financial sustainability of private utilities also does not appear to be influenced by variations in labor cost share.

iii. Unlike private utilities, labor cost share and operating cost coverage ratio of water districts are positively associated, *i.e., water districts that have high operating cost coverage ratio tend to also have high labor cost share*. It thus appears that water districts meet financial sustainability requirements by scrimping on non-personnel expenses.

4.2.2. ***Costing Efficiency, Spending and Staffing Orientation***

4.2.2.1. Cost Efficiency. Water districts have registered the highest operating expenses per cubic meter of water produced. Average unit operating cost of water districts is at USD.27 compared to private utilities, USD.20 and LGU-run utilities, USD.14 cent. Both the maximum and minimum unit operating cost of water districts are also higher than the other two ownership types. It is interesting to note that while the minimum unit operating cost of LGU-run utilities is much lower than that of private utilities and water districts, the maximum unit operating cost of private utilities is lower than the maximum unit operating cost of the two other ownership types, hinting at the strong capacity of private utilities to rein in costs.

Table 13. Unit Operating Cost by Ownership Type (In USD)

Ownership	Mean	Standard deviation	Min	Max
LGU	.13	.09	.03	.41
WD	.28	.09	.09	.47
Private	.20	.07	.11	.31

Source: Raw data from IBNET

Table 14. Ownership Effect to Unit Operating Cost of Water Utilities

Model: OLS	Private	WD	WCon	Conn	RCS	AR	OCR	Staff	LCS	Salary	Wcoverage
UOC	n.s.	.10 (.000)***	-.002 (.000)**	.02 (.04)**	-.13 (.001)***	.64 (.000)***	-.1 (.000)***	.004 (.005)***	n.s.	.13 (.000)***	.04 (.04)**
No. of Obs.	73										
R^2	.91										

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per household connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Table 15. Factors Affecting Unit Operating Cost by Ownership Type

Model: OLS	AR	OCR	RCS	WCon	Conn	Staff	LCS	Salary	No. of Obs.	R^2
LGU-Run	n.s.	n.s.	-.32 (.01)**	-.01 (.03)**	n.s.	.03 (.05)*	n.s.	.08 (.05)**	14	.99
Private	.75 (.000)***	-.13 (.000)***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	14	.99
Water District	.62 (.000)***	-.1 (.000)***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	43	.9

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per household connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

Sources of Cost Differential. Irrespective of ownership type, average revenue, operating cost coverage ratio, salary, staff productivity and demand conditions appear to significantly account for variations in unit operating cost of water utilities. Water utilities that have high salary also tend to have high unit operating cost, while those that have high average revenue and face favorable market circumstances have also shown to have high unit operating cost. Interestingly, an increase in operating cost coverage ratio of water utilities is accompanied by a reduction in unit operating cost, indicating the strong cost-minimizing effect of financial sustainability requirement and the stickiness of water rates.

The extent to which utilities respond to these variables does not appear to vary significantly across ownership types, particularly between LGU-run utilities and private utilities. Running a separate regression for each of ownership type, however, there are notable differences in the costing behavior of the three ownership types.

i. Both unit operating cost of private utilities and water districts are driven by revenue and financial considerations, but the unit operating cost of the former has registered greater sensitivity to average revenue and operating coverage ratio than the latter. But since private utilities have lower operating cost coverage ratio and average revenue than water districts, their unit operating cost remains much lower than that of water districts.
ii. Interestingly, staff productivity does not appear to significantly influence unit operating cost of water districts and private utilities, suggesting that staff productivity gains may have been buoyed by increased productivity-enhancing expenditures.

iii. The unit operating cost of LGU-run utilities, on the other hand, has shown to be associated with a different set of factors. LGU-run utilities that have high unit operating cost tend to have low staff productivity level and high salary evincing spending inefficiencies.

4.2.2.2. Staffing and Spending Behavior. Differences in the staffing and spending behavior of LGU-run utilities, water districts and private utilities can be readily gleaned from the summary statistics: *(i) Private utilities have the highest mean staff productivity level, the lowest average labor cost share and modest average salary, exhibiting a lack of inefficient spending bias against non-personnel expenses and towards personnel expenses; (ii) Water districts have substantially higher average salary than LGU-run utilities, but staff productivity level of corporatized former are only marginally higher than the latter; (iii) The minimum number of staff per 1,000 connections of private utilities is much lower than the minimum number of staff per 1,000 connections of water districts, indicating a strong capacity of private utilities to reach high staff productivity level; and (iv) The maximum number of staff per 1,000 connections of LGU-run utilities is much higher than that of the other two ownership types, conveying a strong proclivity of LGU-run utilities to maintain a disproportionately large staff size.*

Table 16. Labor Cost Share, Staff Productivity and Average Salary by Ownership Type

	Labor Cost Share (%)				Staff per 1,000 connections				Average Annual Salary			
Utilities	Mean	Std.	Min.	Max.	Mean	Std.	Min.	Max.	Mean	Std.	Min.	Max.
LGU	56	.17	.21	.81	8.6	4.3	3.8	17.9	1,904	1,275	804	5,386
WD	39	.15	.15	.74	7	2.5	2.8	13.9	4,157	2,143	1,058	9,235
Private	28	.06	.15	.41	5.8	2.7	1.2	10.6	2,851	2,096	778	8,480

Source: IBNET

Table 17. Ownership Effect to Staffing and Spending Behavior of the Utilities

Model: OLS	Private Utilities	WD	UOC	AR	LCR	Staff	Salary	OCR	WCon	RCS	No. of Conn.	R^2	No. of Obs.
Staff	n.s.	1.7 (.06)	18.8 (.03)**	-12.2 (.03)**	9.5 (.000)***	n.s.	-.0009 (.000)	n.s.	n.s.	-4.9 (.10)	-.7 (.03)**	.75	73
LCS	-.17 (.000)***	-.17 (.000)***	n.s.	-.63 (.05)**	n.s.	.03 (.000)***	6.8 (.000)***	.15 (.01)**	-.006 (.006)***	n.s.	-.4 (.03)**	.60	83
Salary	712 (.17)	1,315 (.01)**	27,503 (.000)***	7,286 (.03)**	7,649 (.000)***	-283 (.000)***	n.s.	n.s.	90.5 (.000)***	n.s.	.006 (.002)***	.79	73

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per household connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

The difference in the staff productivity of LGU-run utilities and private utilities appears to be driven by the former's strong bias towards personnel expenses as suggested by the large

coefficient and high statistical significance of labor cost share. Differences in salary, average revenue and unit operating cost also account for differences in the staff productivity of LGU-run utilities and private utilities. LGU-run utilities' low staff productivity can be attributed to inefficient overall spending. On the other hand, there appears to be a significant difference in how staff productivity, labor cost and salaries of LGU-run utilities affect each other vis-à-vis water districts, pointing to the role of ownership design. Compared to LGU-run utilities, water districts have lower labor cost share and higher salaries controlling for staff productivity, size, market conditions and revenue stance. Likewise, water districts have lower staff productivity than LGU-run utilities when salaries and other relevant variables are controlled for, indicating water districts' heavy reliance on salaries to boost staff productivity.

Table 18. Factors Affecting Staffing and Spending Behavior of Water Utilities by Ownership

Model: OLS	Staff Productivity			Labor Cost Share			Salary		
	LGU	WD	Private	LGU	WD	Private	LGU	WD	Private
LCS	4.9 (.03)**	14 (.000)***	n.s.	n.s.	n.s.	n.s.	3,589 (.000)***	10,674 (.000)***	n.s.
Staff	n.s.	n.s.	n.s.	.08 (.006)***	.04 (.000)***	n.s.	-308 (.004)***	-531 (.000)***	n.s.
Salary	-.001 (.03)**	-.001 (.000)***	n.s.	.0003 (.000)***	.00008 (.000)***	n.s.	n.s.	n.s.	n.s.
Conn	.002 (.007)***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	.008 (.02)**
RCS	6.4 (.14)	n.s.	n.s.	-.56 (.08)*	n.s.	-.48 (.15)	2,076 (.07)*	n.s.	n.s.
WCon	.29 (.02)**	.18 (.000)***	n.s.	-.02 (.04)**	-.01 (.001)***	-.01 (.02)***	77.3 (.03)**	112 (.000)***	n.s.
UOC	45.7 (.000)***	21.8 (.000)***	-.23 (.09)*	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
OCR	n.s.	n.s.	n.s.	.45 (.004)***	.18 (.000)***	n.s.	-1674 (.003)***	-2,034 (.000)***	n.s.
AR	n.s.	n.s.	n.s.	-3.7 (.002)***	-.8 (.000)***	n.s.	13,439 (.002)***	10,410 (.002)***	n.s.
No. of Obs.	14	48	15	13	48	15	13	48	15
R^2	.87	.89	.76	.99	.93	.83	.98	.95	.95

Notes: AR=Average Revenue; UOC=Unit Operating Cost; OCR=Operating Cost Coverage Ratio; Salary=Average Monthly Salary; WCon=Ave. Monthly Consumption per household connection; RCS=Residential Consumption Share; LCR=Labour Cost Share; Staff= Staff per 1,000 connections; Conn=No. of Connections
n.s. = not statistically significant at 10% level

The results of a separate regression for each ownership type point to varying importance of salary as a performance incentive to LGU-run utilities, water districts and private utilities:

i. Interestingly, salary, staff productivity and labor cost of private utilities do not appear to independently affect each other, indicating that the three components may have been anchored on each other, *i.e., private utilities do not increase salary independent of changes in*

staff productivity and expenditure levels. An increase in unit operating cost, however, has shown to translate to higher staff productivity, intimating that the private utilities' high staff productivity may have been driven by efficiently large spending on both personnel expenses and non-personnel expenses. Private utilities do not appear to use salary as a key performance incentive; salary does not help explain the variations in staff productivity of private utilities. The salary of private utilities has shown to be driven by economies of scale. Large private utilities tend to have high salary;

ii. The staff productivity of water districts appears to be driven by hefty spending on both non-personnel items and personnel items. Salary has shown to significantly explain the variations in the staff productivity of water districts. An increase in the average revenue of water districts translates to higher salary and non-personnel expenses, but the average revenue or average tariff does not influence staff productivity, suggesting that the extra revenues derived from increased rates are not efficiently spent. This is further supported by the negative association between staff productivity of water districts and their average revenue as noted above; *i.e.*, *an increase in the water rates of water districts has shown to be partly brought by a decrease in staff productivity*. To meet financial sustainability requirement, water districts have also shown to adjust both salary and non-personnel expenses; and

iii. LGU-run utilities weakly exhibit the spending and staffing proclivities of water districts. The low staff productivity of LGU-run utilities could be attributed to their relatively small size. Akin to water districts, salary also influences the staff productivity of LGU-run utilities. With poor revenue stance, however, the salary of LGU-run utilities weakly responds to improvement in staff productivity. LGU-run utilities likewise adjust both personnel and non-personnel expenses to improve their financial stance. Extra revenues derived from increased tariff have also shown to increase spending in both personnel and non-personnel items but without any corresponding increase in staff productivity.

5. Case Studies: Key Results and Findings

Generally, the results of the case studies are roughly consistent with those of the regression results. Private utilities have yielded the most favorable trade-offs between three areas of performance: *service coverage, non-revenue water and affordability*. LGU-run utilities have registered the lowest rates but also the worst performance in service coverage and other areas. Profit orientation of private utilities is generally more restrained and strongly tied to service level compared to water districts. In fact, private utilities tend to adjust profit when there is a sudden increase in cost in order to keep water supply services affordable. Water districts have registered low proclivity to minimize costs. Akin to regression results, the adverse trade-offs between affordability and service level of the LGU-run utilities are accounted for by spending biases towards personnel expenses; their poor market conditions and weak financial stance do not bear strong explanatory power to their poor overall performance.

5.1. Water Utility Performance: Affordability, Service Coverage and Non-revenue Water

5.1.1. Service Affordability. Water districts have registered a slightly higher average tariff than private utilities. To note, the difference in the average tariff of water districts and private utilities is smaller compared to the larger sample used in the econometric tests. This is an expected outcome given the relatively high level of comparability of water utilities in the case studies. The difference in the water rates between private utilities and water districts varies across size categories. Medium-sized water districts have a slightly lower average revenue than private utilities as the latter impose substantially higher rates on industrial users. Average revenue of large private utilities is minimally lower than that of water districts, while average revenue of a small private utility is significantly lower than that of a small water district.

Table 19. Pricing Behavior of Selected Utilities by Ownership Type							
Utility	Type	Min. Charge, Residential (Size of the 1st block in cubic meters)	Min. Charge, Commercial (Size of the 1st block in cubic meters)	Average Revenue	UOC	Mark-up over Cost (%)	Industrial to Residential Tariff
Large Utilities							
Sto. Tomas	LGU	100 (10)	200 (10)	10.4	10.3	1	2
CL Apalit	Private	205 (10)	1,022 (25)	24.2	16.5	47	5
Aquadata	Private	178 (10)	890 (25)	10.3	8.1	27	5
Sinukuan	Private	177 (10)	260 (25)	17.95	16.9	6	1.5
BP Water	Private	257 (10)	1285 (25)	36.5	22.9	59	5
Average, Private		*204.25*	*864*	*22.2*	*16.1*	*34.8*	*4.1*
Tanauan	WD	239 (10)	419 (10)	29.1	22.7	28	1.8
Sta. Maria	WD	195 (10)	292 (10)	25.5	22.6	13	1.5
Bocaue	WD	200 (10)	300 (10)	21.5	18.4	17	1.5
Tanza*	WD	150 (10)	300 (10)	22.3	14.2	57	2
Average, WD		*196*	*327.8*	*24.6*	*19.5*	*28.8*	*1.7*
Medium-sized Utilities							
San Carlos	LGU	120 (10)	-	14.9	13.6		1
SMU	Private	8.20 (10)	220 (25)	-	-		27
CL Porac	Private	222 (10)	1,107 (25)	26.8	22.3	20	50.3
CL Sto. Tomas	Private	167 (10)	835 (25)	20.1	14.4	40	5
Average, Private		*132.4*	*720.7*	*23.5*	*18.4*	*30.0*	*27.4*
Porac	WD	150 (10)	180 (10)	23.3	12.9	81	1.2
Lemery	WD	150 (10)	300 (10)	19.8	12.7	56	2
San Jose	WD	225 (10)	337 (10)	25.8	11.6	122	1.5
Angat	WD	175 (10)	560 (10)	20.6	19.5	6	3.5
San Ildefonso	WD	150 (10)	380 (10)	21.7	14.4	51	1.9
Average, WD:		*170*	*351.4*	*22.2*	*14.2*	*63.2*	*2*
Small Utilities							
Lago	Private	206 (10)	256 (25)	18.5	17.1	12	1.2
Lobo	WD	220 (10)	275 (10)	25.5	22.2	78	1.25
Source: NWRB, LWUA 2012							

Although water districts charge higher average tariff than private utilities, the former tend to offer more lenient payment terms as indicated by the percentage of customers in arrears and number of disconnections. The high incidence of delayed payment appears to be a relatively robust pricing feature of water districts independent of demand circumstances. It is worth mentioning that although LWUA prohibits any abrupt increase in rates, it does not explicitly require water districts to offer lenient payment terms. Notwithstanding, the collection efficiency and number of disconnections appear to be affected more by the water rates than by demand conditions, as indicated by the negative correlation between average tariff and collection efficiency. This suggests that the seemingly lenient payment terms may not have been driven by equity considerations; it is a consequence of imposing disproportionately high tariffs with respect to the level of service and users' ability to pay.

Table 20. Demand and Cost Conditions of Selected Water Utilities by Ownership Type

Utilities	Type	No. of Conn.	UOC	Ave. Monthly WCon.	Com. Users (%)	On-time payment (%)	Customers in Arrears	Collection Efficiency	# Of Disconnections
Large Utilities									
Sto. Tomas	LGU	10,786	10.3	23.6	-				
CL Apalit	Private	12,919	16.5	24	1	52.7	568 (4%)	96.97	467
Aquadata	Private	9,142	8.1	20.4	0	-	-	-	25
Sinukuan	Private	9,989	16.9	20.9	2	74	2201 (20%)	94	559
BP Water	Private	8,895	22.9	17.3	2.2	92.5	2723 (31%)	108	1217
Average, Private		***10,258***	***16.1***	***20.65***	***1.3***	***83.25***	***1830.7 (18.3%)***	***99.7***	***567***
Tanauan	WD	14,050	22.7	19	6.3	67		94.7	83
Sta. Maria	WD	17,143	22.6	22	18	67.4	1253 (7%)	98.5	532
Bocaue	WD	9,275	18.4	18.8	7	65.6	4226 (36%)	92.7	30
Tanza*	WD	9,595	14.2	19.9	3.5	76.3	3,567 (37%)	97	901
Average, WD		***13,489***	***21.2***	***20.1125***	***8.15***	***70.8125***	***2436 (20.4%)***	***96.4***	***303***
Medium-sized Utilities									
San Carlos	LGU	6,701	13.6	26	0	-	-	-	-
SMU	Private	5,395	-	26	1.5	-	-	-	-
CL Porac	Private	2,706	22.3	19	2	109	0	109	144
CL Sto. Tomas	Private	5,564	14.4	21	-	98	81 (1%)	132	207
Average, WD		*4,555*	*18.35*	*22*	*2*	*103.5*	*40.5 9 (.5%)*	*120.5*	*175.5*
Porac	WD	4,810	12.9	19	-	47		96	307
Lemery	WD	*7,867*	12.7	19	10	57	5,284(_)	94	27
San Jose	WD	5,723	11.6	15	8.3	56	2827(48%)	96	66
Angat	WD	6,823	19.5	17	1.6	61	2633 (39%)	96	-
San Ildefonso	WD	7,279	14.4	14	2	76		95	-
Average, WD		***6,500***	***14.2***	***16.8***	***21.9***	***59.4***	***3581.3 (43.5%)***	***95.4***	***133.3***
Small Utilities									
Lago	Private	1,071	17.1	15	4.7	96	165(15%)	96	24
Lobo	WD	2,478	22.2	14.5	0.5	97	-	99	25
Source: NWRB, LWUA									

*5.1.2. Water Service Coverage and Non-revenue Water***.** Private utilities have also outperformed water districts and LGU-run utilities in service coverage and non-revenue water. Despite having operated for more than two decades, a large proportion of the service area of these water districts remains unserved as the number of new connections has been persistently lower compared to private utilities. Comparing BP Water and Bocaue, which have comparably high net income and size of population served, BP registered 199 new connections compared to only 49 for Bocaue in 2012. During period 2004 and 2009, Bocaue only had 20 and 22 new connections, respectively,

while no data was obtained for BP Water. It is worth noting, however, that BP supplies water services to a subdivision where water users have high ability to pay. The favorable demand conditions may have given BP greater incentive to expand service coverage. Notwithstanding, the two utilities are comparably profitable which should limit the gap in their number of new connections. Large private utilities have comparably high non-revenue water relative to water districts of similar size, but medium-sized water districts have registered higher non-revenue water than their private counterparts. It thus appears that the lower water rates of medium-sized water districts noted above were realized at the expense of service level.

Table 21. Financial and Operational Performance of Selected Water Utilities by Ownership Type

Utilities	Type	Date of Establishment	OCR	Population Served (Water Coverage)	No. of New Connections	NRW	Water Availability
Large Utilities							
Sto. Tomas	LGU	2002*	1.04	100	492	-	
CL Apalit	Private	2009	1.13	89,141 (90%)	1,468	21	24 hrs.
Aquadata	Private	2008	1.02	-	2,122	20	24 hrs.
Sinukuan	Private	2004	1.04	9,989 (58%)	1,583	18	24 hours
BP Water	Private	1993	1.07	53,370 (89%)	199	14	24 hours
Tanauan	WD	1988	1.14	82,895	41	28	-
Sta. Maria	WD	1988	1.19	102,200	1,784	20	-
Bocaue	WD	1979	1.10	55,140	49	20	-
Tanza	WD	1988	1.29	57,570	61	19	-
Medium-sized Utilities							
San Carlos	LGU	-	0.96	35,467(60%)	-	26	-
SMU	Private	1992	0.94	-	-	5	24 hours
CL Porac	Private	2009	1.06	2,691 (37%)	515	12	24 hours
CL Sto. Tomas	Private	2003	1.20	5,564 (95%)	482	-	24 hours
Porac	WD	1989	1.20	21,645	51	-	-
Lemery	WD	1981	1.01	47,202	41	39	-
San Jose	WD	1977	1.13	34,200	26	57	-
Angat	WD	1987	1.17	40,938	4	10	-
San Ildefonso	WD	1987	1.26	43,570	38	23	-
Small Utilities							
Lago	Private	1996	1.09	3,458(91%)	285	-	24 hours
Lobo	WD	1989	1.04	12,390	7	39	-

Source: NWRB, LWUA
Note: *Santo Tomas was used to be a water districts until it was taken over by the municipal government in 2002.

5.2. Profit Orientation, Spending and Staffing Patterns of Water Utilities

5.2.1. Water Districts. As with results of econometric tests, the relatively high water rates of water districts and limited service expansion has shown to be an outcome of their: (i) inefficient spending and staffing patterns; and (ii) weak linkage between service level and profit.

Weak Linkage between Salary and Staff Productivity. The link between average annual salary and staff productivity among water districts appears to be relatively weak vis-à-vis private utilities. The weak association between personnel expenses and staff productivity and, concomitantly, the spending bias towards personnel expenses is evident among medium-sized water districts. The staff productivity of two water districts, namely, Porac and Angat, is comparable to that of two private utilities, CL Porac and CL Sto. Tomas. Personnel expenses of Porac and Lemery, however, are much larger than those of CL Porac and CL Sto. Tomas. In fact, Angat has one of the largest personnel expenses among water districts. As a result, labor cost share of the two water districts is more than three times that of the two private utilities. The strong spending bias towards personnel expenses of the two water districts has resulted in remarkably high operating expenses. In fact, the difference in the operating expenses of private utilities and water districts is mainly accounted for by the gap in their personnel expenses.

Inefficient Spending in Non-Personnel Expenses. The strong proclivities of water districts to spend more on personnel expenses appear to be just one of several sources of cost inefficiencies. While water districts exhibit a spending bias towards personnel expenses, they also spend a lot in non-personnel items. Water districts register high power cost in the amount of nearly two million pesos to about 30 million pesos, representing 15 percent to over 30 percent of total operating expenses. By comparison, the electricity cost of private utilities ranges from nearly two million to 13.6 million, about 14 percent to 42 percent of total operating expenses. High power cost of water districts, however, does not appear to be accompanied by strong performance in water availability. The same can be said of the water districts' spending in repairs and maintenance which was also unaccompanied by favorable performance in non-revenue water.

Profitability at the Expense of Performance. Likewise, the poor performance of water districts in service coverage and non-revenue water was accompanied by high profitability level. Medium-sized private utilities strongly outperformed the most profitable water districts of similar size in non-revenue water. The high profit level of water districts has shown to be realized at the expense of operational performance as exemplified by Angat and San Ildefonso. These two water districts are among the most profitable of all the utilities, but Angat has a remarkably low number of connections, while San Ildefonso is outperformed by other water districts that are less profitable. To a significant degree, however, these utilities compensate their limited expansion in coverage by performing well in non-revenue water. Notwithstanding, water districts would have been able to improve service coverage without compromising affordability if profit margins are kept sufficiently narrow. If only water districts behaved like private utilities in terms of adjusting their profit margin when unit operating cost was high in order to keep water rates low, water districts would have been able to deliver significant improvement in consumer welfare through reduced tariffs and expanded service coverage.

5.2.2. Private Utilities. The remarkable performance of private utilities in water rates, service coverage and non-revenue water can be attributed to their: (i) efficient spending on both personnel and non-personnel expenses; (ii) staff productivity-based personnel compensation; and (ii) performance-based profit level.

Substantial Staff Productivity Gains, Economies of Scale and Low Unit Operating Cost. Consistent with results of econometric tests, private utilities have the lowest staff per 1,000 connections and lowest labor cost share. Unlike water districts, high staff productivity is accompanied by an even lower labor cost share due to lower personnel expenses. For instance, there is a slight difference in the average annual salary of comparably large private utility, Sinukuan and water district, Sta. Maria, but staff productivity of Sinukuan is slightly higher than Sta. Maria's. Sinukuan's labor cost share is even much lower than that of the latter due to lower non-salaried personnel expenses. Although both Sinukuan and Sta. Maria have comparably high salaries, Sta. Maria incurred large non-salaried personnel expenses, such as bonuses and allowances, 3.5 million pesos; life and retirement insurance contributions, 1.07 million pesos; and longevity pay, 1.5 million pesos. Salaries and wages of regular employees amounted to Php8.1 million. Sta. Maria also incurred 800 thousand pesos and 2.58 million pesos in salaries and wages for casual employees and for emergency purposes, respectively. There is no similar data for private utilities.

The remarkably low labor cost share of private utilities has also shown to be occasioned by high investment in network upgrade and expansion. That is, staff productivity gains are channeled back to both salary and other personnel expenses, as well as, to non-personnel expenses thus keeping the labor cost share and unit operating cost constant. However, the large private utilities, which enjoy a slight advantage over water districts in staff productivity, have a slightly lower unit operating cost and average tariff. The size advantage may have allowed private utilities to exploit economies of scale and engender adequate staff productivity gains which in turn enable them to reduce unit operating cost.

Table 22. Staffing and Spending Behavior of Selected Utilities by Ownership Type

Utilities	Staff per 1,000 connections	Labour Cost Share	Total Operating Expenses	Personnel Services (In Mil. Php)	Power Costs	Repairs and Maintenance	Revenue per staff	Ave. annual salary
Large Utilities								
Sto. Tomas	10.5	23	31.6	7.4	17 (54%)	1.65(5%)	283,311.91	-
CL Apalit	2.6	11	62.8	6.8	13.6 (22%)	5.9 (9%)	2,078,494.76	-
Aquadata	6.1	31	22.8	7	7.8 (34%)	.78 (3.5%)	380,035.34	-
Sinukuan	3.8	17	45	7.6	11.6 (26%)	.81 (1.8%)	1,183,406	178,200
BP Water	-	26	62.8	16.6	9.9 (14%)	.98 (1.6%)	-	-
Average, Private:	***4.2***	***21.25***	***48.35***	***9.5***	***10.7 (.24)***	***2.1 (3.98)***	***1,213,978.7***	**178,200**
Tanauan	5.4	36.5	98.3	31.7	28.7 (33%)	4.1 (4.7%)	1,228,107.4	243,192
Sta. Maria	4.1	23.8	96.4	23	23 (24%)	4.3 (4.4%)	1,554,891.8	174,372
Bocaue	5.3	20	53.8	10.7	18.2 (34)	2.1 (3.9)	1,191,944.2	229,740
Tanza	6.1	19+	39.7	7.5+	7.9 (19)	-	-	134,484
Average, WD	***4.9***	***26.8***	***82.8***	***21.8***	***23.3 (30%)***	***3.5 (4.3%)***	***1,324,981.13***	***215,768***
Medium-sized Utilities								
San Carlos	6.1	47	32.9	15.6	6.2 (19%)	1.3 (4%)	748,247.8	356,940
SMU	3.9	17	18.7	3.1	4.6 (25%)	.30 (1.6%)	794,161.5	-
CL Porac	3	12	14.3	1.7	-	-	-	-
CL Sto. Tomas	2.7	13	23.3	3.2	4.6 (20%)	1.2 (5.2%)	1,838,315.5	-
Average, Private	***3.2***	***14***	***18.8***	***2.7***	***4.6 (22.5)***	***.75 (3.4)***	***1,316,238.5***	***-***
Porac	3.3	38	17.5	6.6	5.1 (29%)	.98 (6%)	1,205,984.7	-
Lemery	6.8	39	39.8	15.7	9.5 (24%)	1.76 (4.4%)	699,858.56	192,300
San Jose	12.1	52	32.4	16.8	4.88 (15%)	1.45 (4%)	529,936.7	154,392
Angat	3.4	44	25.6	11.2	7.1 (28%)	.3 (1%)	1,437,546	229368
Ildefonso	4.1	27	27.3	7.5	8 (29%)	-	1146586	-
Average, WD	***5.94***	***40***	***28.52***	***11.56***	***6.9 (25%)***	***1.15 (3.3)***	***1,003,982.39***	**192,020**
Small Utilities								
Lago	4.7	18	4.3	.78	1.8 (42%)	.20 (4.7%)	870,673.60	114,000
Lobo	6	36	15.2	5.4	1.98 (15%)	.79 (5.2%)	791,872.13	227,508

Source: IBNET, NWRB and LWUA
Note: +salaries and wages

Performance-based Profit Orientation. The profit level of private utilities has shown to be generally more restrained than the water districts and more strongly tied to service level. Both findings are weakly conveyed by the econometric results. Except for CL Santo Tomas, the profit level of the most profitable private utilities, CL Apalit, CL Sto. Tomas and Lago, pales in comparison with water districts, such as Santa Maria, Porac, Ildefonso and Angat. CL Porac and CL Santo Tomas, two of the most profitable private utilities, far outperformed the water districts in terms of

number of new connections in the category of medium-sized utilities. And large private utilities, which are slightly more profitable than medium-sized private utilities, have outperformed the medium-sized private utilities in terms of number of new connections. Also, the private utilities with the largest allocation to repairs and maintenance, CL Apalit and CL Santo Tomas, are also the most profitable evincing a significant link between investment and profit levels.

Table 23. Profit Orientation of Selected Utilities by Ownership Type

Utilities	Type	OCR	Net Income(Loss), In Php	Net Income as % of Total Income	Background Information		
					Year Established/Municipality	Pop.	*Local Govt. Income in Mil Php
Large Utilities							
Sto. Tomas	LGU	1.04	768,776	2.3	2000/Sto. Tomas, Batangas	-	-
CL Apalit	Private	1.13	7,995,412	11.3	2009/Apalit, Pampanga	103,373	131.8 (1st income class)
Aquadata	Private	1.02	553,935	2.4	2008/Bauan, Batangas	87,990	194.1 (1st income class)
Sinukuan	Private	1.04	1,731,984	3.7	2004/Mexico, Pampanga (village)	162,293	245.1 (1st income class)
Average, Private:		***1.06***	***2,762,527***	***4.9***			
BP Water	WD	1.19	4,590,123	6.8	1993/Bacoor, Cavite (subdivision)	540,170	750 (1st inome class)
Tanauan	WD	1.13	11,736,111	11.9	1988/Tanauan, Batangas	135,237	509.2 (city, 2nd class)
Sta. Maria	WD	1.1	18,438,038	16.1	1986/Sta. Maria, Bulacan	253,474	376.4 (1st income class)
Bocaue	WD	1.09	5,148,865	8.7	1979/Bocaue, Bulacan	118,350	172.5 (1st income class)
Tanza	WD	1.29	11,435,450	22	1988/Tanza, Cavite	57,570	
Average, WD:		***1.13***	***9,978,284***	***10.9***			
Medium-sized Utilities							
San Carlos	LGU	.96	-1,354,973	-4.3	2000/San Carlos, Negros Occidental	113,578	635.1 (city, 2nd income class)
SMU	Private	.94	-830,355	-4.7	1992/Sta. Rosa, Laguna (subdivision)	310,258	2,761 (city,
CL Porac	Private	1.06	838,291	5.5	2009/Porac, Pampanga		
CL Sto. Tomas	Private	1.2	4,916,953	17.5	2003/Sto. Tomas, Pampanga	37,866	54.3 (5th income class)
Average, Private:		**1.07**	**1,641,630**	**6.1**			
Porac	WD	1.13	3,472,663	16.5	1989/Porac, Pampanga	102,962	178.8 (1st income class)
Lemery	WD	.95	404,773	1.0	1981/Lemery, Batangas	80,158	124.3 (1st income class)
San Jose	WD	1.13	4,118,075	11.3	1977/San Jose, Nueva Ecija	130,722	464.1 (city, 3rd income class)
Angat	WD	1.29	4,785,255	14.4	1987/Angat, Bulacan	50,152	83.6 (1st income class)
Ildefonso	WD	1.26	7,118,578	20.7	1987/San Ildefonso, Bulacan	98,326	.12 (1st income class)
Average, WD:		***1.15***	***3,979,869***	***12.78***			
Small Utilities							
Lago	Private	1.09	389,632	8.4	1996/Balibago, Angeles City	351,993	1.07 (city, huc)
Lobo	WD	.89	562,373	3.6	1989/Lobo, Batangas	37,798	67.8 (3rd income class)

Source: IBNET, NWRB and LWUA
Note: *Municipalities are divided into income classes according to their average annual income during the previous four calendar years. To control for the income effect, most of the water districts and private utilities belong to the 1st income class category.

5.2.3. LGU-run Utilities. The inferior performance of LGU-run utilities can be largely traced to inefficient spending and staffing patterns; the magnitude of spending inefficiencies is somewhat constrained by less favorable market conditions. Restrained profit orientation has also enabled LGU-run utilities to alleviate the impact of inefficient spending and staffing patterns on service quality.

Restrained Profit Orientation, Affordability and Poor Service: The average tariff and the profit level of the two LGU-run utilities, *Santo Tomas and San Carlos*, are among the lowest as measured by the operating cost coverage ratio and net income as a percentage of total income. This partly explains why despite their inefficient spending and staffing behavior, they are able to provide affordable water services. In fact, Santo Tomas outperformed many water districts in terms of number of new connections. It must be noted that these two LGU-run utilities are among the better performing LGU-run utilities, at least in terms of information management system, which affords better performance monitoring. It is also worth mentioning that San Carlos is one of the few LGU-run utilities that are regulated by NWRB on a consensual basis.

Santo Tomas, which is larger than San Carlos in size, has a larger number of staff per 1,000 connections, *i.e., lower staff productivity*. The lower staff productivity of larger LGU-run utilities is in line with the regression results suggesting that the extra-revenues of LGU-run utilities afforded by enlarged market or increased average tariff may have been channeled to hiring more workers or increasing salaries. Based on the Annual Report of Santo Tomas, personnel services rose by 50 percent from 4.8 million pesos in 2010 to 7.4 million pesos in 2012. In particular, salaries and wages increased by 80 percent from 1.3 million pesos in 2010 to 2.4 million pesos in 2012. The salaries and wages refer to salaries and wages of regular employees as opposed to salaries and wages for casual employees which stood at 1.8 million pesos in 2012 from 1.6 million pesos in 2010. Other bonuses and allowances also significantly increased by 65 percent from over 840 thousand pesos in 2010 to 1.39 million pesos in 2012.

Table 24. Itemized Operating Expenses and Operating Revenues of Santo Tomas, 2008-2012, In Million Pesos

Indicators	2008	2009	2010	2011	2012
Operating Revenues	22.3	23.46	26.01	28.7	32.8
Operating Expenses	18.3	18.4	22.46	27.51	31.56
Personnel Services	3	3.78	4.84	6.35	7.36
Salaries and wages: regular	.92	.98	1.32	1.94	2.38
Salaries and wages: emergency/casual	1.2	1.49	1.56	1.56	1.78
Other bonuses and allowances	.33	-	.84	1.22	1.39
Maintenance and other operating expenses	15.3	18.4	22.46	21.16	24.2
Repairs and maintenance	.67	.80	.72	.99	1.65
Net Income	-	3.65	4.52	.24	.77
% of total income					
Operating cost coverage ratio	1.2	1.27	1.16	1.04	1.04

Source: Santo Tomas Water District

The increase in personnel expenses of Santo Tomas was accompanied by a rise in maintenance and operating expenses, albeit not as much as the increase in personnel costs. As a result, labor cost share slightly increased from 21 percent in 2010 to 23 percent in 2012. With an increase in both personnel and non-personnel expenses, Santo Tomas was able to significantly expand service coverage. The size of expansion in service coverage, however, was accompanied by a large increase in the number of employees. With a disproportionately high number of staff relative to number of connections, staff per 1,000 connections increased from 8 in 2010 to 10 in 2012. The decline in staff productivity translated to increased operating expenses. As water rates stayed the same, the rise in operating expenses resulted in lower profit.

San Carlos, on the other hand, has a higher staff productivity level than Santo Tomas, but the labor cost share of the former is much larger than the latter, vastly on account of large personnel expenses. Based on 2012 Annual Report, personnel expenses of San Carlos stood at 15.6 million pesos, which was more than twice that of Santo Tomas. Personnel expenses of San Carlos accounted for a whopping 47 percent of its total operating expenses. Repairs and maintenance, on the other hand, stood at 1.14 million pesos, slightly lower than that of Santo Tomas. Given its relatively high staff productivity, it appears that the large personnel expenses of San Carlos was not a result of an increase in the number of employees but of higher staff compensation. The seemingly high employee compensation does not appear to be effective in reducing non-revenue water which was at 26 percent. The relatively high personnel compensation also does not seem to correspond to its revenue stance as operating revenues fall short of operating expenses. San Carlos incurred an income loss of 1.35 million pesos. The exceedingly high personnel expenses

and consequently remarkably high labor cost share has shown to negatively affect the performance of San Carlos in non-revenue water; they have also weakened its financial stance.

5.3. Additional Case Studies: *To further validate the results of the econometric tests and case studies, I examine the behavior of utilities that are considered as outliers over time. Outliers are the utilities that do not exhibit the average characteristics of the utilities of their ownership type in terms of ownership details, market circumstances and performance. The key findings are the following:*

(i) *Low labor cost share and productivity-based salary increases appear to be robust characteristics of private utilities. These traits remain evident among private utilities that exhibit odd characteristics in terms of market circumstances, ownership details and financial and operational performance. Staff productivity, profit orientation and pricing attributes of private utilities, however, have shown to be largely influenced by demand circumstances consistent with the regression results;*

(ii) *For water districts, the disproportionately high salary relative to staff productivity level and negative association between financial sustainability (i.e., operating cost coverage ratio) and service level remain evident. There is a strong trade-off between financial sustainability and performance in service coverage and non-revenue water;*

(iii) *Better demand circumstances, higher average tariff and higher operating cost coverage ratio do not appear to alter the spending and staffing behavior of LGU-run utilities neither do they improve utility performance; and*

(iv) *Examining the behavioral patterns of the utilities over several years, there seems to be a strong tendency of private utilities to perform better over time. In contrast, staff productivity levels of a water district tend to either stay the same or marginally improve over time while that of a LGU-run utility either stays the same or worsen over the time. Additionally, reduction in cost and improvement in market conditions of water districts and LGU-run utilities have not shown to translate to increased affordability and improved service level.*

5.3.1. Efficiency of Private Utilities: Although many private utilities face relatively favorable demand circumstances, there are a number of private utilities that serve less favorable markets where water users have limited ability to pay, making affordability a pressing concern. I compare the behavior of three private utilities that operate in disparate market circumstances – *Subic Water,*

Calapan Waterworks Corporation (Calapan) and *Bohol Water Utilities Inc.* It is worth noting, however, that the market conditions of the three private utilities do not differ as much as those served by water districts and LGU-run utilities.

Varying Market Circumstances: Subic Water and Sewerage Company Inc. *(Subic Water hereafter)* is a major water service provider in Olongapo, a highly urbanized city. The water utility supplies water services to locators in the Subic Freeport Zone and residents in the nearby Olongapo City. The ability to pay of water users is relatively high which is aptly matched by high service level. Bohol Water Utilities, Inc. (BWUI) and Calapan Waterworks Corporation, on the other hand, largely serve residential users which have lower consumption level and, hence, less stringent service requirements. Although Subic Water supplies water services to an area that was used to be served by a water district, BWUI provides water services to an area formerly served by a state-run utility. The service area of Subic Water is thus more commercially attractive than that of BWUI. Calapan Waterworks Corporation is an old medium-sized private utility operating since 1952 in Calapan, a third income class city in Oriental Mindoro.

Ownership Details: The three private utilities also slightly differ in ownership details. SWC operates under a 30-year franchise agreement. SWC is the Philippines' first water and sewerage system to be developed through a build-operate-transfer scheme. It acquired the contract to manage and operate the insolvent Olongapo Water District in 1997 under a joint ownership agreement (Gonzaga, 2012). The government agency, Subic Bay Metropolitan Authority (SBMA), and Olongapo City have 20 percent and 10 percent equity share in the company, respectively. SBMA also serves as its regulator. In 2012, the SBMA divested its shares in the water utility to free up additional capital for the city government and to address potential conflict of interest arising from its being a regulator, consumer and part-owner of the utility. In 2016, however, the local government of Olongapo bought 10 percent stake in the utility in a bid to better represent its constituents who are the main customers of the SWC (Dumlao-Abadilla, 2016).

In 2000, the Salcon Consortium won the bid for a joint venture with the Provincial Government of Bohol creating a Special Purpose Company called the Bohol Water Utilities Inc. (BWUI). BWUI has the rights and obligations to rehabilitate-own-operate and maintain the water supply system.

In 2003, the NWRB granted BWUI's application for franchise, certificate of public convenience and water permits. The Provincial Government of Bohol owns 30 percent of BWUI shares with the remaining shares owned by Salcon Consortium. Calapan, on the other hand, is a private corporation. The company was formally registered with the Securities and Exchange Commission in May 1991 under the corporate name Calapan Waterworks System and Development Corporation to engage in the business of development and utilizing water resources.

In light of the differences in market conditions and ownership details, there are striking similarities as well as interesting differences in the behavior of these outliers from that of a typical private utility:

Performance-and demand-based water rates. Of the three private utilities, Subic Water has registered the highest water rates. To some extent, the relatively high water rates were warranted by its highly favorable demand conditions. Subic Water serves commercial and industrial users in the free port. The high water rates may have also reflected the high opportunity cost of water given various competing uses of water in a highly urbanized city. The relatively high average tariff of Subic Water also appears to be commensurate with the level of service. Based on the data supplied by the water utility, it has over 40,000 accounts as of 2015 compared to 20,000 connections in 1997. Water production of SWC has also reached 42 million liters per day (MLD) from 10 ten MLD. Total investments reached P1.04 billion since the start of the company's operation in 1997. Although SWC performs remarkably well in service coverage, it performs poorly in non-revenue water with over 30 percent of its water produced lost through leakage in distribution networks and/or pilferage.

Efficient Staffing and Spending Patterns. Consistent with the estimation results, the favorable performance of SWC, particularly in service coverage can be traced to the absence of strong bias towards personnel expenses as indicated by its remarkably low labor cost share. While there is no data on staff productivity, labor cost share, the number of connections and the average annual salary hint at remarkably high staff productivity level.

Table 25. Performance of Two Private Utilities – Subic Water Corporation (SWC) and Bohol Water Utilities, Inc. (BWUI)

Indicators	SWC			BWUI				
	2004	2009	2012	2004	2009	2010	2011	2012
No. of Connections	27,530	32,000	40,000	10,260	11,608		11,979	12,170
Water Coverage	72.8	73.6		69.5	78.4			77
NRW	36.9	32.8		28	25.3			19.8
OCR	1.47	2		1.47	1.03	1.24	1.35	1.35
RCS	72	70	69					143*
UOC	.29	.31		.14				.26
Staff per 1,000 conectins.		5.6		5.85	5.2		4.9	5.3
Ave. Annual Salary	5,410			1,491	5,004		6,759	6,120
LCS	22	23		15.2	20	18	21	
Continuity		24		24				
AR	.42	.59		.2	.37			.16
Collection Period	118	107	103	60.7				
GFA	64.5	.06		48.4				
WC	38.2	38.5	42.4	35	31.3			31.3
Net Income	-	-	-	-	3.4 (55)	17.7(20%)	28.5 (27%)	

Source: IBNET, NWRB and LWUA
Note: *Number of Commercial Users

Role of Demand Circumstances. As with the econometric results, demand circumstances influence the performance of private utilities, but not to a significant degree, as their behavior continues to differ from that of LGU-run utilities and water districts. Calapan and BWUI are illustrative examples. Average tariff of Calapan is lower than other private utilities reflecting its less favorable demand circumstances. The imposition of relatively low rates was accompanied by inefficient spending and staffing patterns. The number of staff per 1,000 connections and labor cost share of Calapan were exceedingly high for a private utility. This resulted in dire financial and operational performance. Operating revenues fell short of operating expenses in 2003 and water service coverage was only 18 percent. In more recent periods, however, the operating cost coverage ratio has significantly improved owing in part to an increase in average tariff. Its operating cost coverage ratio is comparable to SWC. The disproportionately high operating cost coverage ratio was accompanied by a modest increase in the number of connections and reduction in non-revenue water. As with other private utilities, Calapan exhibits a performance-driven improvement in financial stance and profitability. Furthermore, the expansion in service coverage and reduction in non-revenue of Calapan was accompanied by a marginal increase in average annual salary. With a marginal increase in average annual salary and investment in

network expansion, labor cost share dropped substantially making it comparable to other well-performing private utilities.

BWUI faces similar demand circumstances as Calapan but the former's ownership arrangement and size approximate that of SWC. Unlike Calapan, the provincial government is a shareholder of the company. The close ties between the provincial government and the corporation, however, does not appear to influence spending and staffing decisions of BWUI, although it appears to affect its pricing behavior. Its labor cost share is lower than that of many private utilities while staff productivity is comparable to most private utilities. Average tariff of BWUI was slightly lower than comparable private utilities, such as Balibago Waterworks System Inc. (BWSI) and comparable water districts, such as Baliwag WD and Angeles WD.

5.3.2. Spending Biases, Profit Orientation and Performance of Water Districts. Heavy reliance on salary as a performance incentive and the consequently high labor cost share, modest staff productivity level and strong profit orientation have shown to be typical attributes of water districts. These are exemplified by two water districts, Guimba and Baliwag. The water districts differ in size and operating environment, but they share many spending and staffing attributes; both exhibit strong profit orientation. Although Baliwag has higher staff productivity level than Guimba, they both have remarkably high labor cost share as a result of substantial salary increases accompanying staff productivity improvement. As with many water districts, the strong spending bias towards personnel expenses has shown to aggravate performance of these two water districts in service coverage and/or non-revenue water.

The limited expansion in service coverage of water districts does not appear to be occasioned by less favorable demand circumstances. In fact, Guimba is providing water services to a first income class municipality. And yet, it only maintains 3,000 connections or about a quarter of its water service area despite having operated for nearly three decades. The low water service coverage in 2003 can be partly attributed to the remarkably low staff productivity level and relatively high average annual salary, at least higher than that of Calapan, which was categorized as a small private utility. Just like Calapan, Guimba was able to make significant staff productivity improvement in more recent periods. The increase in staff productivity level was accompanied

by a substantial increase in average annual salary and a reduction in labor cost share, indicating that salary increases, to some extent, were proportionate to staff productivity improvement. It is interesting to note, however, that in 2009, average annual salary markedly increased and so did labor cost share. Operating cost coverage ratio also substantially improved. This was accompanied by an expansion in service coverage and a reduction in non-revenue water. The performance of Guimba in water service coverage and non-revenue water, however, was less impressive than in 2012 when the average salary moderately increased, staff productivity level markedly improved, labor cost share was substantially reduced and operating cost coverage ratio was also lower than its 2009 level. Notwithstanding, the average rate and operating cost coverage ratio of Guimba remained higher than other well-performing water districts. A reduction in operating cost coverage ratio may help further expand service coverage and reduce water rates.

Table 26. Performance of Comparable Water Utilities- Calapan Wateroworks Corporation and Guimba WD

Indicators	Calapan			Guimba			
	2003	2004	2011	2003	2004	2009	2012
No. of Connections		4,370	9,617	1,660	2,180	3,000	4,784
Water Coverage		17.9%	62	9.6	13.9	21.6	-
NRW	40.2	40.8%	26	23.5	23.4	14	7
OCR	.72	1.86	1.68	1.05	1.37	2.1	1.36
RCS		76.1%		82	85.7	86.6	-
UOC	.21	.16	.65	.37	.27	.33	.60
Staff per 1,000 conectins.	9.3	8.7	8.1	13.9	11	9	4.8
Ave. Annual Salary	1,828	1,913	1,978	2,028	1,058	4,274	5,736
LCS	34	41	16	32.3	19.5	53	25
Continuity	16	20		24	24	24	-
AR	.15	29	1.09	.39	.37	.63	.80
Ratio of Industrial to Residential	1.42	1.55	-	1.8	1.85	2.26	-
Connection Charge	95	41	-	40.6	39.3	49.9	-
Collection Period	48	39	-	31.8	34.5	-	-
GFA	58.5	60.3	-	29.03	86.3	-	-
WC	19.6	21.6	20.7	19.6	18.7	18.6	18.2
Residential Fixed Component						58.6	
Net Income			44.4 (40%)				14.3 (40%)

Source: LWUA, NWRB, IBNET

Just like Guimba, Baliwag serves a first income class municipality. It is bigger than Guimba and is one of the best performing water districts. Baliwag has one of the highest staff productivity level outperforming a few private utilities, such as SWC and BWUI. The labor cost share of Baliwag, however, had been remarkably high at 50 percent owing largely to its high average

annual salary. The average annual salary of Baliwag was significantly higher than comparable water districts and even that of private utilities. In 2012, however, labor cost share was reduced to 37 percent, albeit still higher relative to comparable water districts and private utilities.

The remarkably high labor cost share of Baliwag, however, does not appear to compromise its financial and operational performance. This may have been afforded by its favorable demand conditions and remarkably low non-revenue water which affords it a strong financial position to amply reward its employees and expand service coverage. Baliwag has one of the lowest non-revenue water. Tariffs, however, can be further reduced as they are higher than that of comparable water district, Angeles and closer to the rates of BWSI. In terms of number of connections, Baliwag does not appear to stand out as BWSI and Angeles WD also perform remarkably well in this area.

Table 27. Performance of Comparable Water Utilities: Baliwag WD, Angeles WD and Balibago Waterowrks System Inc. (BWSI)

Indicators	BWSI				Angeles WD				Baliwag WD		
	2004	2008	2009	2013	2004	2008	2009	2012	2008	2009	2012
No. of Connections	9,240	13,000	13,000	15,695	28,830	36,000	39,000	43,403	18,000	20,000	23,108
Water Coverage	66	62.18	68.14	16,984 (93%)	57.3	69.4	67.2		87.2	90.9	
NRW								19			1
OCR	1.14	1.4	1.35	1.1	1.6	1.15	1.19	1.1	1.45	1.64	1.16
RCS											
UOC	.25	.31	.28		.17	.25	.21	.41	.24	.22	.50
Staff per 1,000 con.	6.1	1.23	1.23	3.4	3.3	3.9	3.8	4.4	3.9	3.6	4
Ave. Annual Salary	3,079	3,274	2,499	6,923	3,681	4,106	4,427	5,318	7,758	7,103	-
LCS	22.5	32.8	28.3	31	22.9	14.8	16.9*	15*	50.4	50.4	37
Continuity	24	24	24		24	24	24		24	24	
AR	28	44	37	.91	26	29	25	.54	.35	.37	.53
Ratio of Industrial to Residential	1.46				1.9				2.37	2.17	
Connection Charge	8.03	5.24	4.86		44.6				68.6	63.7	
Collection Period	33.9	51.5	61.9		30.36	85.1	73.6		31.4	28.1	
GFA	90.04	15.7	23.6		53.3	48.8	43.6		23.5	24.4	
WC	27.8	32.2	32.05	24.2	26.5	36.3	37.8	26	20.5	18.5	
Residential Fixed Component		58.7	54.7						32.2	29.9	
Net Income				17.9 (10%)				30(10%)			17.56 (14%)
Annual bill		58.9	54.7						32.2	29.9	

Source: LWUA, NWRB, IBNET

5.3.3. Spending Patterns and Profitability of LGU-run Utilities: LGU-run utilities face less varied market circumstances than water districts, but there are LGU-run utilities that operate in lucrative service areas typically served by water districts or private utilities. San Carlos Waterworks Department (SCWD) is one of the few LGU-run utilities that supply water service to a city. It is run by the municipal government of San Carlos, a second class component city of Negros Occidental. SCWD is one of the best performing LGU-run utilities in terms of connections and non-revenue water. This can be partly attributed to its slightly higher staff productivity level. But just like many LGU-run utilities, labor cost share is rather high possibly on account of hefty staff compensation.

Consistent with the estimation results, the salaries of San Carlos rose as the number of connections increased. The substantial increase in salary within period 2004-2008, however, was accompanied by a significant improvement in staff productivity. As a result, labor cost share declined, albeit remained significantly higher than comparable private utilities. But compared to the other two LGU-run utilities that are smaller in terms of number of connections and face less favorable demand circumstances, staffing and spending patterns of San Carlos appear to be more efficient. The other two LGU-run utilities, Tubigon and Jagna, exhibit slightly different staffing and spending patterns.

During period 2004-2008, the staff productivity of Tubigon declined, average salary also decreased and so did labor cost share. This was accompanied by an improvement in its financial position as indicated by an increase in operating cost coverage ratio and better performance in non-revenue water, albeit remained inferior relative to comparable utilities. Network expansion remains limited. Jagna, on the other hand, registered a higher staff productivity level than Tubigon and about the same as San Carlos', but its average salary is much lower, suggesting that the utility has more employees. This translates to low non-personnel expenses, remarkably low water availability, but strong financial position as indicated by the operating cost coverage ratio.

Given better demand conditions, San Carlos has registered a higher average tariff than Jagna and Tubigon. Despite high average tariff in 2009, San Carlos has recorded low operating cost coverage ratio. The high average tariff may thus have been driven not by strong consumption but by cost inefficiencies. In 2009, however, operating cost coverage ratio substantially increased consequent on a reduction in unit operating cost and increase in average revenue. This was not accompanied by an increase in the number of connections while non-revenue water worsened. Labor cost share also markedly increased even without any significant change in average annual salary, while staff productivity slightly declined indicating that the increase in labor cost share may have been occasioned by an increase in the number of employees or a reduction in non-personnel expenses. With an increase in non-revenue water and sans any change in the number of connections, the utility appears to scrimp on repairs and maintenance to improve financial position.

The inverse relationship of operating cost coverage ratio with the level of spending on non-personnel expenses and service quality of San Carlos is also shared by the two other LGU-run utilities. Even water districts also exhibit such patterns, albeit with lower degree of association between said variables on account of the water districts' strong revenue stance. The relatively favorable market conditions of water districts allow them to offer high salary without having to make substantial reduction in non-personnel expenses; hence, the weak impact of the spending bias towards personnel expense on service level.

In 2008, Tubigon registered a substantial improvement in operating cost coverage ratio due mainly to an increase in average tariff, while unit operating cost stayed the same. This was accompanied by a substantial decline in staff productivity and a reduction in average annual salary. The extra revenues from an increase in average tariff and profitability appear to be funneled to hiring low-salaried workers. The decrease in salary, however, was more pronounced than the increase in the number of staff as labor cost share decreased. Although non-revenue water markedly decreased, it was a consequence of a reduction in water availability.

In 2009, Jagna also registered a substantial improvement in operating cost coverage ratio while unit operating cost declined. The decrease in unit operating cost, however, was accompanied by reduced water availability. Salary increased despite a decline in staff productivity resulting in a large increase in labor cost share. In 2009, the operating cost coverage ratio of Jagna significantly increased as unit operating cost declined and average tariff increased. The improvement in operating cost coverage, however, was accompanied by an increase in non-revenue water, suggesting that the reduction in unit operating cost may have been afforded by reduced spending in network repairs and maintenance.

Table 28. Performance of Two LGU-run Utilities – San Carlos, Tubigon, and Jagna

Indicators	San Carlos				Tubigon			Jagna	
	2004	2008	2009	2013	2004	2008	2009	2008	2009
No. of Connections	4,840	6,000	6,000	6,701	1,640	2000	2000	2000	2000
Water Coverage	96.7	22.7	23.5		19.8	15.7	18	77.7	68.5
NRW	6.9	16.8	21.7	26	50	30.8	18.7	43.7	11.3
OCR	.92	1.05	1.26	.96	.93	1.29	1.29	1.09	1.41
RCS			100						
UOC	.13	.24	.22	.28	.15	.15	.16	06	.04
Staff per 1,000 conn.	8	6.2	6.3		3.6	8.5	8.5	6	7
Ave. Annual Salary	3,039	5,666	5,386		2,599	1,056	2,441	804.8	898.7
LCS	53	47	52	48	33.2	21.9	43.8	39.8	48.6
Continuity	24	24	24		12	10	10	20	12
AR	.12	.25	.27	.36	.14	.2	.2	.07	.06
Ratio of Industrial to Residential	-	-	-		2.16	1.8	1.7	1.4	1.6
Connection Charge	24.5	17.7	23.9		2.7	3.36	3.12	8.9	8.3
Collection Period					22.27				
GFA		18.7	15.7		24.5	8.8	7.3	2.46	2.64
WC	30.13	25	25	26.04	15.7	22.5	25.4	16.6	26.2
Residential Fixed Component		21.5	29.9			34.9	32.4	6.7	6.2
Net Income				-1.35					
Annual bill		32.3	29.9			34.9	32.4	6.7	6.2

Source: IBNET, NWRB, LWUA

5.3.4. Behavior of the Three Ownership Types over Time: There are striking differences in how the behavior of the three ownership types evolves over time. The staff productivity level of water districts tends to either stay the same or marginally improves over time while that of LGU-run utilities either stays the same or declines over the time. On the other hand, staff productivity level of private utilities has shown to significantly improve over time. As regards pricing, average tariff of private utilities could decrease considerably. A significant decrease in unit operating cost is followed by a marked reduction in average revenue. Calapan is an exception as average revenue increased when unit operating cost decreased but the rise in average revenue only served to compensate for the low average tariff in the previous period which were lower than the unit operating cost. This does not appear to be the case with water districts where average revenue either increased or stayed the same when unit operating cost decreased. This partly explains their wide profit margin and high water rates yet modest expansion in service coverage. Although there are one or two water districts of which average revenue decreased slightly more than the decrease in unit operating cost, the average revenue remained substantially higher than the unit

operating cost. In stark contrast, the water rates of LGU-run utilities are rather sticky as there was also no significant change in unit operating cost.

6. Conclusion and Policy Implications

There are systematic differences in the pricing, spending and staffing behavior of private utilities, water districts and LGU-run utilities. Private utilities have exhibited efficient behavior characterized by strong links between profit stance and service level. Despite the introduction of private sector operating principles, particularly the accommodation of profit motive, the spending patterns of water districts resemble that of LGU-run utilities marked by a strong bias towards personnel expenses, while their pricing behavior could be likened to that of an ill-regulated profit-seeking utility. With their high-pricing behavior, water districts have emerged as a poor alternative to LGU-run utilities in low-income areas, while their cost inefficiencies render them inferior to private utilities in high-income areas with high efficiency and investment requirement. Introducing private sector operating principles to water utilities sans a shift to private ownership can generate perverse incentive effects. With the strong performance of private utilities and the disappointing outcomes of corporatization, abstracting away from ownership may be misplaced, at least for developing countries that have similar institutional realities as the Philippines.

6.1. Perverse Incentive Effects of Corporatization

The results of regression analysis and case studies bear out the low-powered incentive structure of public ownership as intimated by the performance of LGU-run utilities. The results of the econometric and case studies further show that corporatization is a delicate remedy to the inefficiency of publicly-owned utilities. Corporatization could generate perverse incentive effects in the absence of proper accountability mechanisms *(i.e., a coherent regulatory framework)*. Corporatization of water utilities via a water district-LWUA model has shown to yield adverse tradeoff between efficiency and equity goals. Where the political market is inefficient, the results of the studies favor maintaining the low-powered incentive structure of public ownership and

confining the adoption of high-powered corporate principles within the realm of private ownership.

The accommodation of profit motive and introduction of private sector operating principles did not alter the incentive structure of water districts; it simply facilitates further redistribution of welfare gains away from the consumers and towards the employees via unreasonably high tariffs and hefty personnel compensation. Employees have shown to capture the internal returns of the utility to the detriment of low-income consumers. Likewise, the introduction of private sector operating principles has shown to induce water districts to serve lucrative markets in competition with private utilities, while less lucrative markets are underserved by LGU-run utilities and small water districts. Strong revenue prospects in lucrative markets, however, afford only modest improvement in the performance of water districts as a larger proportion of the revenues are channeled to personnel expenses on account of overstaffing and hefty performance-based bonuses.

While water districts retain the spending bias of LGU-run utilities towards personnel expenses, they totally abandon the slant of LGU-run utilities towards low-cost pricing. Tariffs of water districts have shown to be vastly driven by operational inefficiencies and profit motive, almost without regard for ability of consumers to pay. Water districts have registered high water rates even in low-income areas. Also, increased spending in non-personnel expenses has not been accompanied by an improvement in service quality; the most profitable water districts can be the worst-performing water districts. With strong emphasis on financial sustainability concerns, water districts, especially the small ones that operate in low-income areas scrimp on non-personnel expenses (*i.e. network maintenance and expansion*) to cover operational cost inefficiencies and debt obligations leading to deterioration of service delivery.

6.2. Advantages and Limitations of Private Utilities

The performance of private utilities has shown to exemplify that of properly regulated utilities where tariff and profit levels are positively associated with the level of service as noted above. Cost efficiency of private utilities is chiefly afforded by staff productivity-based salaries.

Improvement in staff productivity and performance-based profit orientation up both personnel expenses, particularly salaries, and non-personnel expenses of private utilities. Although there is one private utility in the sample that exhibits inefficient pricing and spending behavior, its performance subsequently improves unlike LGU-run utilities and water districts whose poor performance tends to persist over time. Notwithstanding, the results of regression analyses and case studies may have to be interpreted in its proper context. There are distinct institutional realities in the Philippines that may have contributed to the favorable performance of private utilities and adverse effects of corporatization.

Firstly, the Philippines espouses market-oriented policies and accords strong protection to property rights. The country's legal framework for private sector participation has been laid out decades ago consequent on the active promotion by international financing institutions and development assistance providers that devoted gargantuan resources to promoting market-oriented policy reforms. Private utilities in the Philippines thus operate in an environment that affords *de facto* transfer of crucial rights to the private operator as external influence is adequately institutionally constrained. Additionally, it is also worth noting that private utilities, including those that operate under large PPP schemes (*e.g. Bohol Water Utilities Inc. and Subic Water Corporation*) serve highly urbanized cities and municipalities that could no longer be served by water districts and LGU-run utilities due to large investment and efficiency requirements. This may have perched private utilities in a strong bargaining position to assert operational independence.

Secondly, private utilities may have also been induced to operate efficiently as they face competitive pressure from water districts, which is the legally favored institutional arrangement and the dominant water service providers in urban areas. Many local government units delegated the provision of water services to a private utility when the latter could no longer provide the required service level. *Thirdly*, it is also highly likely that the local governments that opted to delegate the provision of water services are the ones committed to making privatization work.

Notwithstanding the efficient functioning of private utilities and the institutional advantages the same enjoy, there are inefficient political, institutional and market biases against private utilities

in water supply services that need to be addressed. Private utilities may not desire to operate in highly politicized areas where water districts operate and in low-income areas dominated by LGU-run utilities. Local governments which hold the decision rights over the choice of ownership structure in middle-income areas may not also wish to delegate water service provision to private utilities given the monetary and political benefits they derive from directly providing water supply services. A coherent regulatory framework may have to be established to induce the removal of institutional biases against private utilities and promote the efficient functioning of the two other ownership types through proper regulation and competition between all ownership types and, consequently, broaden access to reliable and safe water supply services.

CHAPTER 2

Ownership and Regulation of Water Utilities:
A Refocusing of the Role of a Regulator
An Institutional Analysis of the Philippine Experience

Abstract

The water supply services in the Philippines are provided via three key ownership arrangements, namely, *local government unit-run utilities, corporatized water districts, and private utilities*. The three ownership types are regulated by different agencies which exhibit varying effectiveness as evinced by the systematic differences in the performance of the utilities. To account for the variations in their performance, I explore the nexus between ownership and regulatory process and set out to define the powers and functions of a regulatory oversight under a two-tiered regulatory system where specialized regulators are placed under the former's control and supervision. Instead of an outright policy bias towards any specific ownership structure, I argue for a refocusing of the role of an independent regulatory oversight clothed *with* adjudication powers with policy-making functions over ownership shifts and regulatory conflicts.

Keywords: water utilities; private sector participation; corporatization; ownership; regulation; decentralization.

JEL classification: K23; L32; L95; P48

1. Introduction

The withdrawal of many governments from direct production of goods and services during the latter part of the 1980s has led to a widespread use of regulatory instruments as tools of economic and social governance.[28] In a survey of empirical studies conducted by Megginson and Netter (2001), gains from a shift to private ownership are buoyed by complementary institutional reforms, chief of which is the establishment of an external regulator. An external regulator has long been operating in many developed economies (*e.g., Canada, U.S., United Kingdom*) and a few developing economies *(e.g. Chile and Argentina)* as part of sector reform and privatization initiatives.[29] The long-term nature and high level of investment required to develop water supply systems demand an independent regulatory agency that will monitor and enforce performance standards, interpret other contractual stipulations and, if necessary, adapt the terms and conditions of the contract to evolving circumstances. By narrowing the scope for arbitrary and unfair governmental actions, the presence of an external regulator has shown to encourage private capital investment and use of simpler contracts; it was found to minimize costly and opportunistic renegotiation and disputes between contracting parties.[30] Regulators were also found to improve the performance of both state-owned and private utilities with the highest achivements observed among private utilities regulated by a well-functioning regulatory agency.[31]

Notwithstanding the relevance of a regulatory agency, regulatory failures are not uncommon. The proper functioning of an external regulator would require a suitable regulatory framework to guarantee credible commitment on the part of public agents to faithfully enforce regulatory laws and policies. Although having multiple regulators has its advantages in limiting regulatory capture, it may undermine transparency and accountability resulting in poor enforcement of laws and policies.[32] Proper balancing between commitment and flexibility in the implementation of

[28] See Aryeteey (2001).
[29] See Berg et al. (2000) for an insightful discussion on the design of an independent regulatory commission.
[30] See Stern (2012) for an elaborate discussion on the importance of a regulator in enforcing a long-term concession contract, the advantages and drawbacks of different regulatory arrangements and sources of contractual breakdowns.
[31] See Andres et al. (2008).
[32] See Stiglitz (n.d.).

regulatory policies to preserve efficiency and investment incentives is weakly observed under a fragmented regulatory structure. Accordingly, the World Bank and the Asian Development Bank have been pushing for the establishment of an independent regulatory commission (patterned after the model of US, Australia and England) in many developing countries, including the Philippines to harmonize regulatory policies and promote their effective enforcement.[33] The proposed establishment of a unified regulatory framework in the Philippines where one regulatory agency is tasked to regulate the entry of water utilities and the performance of all ownership types entails an overhaul of the fragmented regulatory landscape where the three key ownership arrangements, *namely, the local government unit-run utilities, water districts and private utilities,* are regulated by different agencies. The existing fragmented regulatory system is similar to that of the United States where public utility commission only applies to privately-owned utilities with public utilities being largely self-regulating.[34] A fragmented regulatory system, however, has resulted in regulatory conflicts and weak enforcement of regulatory policies. This has translated to significant deviations in the pricing, staffing and spending behavior of publicly-owned utilities from what is envisioned in pertinent laws and policies.

Taking a transaction cost economics-based perspective on the relevance of ownership *(i.e., all ownership structures have their flaws but one is more suited than others in a specific transactional setting)* and drawing on the literature on regulatory design, I explore a refocused role of a regulatory oversight under a two-tiered regulatory framework. To induce proper functioning of different ownership types, a regulatoy oversight is vested with adjudicatory powers to regulate the politicians' ownership choices and promote regulatory competition and compliance among regulatory agencies. It is the main contention of the article that where inefficient market incentives and constraints abound as to render all ownership types ineffective and unviable, regulation may have to be aimed at promoting regulatory competition and precluding blatantly inefficient ownership shifts or restrictions *(e.g., preventing the operation of private utilities in areas that are unserved by corporatized water districts)*. The ultimate intent of a regulatory oversight is to alleviate institutional (*i.e., legal prohibitions on privatization of public utilities and declaration of water districts as a preferred institutional arrangement*), political (*i.e., strong preference of political authorities towards*

[33] See World Bank PPP IRC for a discussion on the regulatory systems of the US, Ausralia and UK..
[34] See World Bank PPP IRC .

directly controlling the utilities to generate employment and revenues for the local government) and economic biases and constraints *(e.g., low ability to pay of water users reduces the commercial viability of water supply services)* against private ownership. In effect, a regulatory oversight acts as an ex-ante governance mechanism with respect to the choice of ownership (*e.g., proper administration of licenses to operate and arbitrating ownership shifts),* and an ex-post governance device in terms of monitoring and promoting regulatory competition and compliance through the exercise of its adjudicatory powers.

The remainder of the paper is organized as follows. Section 1 presents the theoretical background of the study. Section 2 discusses the development of a polycentric ownership regime, the fragmented regulatory framework and the subsequent push for the establishment of a single regulatory agency. Section 3 further examines the rationale or lack thereof of the differences in the regulatory framework of the LGU-run utilities, water districts and private utilities. The study then concludes with a discussion on the relevance of a regulatory oversight in promoting efficient functioning of all ownership types and expanding private sector participation.

2. Theoretical Background

The study sets out to define the powers of a regulatory agency in terms of: (i) the overall regulatory set-up, *i.e., whether it operates as a single regulator of all ownership types or as a regulatory oversight under a two-tiered regulatory framework where it controls and supervises regulatory agencies*, and (ii) its specific functions, *i.e., the extent of policy-making functions of its adjudicatory powers.*

2.1. The Overall Regulatory Set-up

A regulatory oversight body typically means a centralized government unit atop the executive hierarchy that holds expertise to supervise regulatory actions of agencies and harness economic incentives and competitive pressures to enhance regulatory effectiveness.[35] In some countries, the water ministry alongside the finance ministry are already providing oversight for water utility

[35] See Wiener (2013).

operations. For state-funded local government-owned water utilities, the elected officials serving in the municipal council or commission are responsible for monitoring and inducing managerial performance. Oversight provided by municipal councils (*where the approval of prices is being undertaken by the council, while service quality issues are resolved through public hearings*) tends to work for smaller cities but less so in large cities where interests are more varied and service delivery becomes more complicated, making it necessary to establish an independent and competent regulatory agency. Given the increasing policy preference towards the decentralization of administrative powers and functions, a regulatory oversight is deemed controversial in terms of its purpose and motivation. Broadly, it serves two key functions: (*i) checking function; and (ii) harmonizing function.*

2.1.1. Relevance of a Regulatory Oversight

The checking function of a regulatory oversight ensures that the regulatory principles and standards are implemented based on efficiency and objectivity (*i.e., curbing the regulatory excesses of overzealous bureaucrats or precluding regulatory capture*); it is created to promote procedural fairness, political accountability and checks and balances in the exercise of regulatory powers.[36] The distance of a regulatory oversight from the water utilities suitably placed them to make politically unpopular decisions and perform its checking function. A regulatory commission is designed to be an independent organization with expertise and neutrality to make decisions that balance varied interests of current and future customers, taxpayers and investors.[37] Such regulatory body is particularly vital in promoting competitive neutrality where private utilities and public utilities co-exist[38]; it ensures that tariff issues are not resolved outside the formal regulatory system, or that the utility itself with the backing of the ministry is not exempt from regulatory compliance.[39] Although specialized regulatory agencies are expected to weigh the costs and benefits of their regulatory policies, a regulatory oversight acts as the final arbiter of the aptness of regulatory policies.[40]

[36] See Estry (2015).
[37] See Berg (2013).
[38] See OECD (2009) and OECD (2013).
[39] See Berg (2013).
[40] See OECD (2009) and OECD (2013).

A regulatory oversight is also established to formulate coherent regulatory principles and standards. Water utilities operate in disparate market settings; they have varied exposure to economic and political incentives and constraints as crucially influenced by their ownership structure. Privy to contrasting market and institutional realities faced by specialized regulators, a regulatory oversight has the vantage point to make proper harmonization of regulatory policies, promote regulatory competition and compliance, facilitate inter-agency coordination, and prevent wasteful duplication of scarce supervisory resources.[41]

2.1.2. Arguments against a Single Regulator

The arguments against a unified regulatory system are directed at a unitary regulatory system where there is only one regulator for all ownership types. A unitary regulatory system, being, in effect, a regulatory monopoly, may exhibit the type of inefficiencies usually associated with monopolies.[42] A monopoly regulator would tend to be more rigid and bureaucratic than specialized regulatory agencies which work closely with their regulatees. Under such arrangement, regulatory failures would have broader impact on the economy, and the agency would have limited expertise in dealing with the peculiarities of different ownership types.[43] A single regulator may suffer from diseconomies of scale as it tries to regulate utilities whose objectives and functions differ.[44] For instance, linking incentives to performance and setting the right incentives for sound managerial decision-making based on well-defined efficiency targets is particularly challenging for state-owned utilities. State-owned utilities are bound to adopt multiple goals and accommodate conflicting interests of various stakeholders.[45] Fining a private utility is likely to help change utility behavior since the stockholders of the utility will bear the cost of the fine, while it may not work for public utilities that are fully owned by the state. For public utilities, a fine would be a penalty on the ratepayers or on the taxpayers, especially so if the utility is heavily subsidized by the government. The establishment of a two-tiered regulatory framework is thus aimed at striking a balance between flexibility and accountability which may

[41] See Goodhart et al. (1998)
[42] See Mutuku (2008).
[43] See Berg et al. (2000).
[44] See Jadhav (n.d.).
[45] See Eisendrath (2013).

be difficult to achieve by specialized regulators on account of their close relationship with their regulatees and the local government officials.

2.2. Functions of an Independent External Regulator: Adjudication with Policy-making Functions

An independent external regulator is defined as a governmental entity that posseses and exercises a specialized public authority without being directly elected by the people nor managed by elected officials.[46] An independent regulatory commission is created to: (i) protect consumers from abuse of firms with substantial market power; (ii) encourage investment by protecting investors from arbitrary and unfair actions of the government; and (iii) promote competition.[47] All of these regulatory aims are directed at enhancing incentives for operating efficiency, system expansion and quality of service. There is a long standing debate, however, on whether these aims are better achieved by assigning to the agency an expanded adjudication powers with policymaking functions *(i.e., fact-finding and policy elaboration)*. Rule-making and policy formulation has become a common function of regulatory commissions.[48] Independent agencies are not only tailored to adjudication; they are tied to an executive agency that exercises policymaking and prosecution responsibilities *(e.g., US Federal Reserve Board which is a policymaker of the higher order with adjudicatory functions)*. The most powerful and institutionalized regulatory agencies possess the broadest suite of regulatory functions, such as rule-making, monitoring and controlling, adjudication and sanctioning. In European countries, elected officials and ministries have delegated various functions to highly independent specialized regulatory agencies.[49]

Adjudication is an adversarial process to ascertain individual rights and duties based on application of pertinent laws or policies to the factual situation. In adjudicatory proceedings, agencies interpret or fill gaps in statutes and regulations and determine the frameworks within which facts are to be evaluated. This contrasts with policy-making or quasi-legislative agency action which promulgates rules and regulations to promote or dissuade specific conduct of persons, groups or classes. Regulatory agencies do not only hear and decide contested matters

[46] See Maggetti (2007).
[47] See Berg et al. (2000).
[48] See Verkul (1988).
[49] See Maggetti (2007).

based on the factual circumstances of the case; they also make policies by formal and informal method of rule-making, or by proclaiming standards and rules of conduct; and prosecute for civil violations of the statutes they administer. Anchored on its primary adjudication powers, independent regulatory commissions are authorized to perform a broad range of functions, e.g., *issue, deny and revoke licenses, set regulatory standards, design investment incentives, determine the pace of privatization, shape the legislative framework, oversee sector restructuring, set rules about ownership and performance requirements, establish the level and structure of tariffs, impose a uniform accounting system, perform management audits on regulated firms via independent consultancy, and develop human resources.*

The formulation of policies through adjudicatory process has the advantage of limiting external lobbying by special interest groups. Operating in a narrow and depoliticized arena, delegation to independent regulatory agencies may serve as a technocratic tool for developing the "best" regulatory action by providing reliable pieces of information and advice to decision-makers.[50] With the assignment of greater policy-making functions formally independent agencies get to be integrated extensively in the political processes. While this may enable regulators to promote informed policy decision-making, it also poses a risk of politicizing the regulatory process. Also, the power to make broad-based legislative rules may complicate the independent agencies' functions. The collegiality nature of commissions may be undermined by advancing executive rulemaking priorities. The centralization of power could make independent agencies something they are not – single headed agencies.[51] There are, however, merits to having independent agencies engage in rule-making. Rules have increasingly shown to be the efficient method of controlling regulated entities than the incremental, time-consuming adjudicatory approach. Rule-making that grew out of adjudication was a decisional technique that grants an independent regulatory agency a functional advantage over the courts, which engage in adjudication without the benefit of a rule-making process.[52] Without having to follow the *stare decisis rule* imposed on regular courts, an agency with both quasi-judicial and quasi-legislative functions may establish new policies in a case-by-case determination in cases where statutory standards would need to be tailored or adapted to evolving circumstances.[53] The agency may be authorized to fashion new

[50] See Maggetti (2007).
[51] See Verkul (1988).
[52] See Verkul (1988).
[53] See Verkul (1988).

policy by adjudication provided that the underlying basis of its order is well-reasoned and within statutory limitations.

To minimize the tradeoffs of greater rule-making powers, a regulatory oversight authorized by law to adjudicate cases may adopt rules to supersede principles of law or policy, but it may not alter existing rules by adjudication process which have previous widespread application, *i.e., it cannot make general law by adjudication*. For instance, public utility commission may not impose a unique accounting rule without going through the mandated rule-making procedures in compliance with statutory requirements. Based on the experience of developed and developing economies, regulatory agencies should also refrain from micro-management and second-guessing utility management, and focus instead on providing incentives for cost containment and system expansion and introducing competitive elements where possible.[54] Likewise, it is essential that a regulatory agency be authorized to request information and receive appropriate responses thereto to facilitate regulatory review. The commission also needs the authority to penalize firms that do not comply with data requests and develop procedures for special issues, including non-payment of consumer bills and consumer complaints.[55]

3. Evolution of a Polycentric Ownership Regime and Fragmented Regulatory Framework in Water Supply Sector

An incoherent regulatory framework has been identified as one of the principal reasons for the poor water service provision in the Philippines.[56] The water supply sector operates under a polycentric ownership regime with a fragmented regulatory structure characterized by poor coordination and overlapping jurisdictions. At present, there are three dominant ownership arrangements of water utilities, *namely, local government unit (LGU)-run utilities, water districts, and private utilities*. The three ownership types are subject to disparate regulatory methods and processes; they are under the control and supervision of different regulatory agencies. *This section*

[54] See Klein and Gray (1997) and Berg et al. (2000).
[55] See Ber et al. (2000).
[56] See ADB (2013)

discusses the rationale and motivation behind the emergence of a polycentric ownership regime and fragmented regulatory structure and the concomitant impetus for the centralization of regulatory powers.

3.1. Local v. National Control over Water Supply Systems

The period of American occupation of the Philippines (1902-1935) witnessed the push for local autonomy, albeit in practice a highly centralized unitary politico-administrative structure was established chiefly due to security reasons.[57] When the Philippines won its independence from the United States in 1946, most provincial and municipal water supply systems in the country were owned and operated by local authorities with financial and technical assistance from a national government agency, the Bureau of Public Works (BPW).[58] Subsequently, however, the control of urban water supply systems reverted to the national government with the creation of the National Waterworks Sewerage Authority (NAWASA) supplanting the Bureau of Public Works through Republic Act 1383. Said law prescribed all local water supply systems to be placed under the jurisdiction, supervision and control of NAWASA. The jurisdiction of NAWASA covered all the territory embraced by the Metropolitan Water District (MWD), which was the trustee and administrator of water supply systems in Metro Manila, and those areas served by existing local government-owned water systems in cities and municipalities.[59]

In 1959, the first local autonomy law was enacted, granting greater fiscal planning and regulatory powers to municipal governments. About the same time, the local government units questioned the legality of centralizing the control of water supply systems via NAWASA on the basis of the former's ownership rights over local water supply systems. In Municipality of Compostela v. NAWASA (1961), the Supreme Court (SC) ruled in favor of the Municipality, which wished to recover ownership, possession, operation, jurisdiction, supervision and control over the water systems. The SC issued the ruling on the following grounds.[60]

Firstly, the funds used to construct the water system were borrowed by municipality from the national government, an obligation which could not have existed had the waterworks system belonged to the national

[57] See Brillantes and Moscare (n.d.).
[58] See World Bank (2003).
[59] The Municipality of Lucban v. NAWASA (1961), Available from http://www.ombudsman.gov.ph/UNDP4/wp-content/uploads/2013/02/Case-Digest.pdf
[60] The Municipality of Compostella, Cebu v. NAWASA (1966)

government. Secondly, the alleged sufficiency of the RA 1381 to justify the action of NAWASA has been overruled by the SC in City of Baguio v. NAWASA, City of Cebu v. NAWASA and several other cases where it was reasoned that the National Government cannot appropriate patrimonial property of municipal corporations without just compensation and due process of law. Lastly, internal management decisions, such as the collection of water fees and the appointment of personnel of the system are not included in the regulatory and supervisory powers embraced in the term "Jurisdiction, supervision and control" to be exercised by NAWASA over the municipal waterworks systems.[61] *The authority of a municipality to fix and collect rents for water supplied by its waterworks system is expressly granted by law in Section 2317 of the Revised Administrative Code and Section 2 of Republic Act No. 2264. Without these express provisions, the authority of municipality to fix and collect fees from its waterworks would be justified from its inherent power to administer what it owns privately.*

To empower LGUs to effectively discharge their responsibilities, Republic Act 1985 assigned more decision-making powers to local government units. In the water supply sector, further decentralization of water service delivery through the dissolution of NAWASA via Republic Act 6234 in 1971 was pursued on account of the adverse impact of the rigidities of a centralized water supply system on service delivery. A centralized water supply system was found to be limitedly responsive to the needs of distant municipalities. Republic Act 6234 created the Metropolitan Waterworks and Sewerage System (MWSS) to provide water services in Metro Manila and its contiguous urban areas. The local government units were given the option to separate from the MWSS. The MWSS and LGUs were authorized to set their own rates with the Public Service Commission tasked to resolve disputes over water rates.[62]

3.2. National Control via Regulation.

Shortly after the dissolution of NAWASA, a government-commissioned study of the James Montgomery consultancy group found that virtually all existing provincial water supply systems were antiquated and poorly managed due to lack of financing, limited technical know-how, and weak institutional set-up.[63] This led to the enactment of Provincial Water Utilities Act otherwise known as Presidential Decree (PD) 198 in 1973. PD 198 declared corporatization via a water district model as the most feasible and favored institutional arrangement. To insulate the utilities from inefficient political interference and enhance transparency and accountability, water districts are prescribed to operate independently of the LGUs with technical advisory services

[61] The Municipality of Lucban v. NAWASA (1961).
[62] See Jamora (2008).
[63] See Jamora (2008).

and financial assistance from the Local Water Utilities Administration (LWUA). LWUA is a specialized lending institution with regulatory powers; the same is under the administrative supervision of the Department of Public Works and Highways. With its assistance programs, the LWUA is tasked to entice LGUs to delegate service provision to a water district. LGUs that opt to deliver water services through a water district loses *de jure* ownership, supervision and control over the utility.

PD 198, however, contained provisions that were found to violate the Constitution. In Tawang Multi-purpose Cooperative (TMC) v. La Trinidad Water District (TWD), the Supreme Court ruled in favor of TMC on the exclusivity of the franchise of water districts. The SC decision allowed the TMC to operate and maintain a water supply system in Barangay Tawang after having secured a certificate of public convenience from the National Water Resources Board (NWRB), the regulator of private utilities. The operation of TMC was opposed by TWD for its alleged violation of Section 47 of PD 198, which grants an exclusive franchise to water districts within their designated service area.[64] But the SC held that the 1935, 1973 and 1987 constitutions expressly prohibit the creation of franchises that are exclusive in character. The SC ruling reversed the decision of the Regional Trial Court (RTC). The RTC ruled in favor of the water districts on the following grounds:

Granting an exclusive franchise is intended to keep and maintain ultimate control and supervision over the operation of public utilities to serve the requirements of public interest. What is repugnant to the Constitution is a grant of franchise "exclusive in character" in a manner that precludes the State itself from granting a franchise to any other person or entity than the present grantee when public interest so requires. The dissenting opinion within the SC also alluded to two reasonable and legitimate grounds for the creation of exclusive franchise: (i) the protection of the government's investment; and (ii) avoidance of a situation where ruinous competition could compromise the supply of public utilities in poor and remote areas.[65] *Section 47 of PD 198 does not violate the constitutional proscription against exclusive franchises as other persons and entities may still obtain franchises for water utilities within the district upon the consent of the local water district or upon a favorable finding by the LWUA, the entity that is in the best position to determine the financial and technical capacity of LTWD in order to decide whether another water service provider is needed in the municipality. The restrictions applied to other private persons or entities are intended to advance its policy of prioritizing local water districts as a means of providing water utilities throughout the country.*

The SC held that there is no "reasonable and legitimate" grounds to violate the Constitution and that any act, however noble its intentions, is void if it violates the Constitution. The SC cited

[64] Tawing Multi-purpose Cooperative v. La Trinidad Water District (2011), Retrieved from http://www.lawphil.net/judjuris/juri2011/mar2011/gr_166471_2011.html
[65] Retrieved from http://www.lawphil.net/judjuris/juri2011/mar2011/gr_166471_2011.html

various rulings of the highest court which annulled the exclusivity of any public franchise. The Constitution mandates that a franchise cannot be exclusive in nature; the President, Congress and the Court cannot directly or indirectly create franchises that are exclusive in character. In PD 198, as amended, former President Marcos created indirectly franchises that are exclusive in character by allowing the Board of Directors (BOD) of a water district and LWUA to create directly franchises that are exclusive in character. As averred by the SC, the BOD and the LWUA are not even legislative bodies; the former is simply a management board of a water district. Neither the BOD nor the LWUA can be granted the power to create any exception to the absolute prohibition in the Constitution, a power that Congress cannot exercise. Upholding the doctrine of constitutional supremacy, the Court maintained that any law or contract that violates any norm of the constitution is null and void.

Aside from Section 47, Section 20 of PD 198 was also declared unconstitutional by the Supreme Court. Section 20 of PD 198 prescribes the Board of water district to require and define a system of business administration and accounting for the district which shall conform to the standards established by LWUA. Auditing shall be performed by a certified public accounting not in the government service, although LWUA may conduct annual audits of the fiscal operations of the district to be performed by an auditor retained by the Administration. In Engr. Ranulfo Feliciano, GM of Leyte Metropolitan Water District vs. COA, the petitioner sought to resolve the issue before the SC on whether Section 20 of PD 198 prohibits COA's certified public accountants from auditing local water districts. Section 20 of PD 198 provides that:

*Sec. 3. No law shall be passed exempting any entity of the Government or its subsidiary **in any guise whatever**, or any investment of public funds, from the jurisdiction of the Commission on Audit. (Emphasis supplied)*

The petition was found to lack merit. The SC held that:

Leyte Metropolitan WD is a government owned and controlled corporation and being one should be subject to audit by the COA. Although PD 198 explicitly requires private audit, it cannot prevail over the Constitution which outlaws any exemption to any entity of the Government or its subsidiary in any guise whatever, or any investment of public funds, from the jurisdiction of Commission on Audit. The framers of the Constitution disallows any exemption from public audit to outlaw the number of entities of the government who took advantage of the absence of a legislature during the martial law to obtain presidential decrees exempting themselves from the jurisdiction of the Commission on Audit.

The SC decision on Leyte Metropolitan Water District vs. COA likewise clarified the ownership of water district by the state principally on the basis of the government's crucial control rights, which include the appointment of all WD directors by government officials, the dissolution of a water district, and the subsequent transfer of its assets and liabilities to another public entity:

There is no private party involved as co-owner in the creation of an LWD. Just prior to the creation of LWDs, the national or local government owns and controls all their assets. The government controls LWDs because under PD 198 the municipal or city mayor, or the provincial governor, appoints all the board directors of an LWD for a fixed term of six years. The board directors of LWDs are not co-owners of the LWDs. LWDs have no private stockholders or members. The board directors and other personnel of LWDs are government employees subject to civil service laws and anti-graft laws. Section 45 of PD 198 recognizes government ownership of LWDs when Section 45 states that the board of directors may dissolve an LWD only on the condition that ***another public entity*** *has acquired the assets of the district and has assumed all obligations and liabilities attached thereto. The implication is clear that an LWD is a public and not a private entity. Assuming for the sake of argument that an LWD is self-owned, as petitioner describes an LWD, the government in any event controls all LWDs. First, government officials appoint all LWD directors to a fixed term of office. Second, any per diem of LWD directors in excess of ₱50 is subject to the approval of the Local Water Utilities Administration, and directors can receive no other compensation for their services to the LWD. Third, the Local Water Utilities Administration can require LWDs to merge or consolidate their facilities or operations. This element of government control subjects LWDs to COAs audit jurisdiction.*

Notwithstanding the unfavorable rulings on certain provisions of PD 198, the water districts emerged as the dominant institutional arrangement, as intended by said decree. The outcomes of corporatization via a water district model, however, failed to measure up to the what the decree intends to achieve as discussed at length in Section 3. Water districts barely covered half of their service areas; they impose remarkably high tariffs. The concerns about ruinous competition and protection of government's investment raised in a dissenting opinion in Tawang Multi-purpose Cooperative (TMC) v. La Trinidad Water District (TWD) appear to be misplaced. Water districts have shown to be ill-regulated, warranting increased competitive pressure and proper regulation. With most low-income areas remaining unserved, the Rural Waterworks Development Corporation (RWDC) was created in 1980 to cater for water supply in rural areas and small towns (*populations less than 20,000*), while water districts served larger towns (*populations greater than 20,000*).[66] The desired arrangement, however, was short-lived; the functions and responsibilities of the RWDC were transferred to the LWUA.

[66] See World Bank (2003).

3.3. Promoting Private Sector Participation

Following the end of the Marcos dictatorship in 1986, the policy preference veered away from centralization of regulatory powers. Having inherited a dysfunctional and oversized bureaucracy, the Corazon Aquino Administration pushed for a greater role of the private sector, community-based organizations and non-government organizations in the decision-making, planning and implementation of government programs in partnership with the local government.[67] Saddled with a huge amount of non-performing assets of over 200 public sector enterprises, the Aquino Administration ventured to create the Asset Privatization Trust in 1986 to dispose of government-owned and-controlled properties.[68] The privatization programs were successfully carried out, thanks to the long held tradition of protecting property rights and upholding the primacy of the private sector, which was temporarily abandoned during the Marcos dictatorship.[69] Although the water supply sector was not one of those that were programmed for privatization, water districts enjoyed greater operational independence under a policy regime of relative autonomy and accountability.

The 1990s witnessed a more pronounced effort by the government to enhance the participation of the private sector in public utilities. The Republic Act 6967 or the Build-Operate-Transfer (BOT) law was enacted in 1990.[70] The Philippines was the first country in Asia to adopt said law and, in effect, institutionalized private sector participation in the management and financing of public infrastructure and development projects.[71] The persistently low service coverage of water districts strengthened the rationale for promoting private sector participation in the traditionally government-owned and-controlled water supply sector. A study conducted by the World Bank two decades after the inception of water districts stressed the importance of exploring more

[67] See U.S. Library of Congress, The Aquino Government (n.d.)

[68] See Manasan (1995).

[69] "Although there was a spurt in the growth of the public enterprise sector during the post war years as the government took an active role in the rehabilitation of the economy, this was immediately followed by a divestment program during the mid-fifties and early sixties due to the poor financial performance of state enterprises. Thus, in 1965 there were only 37 government owned/controlled corporations (GOCCs). During the Marcos years, however, the growth of thepublic enterprise sector accelerated. The number of government corporations more than tripled in the first ten years of his administration to reach 120in 1975; then it grew at a slightly slower pace in the next ten years, totaling 303 in 1984 (See Manasan, 1995)."

[70] Republic Act No. 7718 amended the BOT Law offering additional fiscal incentives and more variants of private sector participation and covering a broader range of infrastructure services, including the supply of water. The Amended BOT Law also broadens the list of PPP government implementing agencies to include government-owned and controlled corporations, such as water districts subject to the approval of the President of the Philippines. The Philippines now has a very comprehensive and well-developed PPP framework.

[71] See PPP Country Profile: the Philippines (2013).

financing options for water utilities to expand service coverage, particularly in low-income areas.[72] Although there were already hundreds of water districts formed during that time, service coverage in low-income areas remained extremely low.

The promotion of private sector involvement in the delivery of public services was pursued in parallel with local government empowerment. In 1991 the Local Government Code was passed to establish a highly responsive and accountable local government by granting the same greater responsibilities, revenue-generating powers and additional resources. Section 2 of the Local Government Code states:

> *It is hereby declared the policy of the State that the territorial and political subdivisions of the State shall enjoy genuine and meaningful local autonomy to enable them to attain their fullest development as self-reliant communities and make them more effective partners in the attainment of national goals. Toward this end, the State shall provide for a more responsive and accountable local government structure instituted through a system of decentralization whereby local government units shall be given more powers, authority, responsibilities, and resources. The process of decentralization shall proceed from the national government to the local government units.*

The Local Government Code empowered the Sangguniang Bayan, the legislative body of the municipality composed of eight elected councilors, to provide for the establishment of an efficient waterworks system to supply water supply services for the inhabitants. Local governments were encouraged to partner with the private sector and adopt commercial strategies, techniques and technologies. Sections 17 and 302 of the Code allow LGUs to undertake BOT projects according to the guidelines allowed by the BOT Law.[73] The impact of decentralization on public service delivery, however, have not been encouraging.[74] LGU-run utilities have remained financially dependent on the national government. LGUs were hard put in managing their growing responsibilities. The poor outcomes of decentralization[75] reignited the debate on the suitability of

[72] See Leano (2004).

[73] Engr. Ranulfo C. Feliciano, in his capacity as General Manager of Leyte Metropolitan Water District, Tacloban City, *petitioner*, vs. Commission on Audit, Chairman Celso D. Gangan, Commissioners Raul C. Flores and Emmanuel M. Dalman and Regional Director of COA, Region VIII, *respondents (2004).*
Retrieved from http://sc.judiciary.gov.ph/jurisprudence/2004/jan2004/147402.htm

[74] Brillantes and Moscare (1998)
http://unpan1.un.org/intradoc/groups/public/documents/EROPA/UNPAN032065.pdf

[75] Decentralization has been argued to be beneficial when the demand for the service are rather differentiated across localities, the supply requires highly localized knowledge and resources, and there are no spillovers across jurisdictions. Although local government units may have the local knowledge and resources, local politics may not provide the appropriate incentives and devices to induce effective use of such knowledge (See Bardhan, 2002). Based on a 2010 Survey of the Social Weather Station, the leading

a decentralized system, spurring proposals ranging from devolution, phased decentralization to re-centralization. The succeeding administrations chose to further decentralize the decision-making structure by promoting partnership between the local government, the private sector and civil society.

After decades of being exempted from the privatization program, private sector participation was introduced into the water supply sector in the latter part of the 1990s. Metro Manila took a high profile privatization of its water supply in 1997. A few major cities and towns followed suit, but private sector participation remained concentrated in affluent areas.[76] Although it was acknowledged that the participation of the private sector in water service delivery would bring in more technical and financial resources to the sector, there are serious obstacles to promoting private sector participation in provinces and municipalities. LGUs are ill-equipped to prepare and manage contracts and regulate private sector-managed systems.[77] The Local Government Unit Urban Water Supply and Sanitation Project of the World Bank also pointed out the difficulty of working with the local government. Many LGU-run utilities are unwilling to relinquish control over water supply systems. Moreover, the Department of Interior and Local Government, in partnership with the World Bank, has been helping local government units to enhance their capacities in contract design, negotiations and enforcement through the Public-Private-Partnership Center.[78]

3.4. Towards a Unified Regulatory Framework

The limited participation of private sector in service delivery and poor performance of LGU-run utilities and water districts on the back of overlapping jurisdictions of regulatory agencies of water utilities; the conflicts of interest in the current regulatory set-up; and the unconstitutionality of the exclusive franchise to water districts spurred a legislative proposal by the NEDA to establish a Water Regulatory Commission (WRC) to centralize the issuances of franchisees and

public opinion polling body, local government units obtained a highly satisfactory rating on issues that involved relatively simple tasks and served immediate/basic concerns of the local constituents and tapped local information and resources, such as: maintenance of health centers; promoting health programs; lighting of streets; repairs and cleanliness of public markets; and implementing educational programs; issuance of permits; and information dissemination and promoting tourism.

[76] See World Bank (2003).

[77] See World Bank (2008).

[78] Developing Public-Private Partnerships in Local Infrastructure and Development Projects: A PPP Manual for LGUs (2012).

consolidate regulatory powers. The WRC is envisaged to provide oversight over water supply, setting goals and targets for all service areas, rationalizing tariffs across the country and attract investment in the sector. Meanwhile, there have been efforts to consolidate/harmonize regulatory powers via the NWRB, an agency that is tasked to regulate private utilities. In 2002, the NWRB was strengthened via Executive Order No. 123 expanding the jurisdiction of the same to include water districts. Addressing the conflicting role of LWUA as a regulator and lending institution, the said EO limited LWUA's economic regulation to reviewing tariffs of only those WDs in which the agency has financial exposure. This allows LWUA to focus on promoting the financial and institutional development of water districts. Since its issuance up to now, however, the NWRB has not acted upon any single request for rate approval. NWRB still lacks the capacity and resources to exercise its regulatory powers over a much larger number of regulatees.

4. Ownership and Regulatory Process and Effectiveness

To explain the systematic differences in the performance of LGU-run utilities, water districts and private utilities, this section delves into the relationship between ownership structure of the utilities and regulatory orientation and effectiveness.

The decentralization of water service provision as discussed in Section 3 yields a polycentric ownership and fragmented regulatory regime. Under a polycentric ownership and fragmented regulatory regime, there are about 5,400 water service providers, but they supply piped water to only 43 percent of the population.[79] Urban areas have broader access to piped water at 61 percent compared to only 25 percent in rural areas.[80] LGU-run utilities, water districts and private utilities run the urban water systems, while community-based organizations operate the rural water systems.[81] The LWUA-supervised water districts dominate the urban areas; the self-regulating LGU-run utilities serve the less lucrative areas; and NWRB-regulated private utilities operate in highly urbanized cities, albeit there are regulatory and market overlaps. The NWRB regulates private utilities as per franchise agreement while the same supervises LGU-run utilities on

[79] See ADB (2013)
[80] See ADB (2013)
[81] See NEDA (2010)

consensual basis. The Department of Interior and Local Government (DILG) is working closely with NWRB and local government bodies to professionalize service delivery of LGU-run utilities. LWUA and NWRB adopt similar price regulatory methods, albeit there are marked differences in regulatory rules and procedures and their effectiveness as discussed below.

Table 1. Key Institutional Features of LGU-run Utilities, Water Districts and Private Utilities

Utility Category	Ownership Type	Enabling Laws	Market Patterns	Regulatory Structure			
				Regulator	Functions	Price Regulatory Method & Goals	Staffing Patterns
LGU-run	Pure public	LGC	Dominate low-income areas; Estimated to be around 1,000, only 350 provide individual household connections	DILG	Oversight; provides funding support	Varies	Varies
Water District	Quasi-public/ Corporatized	PD 198	Dominate urban areas in terms of population served; Over 900, only 500 are operational	LWUA	Sets tariffs and input/performance standards; Source of financing and technical support	Rate of return/Financial governance rules, financial viability and equitable pricing	Align staffing patterns with financial sustainability rules, staffing level tied to revenues and utility size
Private Utilities	Pure private	Corporate Code	Mainly serve high-income areas	NWRB	Sets tariff-setting rules, regulates profit	Rate of return/financial viability and equitable pricing	

Note: LGC=Local Government Code; PD 198=Presidential Decree 198; NWRB=National Water Resource Board; LWUA=Local Water Utilities Administration; DILG=Department of Interior and Local Government

4.1. LGU-Run Water Utilities

LGU-run utilities were estimated to be around 1,000, but only a third of which provided piped water connections while the rest supply water through wells and hand-pumps.[82] In a study titled Management Models for Small Towns Water Supply, direct management by LGUs was found to be less successful than water districts and private utilities in small towns in terms of non-revenue water, water availability and service coverage.[83] Although private sector operating principles (e.g., ring-fencing) have been introduced to LGU-run utilities, they are still the archetypical municipal water works departments found in many developing countries with limited degree of independence and weak performance monitoring systems.[84]

4.1.1. Self-regulation and its Rationale: Under Section 17 of Republic Act 7160 or Local Government Code of 1991, the local government units are responsible for the provision of basic services and facilities within their respective territorial jurisdictions. The LGUs may establish and operate their own water supply systems in conformity with its political and corporate existence as stipulated in Section 15 of the Code:

> *Section 15: Every local government unit created or recognized under this Code is a body politic and corporate endowed with powers to be exercised by it in conformity with law. As such, it shall exercise powers as a political subdivision of the national government and as a corporate entity representing the inhabitants of its territory.*

Local political authorities formulate the general principles governing the supply of the service by LGU-run utilities. The Local Government Code assigns economic regulation (*i.e. tariff approval and setting of key performance indicators*) to the Sanguniang Bayan (SB), the legislative body of the municipal governments. SB[85] sets the terms and conditions under which LGU-owned water

[82] See ADB (2013)
[83] See World Bank (2003)
[84] See Braadbaart, Blockland and Schwartz (1999) and Thynne (1994)
[85] The SB is composed of the municipal vice mayor and regular members, president of the pambayang pederasyon ng mga sangguniang kabataan and the sectoral representatives. The Local Government Code also provides for an additional three sector representatives representing women, laborers, and any of the urban poor, indigenous cultural communities, disabled persons or another that may be identified by the SB. The regular members of the SB and the sectoral representatives are elected for a three-year and may be re-elected for another two consecutive terms. The municipal vice mayor is the presiding officer of the Sangguniang Bayan, albeit with no voting privilege except in cases to break a deadlock. All heads of department and offices shall be appointed by the mayor with the concurrence of the majority of all the SB members, subject to civil service law, rules and regulations. Upon the majority vote of all the members of the SB, the SB may authorize the municipal mayor to negotiate and contract loans and other forms of indebtedness

systems may be operated by the municipal government or leased to private persons or entities. LGU-run utilities are self-regulated by both establishment and operation. If a local government unit decides to directly operate the utility, it may do so without having to secure certificate of public convenience from any government agency. Othewise, a local government unit has to obtain permits from designated regulators, *i.e., it must secure a certificate of public convenience from NWRB if it opts to delegate water service delivery to a private operator and from LWUA if the water system is to be managed by a water district*.

Most LGU-run utilities operate in low-income areas where there is strong political pressure to keep water supply services at highly affordable rates, which partly explains the extent of subsidization among municipal water utilities. Often, the operating revenues of the utility only covered the operating expenses, with the capital improvements funded by loans extended by the national government through the Municipal Development Fund Office (MDFO) of the Department of Finance (DOF) or, directly, from government financing institutions such as the Development Bank of the Philippines (DBP) and the Land Bank of the Philippines (LBP).[86] To make do with limited funding, LGU-run utilities also share resources with other economic enterprises of the government. A typical LGU-run utility has no dedicated staff.[87] The utility is operated by its municipal engineering or city administration department together with other economic enterprises of the municipal government, such as markets, bus terminals and slaughterhouses.

4.1.2. Regulatory Weaknesses and Remedies. Both resource-sharing and subsidy dependence of LGU-run utilities make internal monitoring and regulation difficult. Regulation is made even more difficult by the characteristics of water supply services which create a wide misalignment of incentives. Water infrastructure is capital-intensive, the life span of water assets is unsually long. In turn, the short-term marginal cost of water service delivery is lower than its long-term marginal cost, making it easy for local political authorities to redirect public funds to personnel expenses and price water supply services at below cost-recovery levels. Once the investment is sunk, the operator could continue operating as long as operating revenues exceed operating cost, without realizing any return on sunk investment. Below-cost pricing and overstaffing are politically

[86] See World Bank (2008).
[87] See World Bank (2008).

expedient on account of their immediate and tangible benefits. With water infrastructure having a longer life span than local political authorities, long-term investment in network maintenance and expansion would appear to be a much less attractive means to signal performance and win votes as the local political authorities do not get to fully internalize the gains of such long-term investment.

To overcome the incentive problems of state-owned utilities, numerous measures have been explored, such as: (i) corporatization; (ii) organizational restructuring; (iii) creating an independent regulatory agency; and (iv) establishment of a regulatory oversight. Corporatization via a water district model was introduced to strengthen efficiency incentives through the adoption of performance-based compensation scheme and establishment of performance monitoring systems. But as discussed in subsequent section, these incentive devices have not been effectively enforced. Organizational restructuring, on the other hand, has been continuously explored to facilitate better monitoring (*e.g. ring-fencing their financial accounts and statements from the LGU's overall accounts; establishment of financial reporting system*), albeit with limited success. Accountability and monitoring systems may help discourage workers from engaging in acts of petty corruption, but they do not adequately insulate utilities from inefficient political interference (*e.g., discriminatory installment of service connections in areas based on political affiliation, and hiring of political supporters*).

4.2. Water Districts

Water districts are the dominant service providers in urban areas, serving over 42 million user; they are "statutory body" organizations referred to as corporate utilities or government-owned and-controlled corporations.[88] The institutional set-up of water district seeks to address both the accountability cracks, resource constraints and susceptibility to political interference of state-owned utilities. Section 6 of PD 198 classifies the institutional arrangement of water districts as that of a *quasi-public corporation* performing public service and supplying public wants, while exercising powers, rights and privileges of private corporations:

[88] See Thynne, 1994

> *Section 6: …a district shall be considered as a quasi-public corporation performing public service and supplying public wants. As such, a district shall exercise the powers, rights and privileges given to private corporations under existing laws, in addition to the powers granted in, and subject to such restrictions imposed, under this Act.*

Water districts have a separate juridical status; they are not under the jurisdiction of any political subdivision. The utilities are run by independent managers based on commercial principles under the supervision of a Board of Directors and LWUA. PD 198 grants water districts ample operational independence, albeit a closer examination of the regulatory framework within which they operate suggests otherwise. Section 25 of PD 198 states:

> *Section 25: The district and its employees, being engaged in a proprietary function, are hereby exempt from the provisions of the Civil Service Law. Collective bargaining shall be available only to personnel below supervisory levels: Provided, however, That the total of all salaries, wages, emoluments, benefits or other compensation paid to all employees in any month shall not exceed fifty percent (50%) of average net monthly revenue, said net revenue representing income from water sales and sewerage service charges, less pro-rata share of debt service and expenses for fuel or energy for pumping during the preceding fiscal year.*

Despite being granted corporate powers, the Supreme Court declared water district as a government-owned and-controlled corporation (GOCC) in 1992 as noted in Section 3. As a result, water districts would have to conform to the rules and standards of the Civil Service Commission on the hiring and firing of employees and be subject to public audit. Relative to LGU-run utilities, however, water districts still enjoy greater autonomy from the local government, especially those that are financially self-sufficient.

Regulatory Framework and Outcomes. The Board of Directors and the LWUA are established to enforce PD 198 and achieve the decree's intended objectives with the latter holding greater *de jure* regulatory powers than the former. The local political authorities, however, continue to hold vital *de facto* and *de jure* control rights over water districts. For one, a water district is formed at the option of local political authorities. A water district is established through a resolution issued by the local legislative body to be approved by the local chief executive. The local chief executive appoints the water district board of directors from a list of nominees solicited by the local legislative body from well-established civic organizations. The Board of Directors appointed by

the mayor will have to be reviewed and confirmed by the LWUA. Any per diem of the Board is subject to LWUA's approval. PD 198 prescribes staggered starts of the five-year term of the directors, precluding the appointment of majority of the directors by the same local chief executive. The Board appoints a general manager and define his duties and fix his compensation. The general manager, who cannot be removed from office, except for cause and after due process, has full supervision and control of the operation of water districts; the same appoints all personnel of the district subject to the approval of the Board.

Upon compliance with all requirements [89] to form a water district, the LWUA grants the Certificate of Conformance (CC) or a Conditional Certificate of Conformance (CCC), a license for a water district to operate under a standard specification and be eligible for LWUA's package of financial and technical assistance programs. Any district that holds a valid CC or CCC is exempt from the jurisdiction of the Public Service Commission; hence, water districts are not subject to the profit ceiling of 12 percent of the asset value. The LWUA sets the appropriate tariff structure for water districts in accordance with the tariff-setting objectives stipulated in PD 198. Water districts are required to adopt a socialized pricing scheme where high-income, heavy users pay more per cubic meter of water than low-income, minimal users. Sections 37 and 63 of PD 198, as amended, require that rates must be adequate for the annual operating expense of the district, the maintenance and repairs of the works, a reasonable surplus for replacement, extension, and improvements and payment of interest and principal. Water districts are also obliged to provide sinking fund for the payment of debts of the district as they become due and establish fund for reasonable reserves. Financial management governance rules

Table 2. Service Coverage of Water Districts

No. of Connections	No. of Water Districts	Population Served	Population under Jurisdiction	Water Supply Coverage
35,001-up	7	3,728,47	5,343,036	0.70
30,001-35,000	6	1,095,059	2,194,471	0.50
25,001-30,000	6	1,112,031	2,163,261	0.51
20,001-25,000	11	1,415,688	2,784,198	0.51
15,001-20,000	12	1,167,532	2,478,463	0.47
10,001-15,000	14	988,605	1,853,223	0.53
5,001-10,000	44	1,957,989	4,975,277	0.39
1-5,000	326	2,552,073	14,329,155	0.18
TOTAL	426	14,017,451	36,121,084	0.39

Source: Philippine Association of Water Districts (2008-2009)

[89] The requirements include a description of the boundary of the district; a statement completely transferring any and all waterworks under such city, municipality or province to such district upon the filing of the resolution forming the district.

are supported by quality control of inputs and technical and institutional support. LWUA prescribes minimum standards and regulations in order to assure acceptable standards of construction materials and supplies, maintenance, operation, personnel training, accounting and fiscal practices for local water utilities.[90]The Administration also provides technical assistance and personnel training programs.

Despite LWUA's technical and financial support and supervision over virtually all aspects of the operation of water districts, the latter were found to be rarely demand-responsive. Water districts have relatively high tariffs, accumulated large debts and provide limited services for the poor. [91] Large water districts serve high-income areas and enjoy disproportionately high profit level, while small water districts that operate in low-income areas are financially distressed. Water districts are found to be more successful in larger towns where they get to fully utilize their enhanced technical capacities and institutional support.[92] Two factors could lend an explanation to the disappointing performance of water districts: *(i) conflicting roles of the regulator; and (ii) persistent political interference and influence in the operation of water utilities.*

LWUA's Conflicting Roles. LWUA is a government-owned and-controlled corporation which primarily functions as a specialized lending institution; it is entrusted to promote, develop, and finance local water districts.[93] The Administration was originally attached to the Office of the President but was transferred to Department of Public Works and Highways. The policies of the Administration is set by the Board of Trustees all of whom are appointed by the President. The trustees serve a five-year term and may be removed for cause only. PD 198 sets qualification criteria for the trustees *(i.e., sufficient background in the field of economics, experience in management or systems operations)*. To restrain excessive borrowing, PD 198 sets the authorized capital of LWUA. There is an Oversight Committee on Local Water District composed of the LWUA, Civil Service Commission, Department of Budget and Management and the Philippine Association of Water Districts.

[90] See WSP (2009)
[91] See WB (2003)
[92] See WB (2003)
[93] Under recent enhancements to its charter, however, water districts may access non-traditional sources of funds provided that a "Waiver" coming from the Administrator of LWUA is issued accordingly.

Despite ministerial oversight and other institutional checks and balances, LWUA's lending activities are highly profit-oriented to an extent that it impairs its regulatory function. LWUA extends loans to the utilities at an interest rate of eight to 12.5 percent, more than three times the concessionary rates on loans made by multilateral development banks to LWUA.[94] LWUA loans were so expensive that around 40 water districts during period 2006-2014 decided to have their LWUA loans refinanced by banks with lower rates in order to trim down interest expenses. Additionally, LWUA charges nine percent of the gross loan amount for conducting feasibility and detailed design studies, plus another four percent for construction supervision. The high cost of financing pushed water rates up. Loans that are inefficiently spent due to poor system planning and design by LWUA also contributed to increased water rates, creating a vicious cycle where inefficient system design leads to poor but expensive services resulting in low willingness to pay for the service.

Financial sustainability requirements imposed on both LWUA and water districts distort incentives for effective regulation, undermining both efficiency and equity goals. Profitability considerations of LWUA as a lending institution overrides the demand for proper regulation. Water districts are allowed to charge exceedingly high water rates to cover their debt obligations and stay financially sustainable. The expensive loans of LWUA have also abetted water districts to engage in cherry-picking, limiting their presence in low-income areas. LWUA has not been strictly implementing regulatory policies. Although the agency establishes and monitors key performance (KPI) and business efficiency measures (BEM) *(e.g., service coverage, collection efficiency, water pressure in the distribution system and non-revenue water)*, the same has not been strictly requiring WDs to submit basic financial reports for monitoring and compliance assessment. Performance indicators are simply used for sharing information and identifying potential risks to the financial sustainability of the utility rather than as a basis for imposing fines and penalties.

Persistent Politicization of Water Districts. Regulation of water districts is further constrained by the strong *de facto* control rights and remaining *de jure* control rights of the local political authorities as noted earlier. Although PD 198 sets guidelines on the selection of the Board prohibiting the

[94] See Lazaro (2000)

appointment of relatives of local political authorities, the local chief executives still appoint their relatives and political allies as members of the board.[95] Lack of knowledge of the prohibition on appointing relatives is often used as a pretext by local chief executives for violating said provision of PD 198. LWUA being a "developmental/soft" regulator is inclined to let such infractions pass. Besides, the agency needs to maintain a good working relationship with the LGUs. With the grant of local autonomy and decentralization of water supply services, municipal governments hold numerous levers of influence. When a municipal government wishes to take over the utility, the LWUA is inclined to step aside provided that all liabilities of water district are settled or assumed by another public utility as prescribed by PD 198.[96] Although PD 198 requires a court order for the dissolution of a water district, water districts are often taken over by the local government absent any court proceeding. There are a few cases, however, where the water district board resisted the takeover and filed a case before the Supreme Court. But typically the takeover of the utility by the municipal government is settled between the WD Board, the municipal government and LWUA.

4.3. Private water operators

Private utilities have been increasing in number, serving over two million users, excluding the two water concessionaires in Metro Manila, which provide water services to over 12 million users. They serve highly urbanized areas, as well as, exclusive subdivisions and economic zones. During the past two decades, private companies have secured congressional franchises and have built systems located in new property developments. [97] The operation of private water utilities are governed by general business and corporation laws. As private corporations, private water utilities can retain their revenues and spend them as needed without the obligation to turn to Congress annually for budget allocation.[98]

[95] This has been confirmed by LWUA and staff of local government units during the author's interview of utility stakeholders.
[96] Based on the information gathered by the author in her interviews of LWUA officials.
[97] Retrieved from http://www.adb.org/sites/default/files/institutional-document/33810/files/philippines-water-supply-sector-assessment.pdf
[98]See Dumol (2000).

4.3.1. Establishment of Private Water Utilities

All private utility operators should secure the Certificates of Public Convenience (CPC) or Certificate of Public Convenience and Necessity (CPCN) from the NWRB before they can operate as a private water utility. The CPC is renewable every five years. As a national regulatory body for water resources and water services under the Department of Environment and Natural Resources, the NWRB also regulates and fixes water rates charged by waterworks operators, except those within the jurisdiction of the Metropolitan Water and Sewerage System (MWSS) and LWUA. NWRB serves as an appellate body for tariff-related complaints of all utilities, including those of water districts, but not those under the MWSS. The agency's operations are funded by the National Treasury through the General Appropriations Act which is annually approved by Congress.[99] As a regular government agency, all collections are remitted to and retained by the National Treasury.

4.3.2. Regulatory Methods and Approaches

There are striking differences in the regulatory methods and approaches of NWRB and LWUA. Unlike LWUA, the economic regulatory function of NWRB is confined to fixing water rates. NWRB sets basic service standards, but it is the firm that decides on how to meet their service obligations. Both NWRB and LWUA, however, adopt a socialized pricing scheme. The NWRB follows a quantity block method which comprises two parts: the minimum charge and commodity charge. The minimum charge should be able to cover all the fixed costs required to carry on the vital water supply functions not directly related with production and distribution. The minimum charge *(i.e., tariff imposed on basic/minimum water consumption level of ten cubic meters)* should not exceed 5 percent of the family income of the low-income group in the municipality where the water utility operates. The commodity charge, which is the amount to be charged for consumption beyond minimum consumption, varies according to volume produced and consumer category.

Price Regulatory Method. The price regulatory method is a cost reimbursement scheme whereby the utility has to make a tariff proposal within a five-year time frame based on projected

[99] See Asian Development Bank (2005)

consumption. Private utilities calculate the operating expenses during the next five years, and then compute for the average water tariff that will meet the annual revenue requirements within the five-year period. A water utility may request for a tariff adjustment even before the end of the five-year validity period should there be extraordinary events beyond the control of the operator that affect its operations (*e.g., extraordinary increase or decrease in power cost for a given year, legislated wage increases, service area extension or force majeur*). At the end of the five-year period, the actual average ROI attained over the five-year period will be compared against the approved ROI. Any excess or deficiency will be the basis for disallowance or upward adjustment for the succeeding tariff review/adjustment.

Simple and Transparent Tariff Structure. The Board requires private utilities to adopt a simple, transparent and predicable tariff structure for easy monitoring. For instance, there may be only one category of consumers if consumption of other categories is not substantial. Consumers with a business permit but whose consumption approximate that of a residential consumersmay be classified as one. Akin to water districts, the tariffs of private utilities must be adequate to cover all financial obligations, excluding such items that distort the results of normal operations, such as non-recurring expenses (*e.g., losses due to typhoon or fire)*, and reasonable surplus equivalent to 12 percent of net book value of property in service entitled to return, including working capital for two months.

Interestingly, NWRB imposes less stringent financial sustainability criteria. NWRB does not explicitly require private utilities to make sufficient allowances for debt payments and unanticipated losses, plausibly, because below-cost pricing is not an issue among private utilities. Compared to water districts, the public hearing for private utilities is administratively simple with less reportorial requirements. Private utilities are encouraged to conduct prior consultation with customer or customer representatives to agree on the levels of service commensurate with the proposed tariff, and to undertake optional preliminary review with the deputized economic agents before filing a tariff proposal with NWRB. The proposed water rates and scheduled hearing date is published in a newspaper of general circulation in the utility's province at least 15 days before the hearing date to give the public and concerned parties a chance to be heard.

Violations and Sanctions. Private utilities face sanctions when they are found to violate tariff-setting regulations. These sanctions include the possibility of not extending the CPC term of the utility. In applying for a renewal of its CPC, the performance of the utility during the last five years will be reviewed to ascertain whether the approved water rates and the promised levels of service and investments were attained as projected. If the levels of service and investments were not met, there would be a commensurate downward adjustment to the proposed tariff in the next CPC period. If there is gross violation of NWRB regulations, an administrator may also be assigned to manage the utility until compliance is attained with the expenses related to the assignment to be borne by the utility, which is similar to water districts except that the LWUA tends to place the ailing water district under its management indefinitely. The private operator may also be required to post a performance bond to be forfeited in case of breach of contract.

4.3.3. Functioning of Private Utilities

In a study of Management Models for Small Towns Water Supply, private utilities recorded the highest service coverage and their water rates were lower than those of water districts.[100] Based on the author's interviews with the managers of the privately-owned utilities, the municipal government has not interfered in the operation of the utilities, although there are sporadic requests by the local chief executive to accommodate extension of payment terms. Local government oversight is directed at ensuring that private utilities comply with health and safety regulations. As per my interviews with utility management and personnel, the strong *de facto* control rights of private utilities may have been occasioned by the following: (i) they have adequate financial resources to fully finance the establishment and expansion of water supply systems, including making side-payments to overcome bureaucratic hurdles at the local level, (ii) they operate in areas where water districts and LGU-run utilities have failed to provide water supply services due to financial constraints and operational inefficiencies, thus, placing them in a strong bargaining position to secure operational independence; and (iii) they are the ownership choice of municipal governments who are likely to be committed to giving them operational independence. The positive outcomes of water privatization in the Philippines may have also been afforded by high degree of socialization and politicization of water services as conveyed by

[100] See World Bank (2003).

high incidence of non-payment and delayed payment among water districts and LGU-run utilities even in areas where water rates are low and users have strong capacity to pay. The strong social and political bias towards below-cost pricing of water services may have provided the right mix of constraints and incentives for independent small private utilities to align their profit motive with consumer satisfaction.

4.4. Public-Private Partnership

Another form of privatization is the contract-based private sector participation or public-private partnership. As noted in Section 3, the Philippines has an advanced PPP framework designed to encourage the private sector to get involved in public infrastructure primarily through a less restrictive regulation similar to what is applied to the private water operators by the NWRB. Although the NWRB is the national government institution tasked to review water tariffs set by private service providers, most contractual arrangements already include tariff adjustment process (or rate rebasing process). The role of the NWRB is thus to monitor the tariff adjustment process and ensure that it is enforced in accordance with the contract, doing away with lengthy review and approval process.

This contract-based arrangements allow the government to address the limited financing and lack of expertise in operating water supply systems. Under a concession arrangement, for instance, the private entity has an exclusive right to operate, construct or expand the water and sewerage network system without financial and technical support from the government. But projects which would have difficulty in sourcing funds may be financed partly from direct government appropriations and/or from Official Development Assistance (ODA) of foreign governments and institutions, not exceeding 50 percent of the project cost. The right to operate the water supply systems and bill water users have a corresponding obligation to fulfill service obligations stipulated in the contract, such as the reduction of non-revenue water by a certain percentage and level of investment over the life of the contract.

The rights and obligations of the transacting parties stipulated in PPP contracts are implemented and accorded further governance by a regulatory agency and local and/or international

arbitration mechanisms as provided for in the agreement. The two large water concessions serving Metro Manila, Maynilad and Manila Water, are regulated by the Metropolitan Waterworks and Sewerage System (MWSS). The two large water concessions have access to international arbitration. The LGU concessions/leases, on the other hand, are being monitored and regulated by the Technical Working Group of the Contract Administration Unit (TWG-CAU) of the Department of Interior and Local Government Unit (DILG-CAU). The local concessionaires have access to local arbitration. While the performance standards for the two large water concessionaires in Metro Manila are set by the contract, it is the CAU-TWG and LGU Council that jointly set the performance standards for local concessions.

The allocation of control rights by the contract and its implementation by independent institutions are designed to properly delineate the roles of a regulator and a regulatee so that both parties can be made accountable to their respective actions and decisions chiefly based on the reasonable terms and conditions of the contract. This is to be contrasted with the hierarchical system of LGU-run utilities and water districts where the elected officials being the representative of the people hold levers of control, albeit they extensively share decision-making powers to satisfy multiple goals which makes accountability difficult to enforce. Under a contractual arrangement, the transacting parties bargain as equals to forge a mutually beneficial agreement largely based on efficiency considerations. But most local government units are not yet technically equipped to enter into a concession arrangement. A lighter forms of private sector participation are being explored by local government units, such as management contracts.

As noted in Section 3, private sector participation remains limited in the water supply sector with most of the PPP schemes operating in a few major cities and towns. Most of these PSP schemes replaced public utilities *(e.g., Bohol Water Utilities)* and water districts (*e.g., Subic Water*) which were not able to meet the demands for high-quality service of a fast-expanding urban population. These PPP arrangements have shown to enhance service delivery without exorbitant price increases. Interestingly, the PPP arrangements vary in terms of financing structure with a few systems being fully financed by private capital while some are partly publicly financed. They also vary in terms of risk-sharing and frequency and parameters of price adjustments. A few utilities are able to obtain highly favorable contract terms, but the impact of these contract terms on the

performance of these utilities has not yet been studied. For instance, a few PPP-based utilities anchor price adjustments on movements in consumer price index, automatically adjusting water rates every time the price of electricity increases by more than 5 percent.[101] With the two large water concessionaires serving Metro Manila, water rates are adjusted for movements in consumer price index and foreign exchange rates and reset every five years to account for actual investments made and approved investment commitments.

5. Governance of a Polycentric Ownership Regime: Towards the Establishment of a Unified Regulatory Framework

This section explores the significance of a regulatory oversight as both an ex-ante and ex-post governance mechanism designed to guarantee the proper functioning of all ownership types chiefly by promoting efficient ownership choices and enhancing regulatory competition and compliance.

As detailed in Section 4, the performance and behavior of private utilities are consistent with the intent of regulatory laws and policies, while those of water districts grossly transgress statutory objectives evincing better regulation of the former. The LWUA was formed to develop water utilities into self-sufficient enterprises so it may be able to provide affordable water services in a sustainable manner. Despite the relative ease of controlling state-owned water districts, the LWUA has failed to make proper balancing of the financial sustainability and affordability goals of water districts. Water districts tend to aggressively pursue financial sustainability and shun cost minimization thus undermining affordability and system expansion in low-income areas. Notwithstanding the superior performance of private utilities relative to water districts, there are institutional, political and market impediments to privatizing water utilities as detailed in Sections 2 and 4. These constraints on ownership choice could be addressed by establishing a two-tiered regulatory framework. Instead of an outright promotion of private sector participation, I argue for an incremental governance approach whereby a regulatory oversight is established within a two-tiered regulatory framework to adjudicate ownership and regulatory

[101] See World Bank, (2015).

conflicts with a view to promoting regulatory competition and compliance and inducing efficient ownership choices.

5.1. Rationale of a Two-tiered Regulatory Structure

As noted earlier, the regulatory framework being tabled herein is a two-tiered regulatory structure as opposed to a unitary one. As with most developing countries, the water supply systems in the Philippines face serious challenges and constraints (*e.g., lack of funds, limited profitability, and weak enforcement capacities*) which would require close supervision of the utilities with an artillery of technical, financial and managerial advisory support similar to the assistance programs of LWUA. Having been in close contact with the regulatees, the specialized regulatory agencies are privy to how the objectives and performance of managers are affected by government budgeting and bureaucratic management. Without proper regulatory oversight, however, the specialized regulatory agencies would not be compelled to properly leverage their knowledge and information to effectively regulate water utilities. A regulatory oversight could keep specialized regulatory agencies in check so the former may faithfully play a balancing role in promoting the interest of both the consumers and the utilities. By enhancing regulatory competition and accountability, said body could induce LWUA to properly exercise its lending and regulatory functions to turn water utilities into self-sustaining enterprises and reliable partners in the government's efforts to widen access to affordable, reliable water supply services.

To provide effective control and supervision of regulatory agencies, however, a regulatory oversight may need to be independent exemplifying that of an independent regulatory commission with well-defined adjudicatory and policy-making functions. The commissioners may be nominated by the Judicial Bar Council, appointed by the President and confirmed by Congress. The independence of the regulatory oversight from the President would be necessary to condition the regulatory oversight to steer clear of politics so it may aptly provide incentives for efficiency and investment and neutralize the political vulnerabilities of specialized regulators. To preserve the depoliticized arena of adjudication, a regulatory oversight may have to maintain a consultative relationship with the utilities mainly through the specialized regulators via the establishment of coordination mechanisms *(e.g., creating platforms for structured, high-level*

dialogues); it must also operate within clear statutory limits *(i.e., clear delineation of functions)* to preclude arbitrary exercise of adjudicatory powers as detailed in Section 5.2. A consultative relationship between the lead and specialized regulators within a clear framework of coordination and well-defined functions would help narrow the information asymmetry between central, sub-national governments, utilities, and consumers leading to informed, coherent, and cooperative regulatory decisions-making process.

A two-tiered regulatory framework under the control and supervision of an independent regulatory oversight with well-defined quasi-judicial functions is consistent with the policy orientation of the Philippine government towards decentralization and de-bureaucratization to promote accountability. The poor functioning of the LWUA despite its developmental and regulatory functions under the control of the President and the unsuccessful attempts at housing regulatory powers in NWRB provide support for continued decentralization and debureaucratization of regulatory functions. It is a cardinal principle of the system of Philippine government that local affairs be managed by local political authorities, and general affairs by the central authority; hence, the transfer of responsibility of providing water supply services to the local government.[102] Likewise, the growing complexity of public transactions makes it necessary for the national legislature to entrust the "power of subordinate legislation" to independent regulatory institutions. For a valid exercise of the power of subordinate legislation, the functions of regulatory institutions must be clearly defined; their enabling law must map out the boundaries of the delegate's authority, defining their mandate and setting the circumstances under which it is to pursued and enforced.

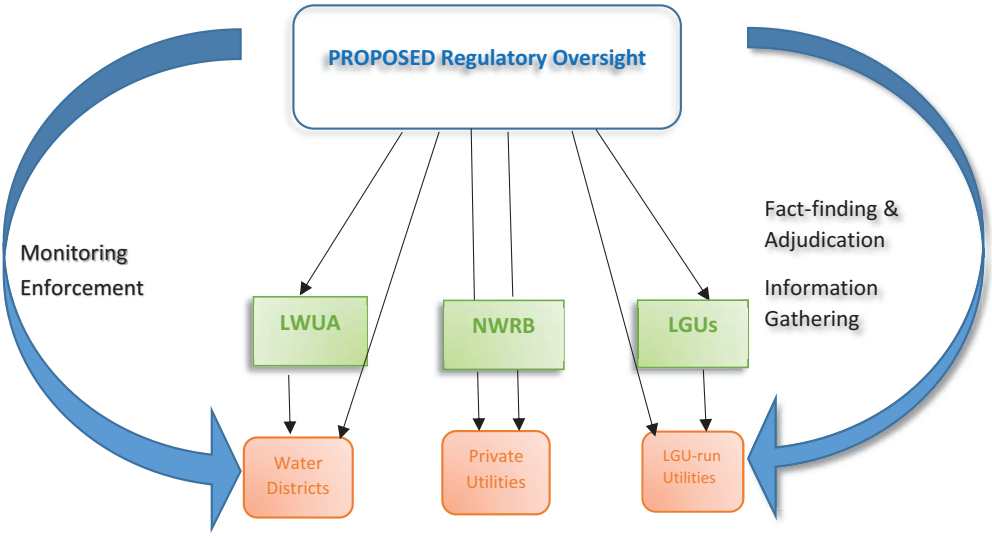
5.2. Defining Governance Powers of Regulatory Oversight

Given limited financial and technical resources, regulatory functions would have to be directed where it is most needed and creates the most impact. The regulatory oversight may need to tap existing resources and knowledge of the specialized regulatory agencies and coordinate with other specialized state bodies *(e.g., Commission on Audit on certification of budgeting and financial reporting of the utilities and the regulatory agencies)* to effectively perform its harmonizing and

[102] See dela Cruz (2014).

checking functions. Looking into the patterns of the performance and behavior of the utilities in the Philippines, the greatest benefits in terms of enhancing regulatory effectiveness can be derived from efficient ownership choices via proper adjudication of ownership shifts and regulatory conflicts to promote regulatory competition and compliance. Being the dominant water service providers in urban areas and a favored institutional arrangement over LGU-run utilities, the creation and regulation of the operation of water districts is a consequential subject for inquiry on why access to affordable, reliable water supply remains limited. The governance powers of a regulatory oversight may have to be aimed at inducing efficient functioning of water districts by providing regulatory checks and balances in their establishment, management and regulation, exposing them to adequate competitive pressure, especially from private utilities through proper administration of licenses to operate *(i.e., compliance with the conditions on entry of firms into the industry and performance-based renewal of licenses*).

The rule-making functions of a regulatory oversight would confined to setting guiding rules and principles governing ownership choices and design and enforcement of licenses and contracts, redefining performance standards, and establishing a system of penalties, including suspension and revocation of licenses via pro-active adjudicative process, investigation and fact-finding. In effect, a regulatory oversight sets the pace of privatization and overall ownership patterns. A regulatory oversight would hear and decide cases involving specific performance of statutory and contractual obligations subject to limited review by the Supreme Court *(i.e., a clear showing of grave abuse of discretion)*. In particular, the functions of a regulatory oversight may be broadly categorized into *(i) information-gathering and monitoring functions; and (ii) investigating and adjudicating regulatory conflicts (e.g., tariffs and quality of service) and ownership shifts.*



Information-Gathering and Monitoring Function: A regulatory oversight can fill the wide gap in performance monitoring and information gathering under the current regulatory set-up. As noted earlier, many water districts do not submit the required annual reports to LWUA. With the fragmentation of regulatory structure, there is no consolidated report on the performance of the utilities (not even a precise count of the number of private utilities and LGU-run utilities), making it difficult to monitor utility performance and assess the relative performance of different ownership types and that of their respective regulators. Comparative competition requires comparative data. Water districts, however, hesitate to provide accurate data and information to the public due to distrust towards municipal governments on account of continued meddling by the latter in the operation of water districts. An independent regulatory body that actively investigates and adjudicates regulatory conflicts and ownership shifts *(i.e., takeover of the facility by the government)* could induce a truthful disclosure of information.

Likewise, access to relevant data and information would facilitate proper monitoring of the issuance of licenses to operate. The proposed regulatory oversight may suspend or revoke licenses in consultation with the designated regulator based on the results of the evaluation of the

performance of water utilities based on the results of the evaluation of the performance of water utilities. This should help settle the issue on the exclusive franchise of water districts, which, despite being ruled by the SC as unconstitutional, has been used to limit the operation of private utilities even in areas that are no longer served by water districts. The operation of private utilities, however, may also need to be monitored as there is a significant number of private utilities that operate without authorization from the NWRB.

Fact-finding and Adjudication: The proposed national regulator is envisioned to have the authority to arbitrate disputes over tariff setting and ownership shifts and address overlapping and unclear allocation of the roles and responsibilities of specialized regulators. At present, the NWRB handles tariff appeals cases of all utilities to be reviewed by Appellate Court. Under the proposed regulatory framework, the decisions of the regulatory body will be final and executory subject to limited review by the court upon a clear showing of grave abuse of discretion as noted earlier. The creation of a regulatory oversight may have to be aimed at addressing inefficient biases that arise from the cooperative relationship between the regulators and the utilities where regulatory conflicts are settled among themselves, sidestepping the role of the court in ensuring that the dissolution of a water district is in the interest of the public. With expensive loans of LWUA, water districts run to the local government units for financial assistance and, subsequently, they are taken over by the municipal government. A takeover by the municipal governments of water districts is not necessarily inefficient, especially if the water district operates in a low-income area. A gradual shift towards private sector participation, however, can be better facilitated if the utilities are already corporatized via the water district model. With their corporate structure and relatively weak ties with the local government, water districts are easier to regulate; they are more susceptible to enter into PPP arrangements.

With the power to investigate and adjudicate regulatory conflicts and ownership shifts, a regulatory oversight can assert its independence and exercise its regulatory powers over the utilities, particularly water districts by posing the threat of privatization to underperforming state-owned utilities. With the threat of privatization, underinvestment and inefficiencies arising from politically motivated re-municipalization, overstaffing of both LGU-run utilities and water districts, excessive staff compensation of water districts, and predatory financing policies of

LWUA could be minimized. Furthermore, well-performing LGU-run utilities and water districts makes public utilities, particularly water districts attractive to private investors, paving the way for the exploration of different PPP schemes. The establishment of proper regulatory framework likewise reduces regulatory risk in water service provision making service provision attractive even to small-time local investors.

Other Institutional Reforms: To aid effective performance of regulatory oversight functions, however, the utilities may have to be structured to make regulation possible. The establishment of a policy governing body (PGB) to supervise the operation of LGU-run utilities, as proposed by the World Bank, is one institutional reform that may have to be in place, albeit without excessive pressure to achieve cost-recovery as it has shown to undermine equity goals in the absence of proper accountability mechanisms. The PGB may have to register the utility with the regulatory oversight. LWUA, on the other hand, may have to be divided into three separate departments: (i) technical and managerial advisory services; (ii) financing; and (iii) regulatory and coordination between technical, managerial and financing functions. The Administration may have to focus on providing technical and financial support for small local water supply systems, while encouraging large water districts to source financing from different financial institutions to gradually transform them into stock corporations.

6. Concluding Remarks

Effective regulation has shown to be more easily exercised among private utilities compared to state-owned utilities in a highly politicized water service provision in developing countries like the Philippines. Given market and institutional constraints on the choice of ownership, however, privatization cannot be readily and widely adopted. An incremental regulatory governance approach to increasing private sector participation via the establishment of a two-tiered regulatory framework seeks to avoid adverse outcomes of wrongfully choosing a *feasible* and *favored* ownership structure. The establishment of a regulatory oversight is primarily aimed at harmonizing regulatory policies and monitoring the performance of regulatory institutions to minimize regulatory failures and preclude inefficient biases towards and against any ownership

structure. As can be drawn from the Philippine experience, the establishment of a unified regulatory framework also has much to contribute in *efficiently* expanding private sector participation by promoting regulatory compliance and competition between ownership types and regulators.

A unified regulatory framework where specialized regulatory agencies are subject to a common regulatory oversight can promote efficient functioning of all ownership types by ensuring that regulatory policies are effectively enforced and traditional regulatory methods and approaches are modified or supplanted if they prove to be susceptible to rent extraction or if they weaken efficiency and investment incentives. By addressing the inefficiencies of water districts and LGU-run utilities through proper regulatory oversight, cities and municipalities can favorably position themselves to bargain for better contract terms with investors that are interested in financing water supply systems under different PPP schemes. A gradual shift in regulatory governance approach towards a unified regulatory system with the intent of dismantling inefficient barriers to private sector participation may also provide the NWRB enough time to enhance its capacity to regulate a growing number of private utilities.

CHAPTER 3

Concession as a Privatization Scheme: A Partnership Approach to Contracting

An Application to Water Service Delivery in the Philippines

Abstract

Long-term contracts are necessarily incomplete in that they cannot unambiguously specify the rights and obligations of the contracting parties and, thus, contractual outcomes are not entirely governed by the explicit contract but, crucially so, by ex-post bargaining. The ex-post bargaining process, however, can be costly to an extent that it may frustrate the investment and efficiency objectives of a concession-based privatization. Drawing on the legal doctrine of commercial impracticability, this article explores a partnership approach to designing and enforcing a concession contract to induce mutual cooperation and, consequently, make the shift from public management to sufficient private ownership significantly welfare-enhancing. The concession-based privatization of water service delivery in Metro Manila, Philippines is used as an illustrative case study.

Keywords: concession; private sector participation, regulated industries, water utilities, contract, regulatory agency, bargaining cost, legal disputes

JEL Classification: K23; K12; L24; L32; L51; L98

1. Introduction

The chronically poor service delivery of state-owned utilities alongside the policy bias against privatization has spurred the exploration of contract-based public-private partnership (PPP) schemes. PPPs were widely promoted by international financial institutions back in the 1990s to turn around the poor performance of public utilities.[103] Under said arrangements, the risks and responsibilities in the provision of a public service are allocated between the private and public sectors.[104] Concession is the most advanced PPP scheme, involving the transfer of complex tasks, *i.e., the financing of capital expenditures*, to the private operator. Although the government still holds asset ownership, the transfer of all crucial decisions rights and the obligation to finance capital expenditures to the private operator affords the same sufficient ownership rights, thus, preserving the high-powered incentive structure of full privatization.[105] The expected efficiency and investment gains from a concession arrangement, however, have not been fully realized on account of implementation challenges, chief of which relates to the renegotiation of contract. Renegotiation has occurred if a contract undergoes a significant modification or amendment not provided for in the contract in any of the following areas: tariffs, investment plans and levels, exclusivity rights, guarantees, lump-sum payments or annual fees, coverage targets, service standards and concession periods.[106] Standard scheduled tariff adjustments and periodic tariff reviews are not considered a renegotiation. The renegotiation of agreements often leads to downscaling of performance targets and even breakdowns and early termination of contracts.[107] In Latin America where a concession arrangement was widely adopted. About 76 percent of water concession contracts were renegotiated compared to electricity, 10 percent; telecom,

[103] See Marin (2009).
[104] See Public-Private Infrastructure Advisory Facility, Retrieved from https://ppiaf.org/sites/ppiaf.org/files/documents/toolkits/highwaystoolkit/6/pdf-version/1-13.pdf
[105] Based on 1984-2010 World Bank data, there is a total of 278 concessions projects worth USD23 billion in investments, more than a third of total PSP investment commitments. Latin America and East Asia and the Pacific, which represent 80 percent of all PPP projects. In Latin America, about 60 percent of the PPP projects in the region are concessions compared to 34 percent in East Asia and 16 percent in Europe and Central Asia (Moszoro, 2014).
[106] See Guasch, et al. (2004).
[107] To cite a few cases, the request of water consortium in Buenos Aires for an "extra-ordinary" review of tariffs due to unexpected operational losses led to a reduction of promised investment by almost 50 percent. The same happened in Kwadukuza, a municipality in Dolphin Coast, South Africa, where the concessionaire asked for a renegotiation of the concession agreement two years after it was awarded, as the expected development of middle-income and mass housing project did not materialize resulting in lower-than-projected water demand. The renegotiation accommodated a price increase and a substantial reduction in investment targets (See Hall and Lobina, 2006).

virtually nil, and transportation, 55 percent.[108] The water concession contracts were renegotiated after only two years into the agreement, which was half that in the transport sector. With limited competition in water service provision, the control rights holder could readily exploit his informational and bargaining advantage to capture practically all gains from the exchange during the renegotiation in consumers' disfavor.

The high incidence of contract renegotiation has led critics of privatization to declare concession as an impractical model for developing countries; it has likewise incited a shift in policy preference towards light forms of PPP schemes and even a shift back to public management. Renegotiation, however, does not decidedly invalidate the merits of a concession arrangement as shown by empirical evidence. Most empirical studies have shown either no significant difference in the performance of private utilities and publicly-run utilities or better performance of private utilities.[109] Although most studies have found that prices tend to increase after a concession-based privatization, Gassner, Popov and Pushak (2009), one of the most comprehensive empirical studies on the impact of privatization on water utility performance, have found no systematic change in the water rates after privatization.[110] Looking through the prism of transaction cost economics, the high incidence of renegotiation of water concession contracts only expresses the peculiarities of water service provision which can be remedied via an assiduous design and enforcement of contracts. In the schema of Williamson, a sizable sunk investment in water services provision makes long-term contracting efficient, but not without the hazards. Long-term contracting is susceptible to negotiation ex-post; contract enforcement thus needs to be accorded proper governance to discourage opportunistic and strategic contracting behavior.

[108] See Hall and Lobina (2006).

[109] By geographic area, the benefits of privatization appear to be relatively pronounced in Latin America where ambitious privatization programs were launched in the 1990s. Benitez et al. (2001) found that all segments of the population in Argentina benefited from improved coverage and quality of water service. Likewise, McKenzie and Mookherjee (2003) argued that evidence of price increases was lacking in Latin America while job losses are minimal. A much less favorable finding for privatization was presented by Bitrán and Valenzuela (2003). Looking into the experience of Chile, the said authors found a higher increase in rates and unaccounted-for water among private utilities compared to the public water utilities, but private utilities have shown to invest more and register higher labor productivity. Le Lannier and Porcher (2011) found that private management, on average, is less efficient than public management.

[110] The magnitude of tariff increases depends on the extent of subsidization, that is, tariff increases can be substantial even with significant efficiency gains if the services were heavily subsidized under public management. Guasch et al. (2006) made similar claim attributing the increase in tariffs following the implementation of privatization projects to below-cost pricing under public management. Carpentier et al. (2006), on the other hand, found that private management tends to lead to higher prices due to complex water operations. Notwithstanding, Gassner, Popov and Pushak (2009) found that the improvement in the level of service appears to be disproportionately smaller to the efficiency gains suggesting that the private operators may have reaped all the gains through profits consequent on the relatively nascent regulatory system in developing countries.

Where the quality of regulatory institutions is high and the operating environment is unstable, there appears to be a strong preference towards simple and flexible contracts accommodating of ex-post negotiation.[111] In most developing economies, however, regulatory institutions are weak while the operating environment is highly unstable. The impact of economic and political shocks on interrelated dimensions of water supply services could be prohibitively difficult to (unambiguously) describe and accorded proper treatment in the contract ex-ante, especially so in a context of severe informational deficiencies (*e.g., informational deficiencies arising from absence of updated maps detailing network routes and an inventory of all types of equipment)*. The contract is thus left incomplete and open to ex-post bargaining, making ex-post governance mechanisms and enforcement strategies of paramount importance.

To promote welfare-preserving ex-post bargaining, I propound a partnership contracting anchored on ascertaining the suitable choice of ownership and an optimal mix of relational and transactional norms in the design and enforcement of key ex-ante and ex-post incentive devices in the contract. The law and economics scholarship has shown that over-reliance on ex-ante incentive devices *(i.e., contract design relating to ex-ante risk allocation)* where there is severe information deficit may lead to ruinous bargaining, pointing to the importance of ex-post government devices (*i.e., regulatory and arbitral institutions*). Within the framework of a partnership contracting, I explore the interplay of ex-ante and ex-post incentive devices to induce parties to engage in cooperative bargaining. The rudiments of a partnership contracting chiefly draw inspiration from incomplete contracting literature (e.g., Gross and Hart, 1986; Hart and Moore, 1990; Hart and Shleifer, 1997; and Hart, 2003), transaction cost economics and law and economics scholarship. Through the lens of transaction cost economics, transaction is more suitably internalized if it requires sizable investment in highly uncertain environments, while small or moderate transaction-specific investments in moderately uncertain settings is better governed through contracts. Administrative contracts, however, are in a class of their own. With its coercive powers and multiple goals, contracting with the state engenders problems different from those in private contracting.

[111] See Stern (2012).

There is a paucity of literature examining the impact of ownership on the bargaining process and outcomes in public contracting.[112] The article is most similar in intent and approach to Besly and Ghatak (2001) and Schmitz (2015) who also analyze the relevance of ownership in an incomplete contract setting from a bargaining perspective. Analysing whether the government or an NGO should own the physical assets used in the provision of a public good, Besley and Ghatak (2001) show that ownership should be assigned to the party who values the public good most, irrespective of the investment technology. Schmitz (2015), on the other hand posits that ownership of the public good may reside with the party that has the technological advantage, even if the other party has a larger valuation of the public good on the ground that assigning ownership to the party that has a technological advantage would result in enhanced investment incentives, greater trade gains, and reduced bargaining costs.

The thrust of the article is two-fold. Firstly, the article presents a dynamic bargaining approach in exploring long-term advantages and drawbacks of private ownership vis-à-vis public management. Until recent years, a bargaining account of privatization as a contractual arrangement remains at the fringes of regulatory law and economics. It was not long ago when economists began to acknowledge the significance of coordinating economic activities through bargaining.[113] Contracting has been typically limited to discrete bargains between the firm and governmental bodies, neglecting the dynamic, relational governance of long-term contracting. Likewise, renegotiation as a contractual hazard is often discussed in disjunction of the structural bargaining deficiencies of public management arising from internalization of the bargaining game. Analyzing the incomplete contract setting of water service provision in developing countries, the article brings sharply into focus how the ownership structure affects bargaining dynamics and, consequently, influences incentives for investment, efficiency and cooperation. The article presents a complementary rather than a nullifying relationship between the *incentive motive,* on which the expected benefits of sufficient private ownership are anchored, and the *transaction cost motive,* which highlights the enforcement cost of contracting.

[112] See Brousseau and Saussier (2009).
[113] See Rossi (2001).

A central proposition of the article is that the incentive [alignment] motive, which crucially involves a transfer of risk to a private entity to incentivize investment and efficiency, is wedded to the transaction cost-minimizing motive of entering into a contractual arrangement.[114] The two motives can be dissociated in an incomplete contract setting with the ex-ante incentive properties enfeebled by enforcement problems, such as opportunistic renegotiation by either party. The problem of double-sided opportunism, however, can be maneuvered to create incentives for mutual cooperation. Relational partnership contracting has been explored to promote cooperative bargaining in French administrative contracts. Anticipating the ex-post lock-in and its overall bargaining disadvantage, the government is induced to develop a relational partnership to align the interest of the private concessionaire with that of the public. With the risk of retaliation, the best strategy of the private operator is to maximize long-term rent by revealing himself as a reliable partner to the government*, i.e., split potential efficiency gains between the company owners and customers; otherwise, the private operator faces a high risk of retaliation by the government*. In this article, I set out to reason along the same line but with significant deviations on account of the specificities in the contractual setting.

Secondly, a partnership contracting as an approach to designing and enforcing a concession contract provides a developing country perspective on the legal doctrine of impracticability, which remains one of the vaguest concepts of law and legal practice. Said legal doctrine has been explored to safeguard incomplete contracts against costly, opportunistic ex-post negotiation. Economists and sociologists, however, differ in their approach to governing incomplete contracts with the former stressing the need to preserve the integrity of contracts and the importance of achieving an efficient level of contractual completeness based on the legal doctrine of impracticability, while the latter deem adversarial legal undertakings and procedures as antithetical to relational contracting, *i.e., legal undertakings forestall the development of cooperative behavior*. The legal doctrine of commercial impracticability bears a relational orientation in enforcing contracts; but there is a wide disagreement among law and economics scholars over the conditions under which contracts may assume a relational slant.[115] Traditionally, economists accorded limited role for excuse doctrines to preserve the efficiency incentives embodied in ex-

[114] See Cheung (1969) and Masten (1999) for the transaction cost of contracting.

[115] Inconsistent application of said legal doctrines created confusion over the proper conditions for adjusting the obligations of the parties to long-term contracts. The courts have generally resolved any ambiguities inherent in the doctrines by construing them narrowly against the party that has attempted to use them, albeit there remains significant inconsistencies in the case law.

ante contractual risk allocation and to insulate the transaction from various forms of opportunism. Renegotiation is thus confined within the realm of strict impossibility or those which involve contingencies with "severe hardship" or "catastrophic consequences". There are, however, a growing number of law and economics scholars (e.g., Kovac, 2011; Smythe, 2003; Gergen, 1995; Sykes, 199l; Scott, 1987; and Fried, 1981), who have propounded an expansive interpretation of the excuse doctrines, particularly in long-term administrative contracts. In this study, I attempt to balance the role of contracts as rigid control and sanctioning tools and as an ongoing basis for working out solutions to problems or mistakes and continued collaboration akin to Collins (1999).

As an illustrative case study, I examine the concession-based water privatization experience of Metro Manila, Philippines for its varied phases of contract enforcement and interesting bargaining features. The concession contract was one of the largest water concessions in the world in terms of investment commitments. Like many developing economies, the concession-based privatization of water service delivery in Metro Manila went through a series of renegotiation which also resulted in the downscaling of the performance targets and unabated tariff increases. In fact, the system was briefly renationalized after one of the concessionaires filed for bankruptcy and was subsequently rehabilitated using public money. Over time, however, the performance of water concessionaires has improved, albeit legal and regulatory disputes have persisted.

The remainder of the paper is organized as follows: Section 1 is divided into three parts. The first part delves into the differences in the bargaining dynamics of public management and concession and their impact on the incentive for efficiency, investment and cooperation. The second part presents the rationale and fundamentals of a partnership approach to designing and enforcing a concession contract. The third part further explores the design and enforcement of the concession focusing on key ex-ante incentive devices *(i.e., risk allocation based on the choice of price regulatory method and equity structure)* and ex-post governance mechanisms *(i.e., establishment of a regulatory agency and access to international arbitration)* within the framework of a partnership contracting. Section 2 presents the concession-based privatization experience of the Philippines as an illustrative case study. Section 3 concludes with policy recommendations to maximize gains from a concession arrangement.

2. Concession as an Ownership Choice and the Role of a Partnership **Contracting:** A Conceptual Framework

Public-private partnership (PPP) is attractive to governments that seek solutions to poor public service delivery and for investors as an asset class.[116] PPP can be tailored to specific needs and competencies of the public sector and the private partner through various ex-ante and ex-post contractual techniques and devices.[117] As noted earlier, concession, a salient mode of PPP, is a long-term contractual arrangement designed to overcome political and legal hurdles to outright privatization. A concession does not involve full divestiture of public assets to the concession holder, but it transfers virtually all decision rights, including the right to maintain, refurbish and expand distribution networks to the private partner using the latter's own financial and technical resources. As a result, a concession holder acquires sufficient private ownership which affords him bargaining and information advantage to bar inefficient political interference and set tariffs and service level principally based on efficiency considerations subject to the terms and conditions of the contract. The allocation of control rights embodied in a concession arrangement thus preserves the incentive for efficiency and investment of outright privatization with additional governance by regulatory contract and ex-post enforcement devices.

But while PPP may strengthen the incentives for investment and efficiency, the long-term arrangement is exposed to serious contractual hazards.[118] With partially aligned goals of the transactors, the concession arrangement can be costly to enforce in sectors that have hard-to-contract-for quality dimensions and where there is severe information deficit.[119] I argue that the gains from the exchange, however, would not be fully extinguished when concession is adopted in a setting where a concession satisfies the private ownership suitability conditions discussed in Section 2.1.

[116]See Esty and Sesia (2010) for different financing schemes under public-private partnership.
[117]See McQuaid (2000) and Siemiatycki (2010) for the key features of PPP arrangements.
[118]See Reeves (2013) and Andres, et al. (2007) for the contractual hazards of PPP.
[119]See Hart (2003) for an illustration on how PPP can be designed to mitigate contractual hazards relating to hard-to-contract-for quality dimensions of a resource.

2.1. Concession as an Incentive-Compatible Ownership Choice: PPP represents the intermediate cases of a broad spectrum of ownership structure with private ownership and state ownership at the opposite ends of the spectrum. There are two basic forms of public ownership: municipal department and public corporation. Municipal department or administrative agency virtually assigns all property rights to the local government whereas public corporations shifts the internal management and operational rights from the political authorities to a corporate entity which is often subject to the supervision of external stakeholders.[120] PPP can be broadly categorized into: (i) service contract; (ii) management contract; (iii) lease contract; and (iv.) concession contract. These PPP schemes differ in the allocation of control rights over the financing, management and operation (and, consequently, pricing of water services) of water supply systems which is tied to their obligations to finance and deliver specific outcomes.

The first three contractual arrangements are much less complex than concession as they involve less complex tasks which can be unambiguously described in the contract and, thus, under-performance with respect to contractual obligations can be evaluated and verified with minimal contract monitoring and enforcement costs. The first two PPP arrangements are considered "light" forms of PPP which are usually pursued as cost-cutting measures by local or state governments.[121] They are also adopted to test the viability of "deeper" forms of privatization such as concession. These limited forms of private sector participation are often adopted in civil law countries where there are various legal requirements governing contractual rights and obligations of parties. Lease and concession are prominent in common law countries where parties are relatively free to decide on the form of PPP contracts.[122]

Service contract: A service contract involves the outsourcing by the government of less complex tasks to a private firm (*e.g., fixing leaks, collecting bills)*. The contract is therefore adequate to govern the behavior of the private operator, allowing the realization of contractual objectives with minimal contract monitoring and enforcement costs.

Management contract: A management contract is a comprehensive form of contracting out involving the assignment of decision rights on the daily operations of the water utility to the

[120] See Menard and Saleth (2011).
[121] See Davis (2005).
[122] See Delmon (2014).

private operator.[123] The operator provides a bundled service without an obligation to make any investment unless the contract lasts for a long time.[124]As the private operator does not make sizeable investment and thus bears no substantial risks, the renegotiation cost is minimized, albeit the incentive for efficiency is dulled. The private operator is paid a fixed fee for his services, although some management contracts have performance-based reward. Depending on the complexity of water sector operations, management contracts may require strong monitoring capacities to ensure that all aspects of performance obligations in the contract are satisfied.

Lease contracts: Lease contracts assign the rights and obligations to manage, operate and finance the maintenance and rehabilitation of the water supply systems to a private operator. Remuneration is tied to the profits of the company over a contract period of ten to twelve years. The transfer of such decision rights increases the costs of bargaining over performance outcomes. But since the government still maintains the decision rights over major investments, access to crucial information on investment, which largely influences pricing, is expected to lower the transaction costs of monitoring and regulating water utilities.

Concession: Under a concession arrangement, the concession holder assumes the right and obligation to manage, operate and finance water supply systems in accordance with the terms and conditions of the contract. The concession holder possesses the control rights over how to produce the service and may unilaterally adopt any cost-saving innovation and collect user fees provided he meets performance targets and standards specified in the contract.[125] As in a lease agreement, the government still holds ownership of the asset but the facilities, properties and inventories, including all records and transactions are turned over to the concessionaire. The contract period typically lasts for at least 25 years to allow the concessionaires to recover its investment through the collection of tariff revenues from the water users over the life of the contract.[126] At the end of the contract period, control over the utility's assets reverts to the public sector. Since asset ownership remains in the public hands and the transaction generates externalities (e.g., water distribution and consumption generates health and environmental externalities), the government sets performance targets and standards on asset maintenance,

[123] See Davis (2005).
[124] See Menard and Saleth (2011).
[125] See Menard and Saleth (2011).
[126] Japan PFI Association (2003).

rehabilitation and expansion to ensure that the private operator transfers the infrastructure to the state in better condition.[127]

As noted earlier, the high likelihood of costly bargaining in concession contracts drives preference towards "light" forms of PPP *(e.g., service contract; management contract; lease contract)*. Akin to public management, "light" forms of PPP engenders a low-powered incentive structure that limits exploitation of agency benefits (*i.e., capital and technical resources of the private operator*). When measured against bargaining cost, I argue that the agency benefits from a concession arrangement may still generate greater welfare gains (*i.e. gains from increased investment and efficiency*) compared to public management, especially in a large, complex water supply system in urban areas in developing countries where there are high investment and efficiency requirements; water users have high ability to pay; and there is excessive political interference. These private ownership suitability conditions fit the high-powered incentive structure embodied in a concession arrangement. The substantial agency benefits derived from exploiting the financial and technical resource advantage of the private operator to meet sizable investment and efficiency requirements justify the accommodation of profit motive; it makes profit a significant welfare component. The assignment of control rights to the private operator likewise limits both private opportunism and public opportunism through the use of various incentive devices and public accountability mechanisms, which cannot be credibly enforced under public ownership on account of the internalization of the bargaining game.

In a setting where concession is deemed an incentive-compatible choice as described above, a concession arrangement strengthens incentives for efficiency and investment and minimizes bargaining cost as it: *(i) limits public opportunism; (ii) enhances accountability; and (iii) serves as a credible commitment device.*

Concession limits public opportunism. Managing complex water supply systems in urban areas (*e.g., severe water resource constraint brought by fast-growing urban population*) requires huge sunk investment and a high level of technical competence and efficiency. A significant investment and effort level demands an equally substantial rent which may not be accorded adequate protection

[127] See Davis (2005).

and incentive under public ownership as losses and benefits are extensively and inefficiently shared via the political bargaining process. Political bargaining process is driven by political expediencies of vote maximization characterized by accommodation of varied goals and interests and blurry ties to performance.[128] Such is perilous in a setting that demands a high level of efficiency and investment. To shield the transaction from an inefficiently redistributive political bargaining, a concession arrangement shifts the control rights to the private operator by assigning to the latter hard-to-contract-for investment obligations and management and operational rights. With the possession of control rights, the private operator acquires informational and bargaining advantage to protect his rightful share of efficiency and investment gains thereby strengthening efficiency and investment incentives.

Concession promotes accountability. The allocation of virtually all control rights to the private operator does not only increase the bargaining and information advantage of private operator and affords him increased protection against public opportunism, it also promotes accountability among public agents and private agents. In a concession arrangement, the government bargains with the private operator on an equal footing; the former waives its sovereign immunity and agrees to be bound by the terms and conditions of the contract with the intent of strengthening efficiency and investment incentives. A concession arrangement, in effect, externalizes the bargaining game, allowing private agents and public agents to actively negotiate for their fair share of the trade gains under the governance of the contract and regulatory and arbitral institutions, which are all designed to safeguard the incentives for investment and efficiency.

Establishing clear lines of accountability and enforcing compliance is made easier by the transfer of crucial control rights to a private entity. The assignment of control rights to the private operator/owner and his acquisition of informational and bargaining advantage facilitates an effective delineation of roles as clients, service providers, and regulator who have their respective rights and obligations for which they are held accountable. Incentive devices and public accountability mechanisms are weakly enforced under public ownership on account of the internalization of the bargaining game; public agents, having no investment obligations, are constrained by hierarchical structure and administrative controls and conditioned to

[128] See Rainey and Bozeman (2002).

accommodate varied interests as political expediency dictates. The extensive sharing of decision-making powers also results in the blurring of roles and functions, making it difficult to hold public agents accountable for both their positive and negative actions. Weak accountability and the resulting low-powered incentive structure can be costly in a dynamic environment where there is a strong demand for efficiency. Such environment requires a high-powered contractual arrangement whereby indispensable partners freely engage in constructive negotiation.

The demand for efficiency and flexibility cannot be properly accommodated under public ownership where public agents operate within a hierarchical structure bound by rigid rules and probity constraints. With increased exigency of bargaining in complex environments, however, bargaining between public agents may take place, albeit subdued and less transparent and, hence, susceptible to intractable irregularities and defects. In contrast to bargaining under private ownership, the outcomes would not be dictated solely by efficiency considerations reflective of the vote-maximizing political motives of the political authorities who hold the residual control rights under public ownership. Where efficiency and investment requirements are high; ownership may have to be assigned to the party who values efficiency and investment more and has greater capacity and incentive to supply the same.[129] While political authorities may attach a high value to investment and efficiency as they enhance service delivery, their valuation cannot be higher than that of the private operator by reason of the fact that investment and efficiency determine the latter's very survival and define his purpose. Even if political authorities value efficiency and investment, they cannot credibly commit to these goals under public ownership where the bargaining process is driven by political expediencies and is thus bound to be highly redistributive as noted earlier.

The argument in favor of private ownership is further strengthened when the public sector has financial and technical resource disadvantage and there is high efficiency and investment requirement.[130] Assigning the control rights to the private party that has the resource advantage affords the provision of the public good valued by the government at least production and bargaining cost *(i.e., reduced relevance of ex-post governance mechanisms)*. The *de jure* transfer of

[129] See Grossman and Hart (1986); Besley and Ghatak (2001); and Schmitz (2015)
[130] See Schmitz (2015) for the role of the parties' valuation of the good and the investment technology in determining optimal ownership structure.

control rights to the key contributor of the trade gains minimizes the bargaining cost *(i.e., the private operator does not have to engage in costly bargaining as he has the bargaining and informational advantage to capture his rightful share of the trade gains)* and, consequently, investment and efficiency incentives are strengthened and bargaining cost is minimized.

Concession as a credible commitment device. The substantial agency gains from an incentive-compatible choice constitute an incentive for parties to engage in cooperative bargaining or adaptation. The enormous trade gains from shifting to a concession arrangement heightens the degree of political commitment to depoliticize the utility and effect genuine privatization. Inefficient political interference resulting in poor service delivery would be politically costly in an environment where well-moneyed water users demand high service quality. In the parlance of Coase, privatization serves as a credible commitment device to properly enforce the contract and disengage in opportunistic bargaining when the political marginal cost of inefficiencies under public management already exceeds the political marginal cost of delegating water service provision to a private entity. The consequent reduction in the political incentive to interfere in the operation of the utility facilitates a *de jure* and a *de facto* shift in control rights to a private entity. Until the marginal cost of inefficiencies under public management equalizes with the marginal cost of a concession arrangement, privatization may continue to be subject to political interference, distorting performance incentives. This partly explains why large cities are found to make the greatest use of privatization and least likely to provide in-house services.[131] Both in the United Kingdom and in France, privatization of water utilities occurred when local authorities were lacking the technical and financial resources to make new investment required by European quality standards.[132]

2.2. Promoting Value-Preserving Bargaining via Partnership Contracting. As discussed in Section 2.1, a concession arrangement in its proper incentive structure is supportive of value-creating bargaining dynamics. A large pie to be shared affords various allocations of rent that would be acceptable to both parties thereby upping the threshold for triggering suspicion of private and public opportunism. The parties would tend to be more open to fair and reasonable interpretation of the terms of the contract and treats ex-post bargaining as a means to effect

[131] See Levin and Tadelis (2007) for contractual hazards and safeguards in contracting.
[132] See Cavaliere et al. (2015) for a normative analysis of local public water utilities.

efficient contract adaptation rather than an opportunity by one party to unjustly redistribute gains away from the other.

To further promote a value-enhancing ex-post bargaining, I propound a partnership approach to designing and enforcing a long-term concession contract whereby contracting parties are induced to treat each other as partners on account of their equally large contribution and risks to the realization of superior gains from the exchange. To induce the parties to treat each other as partners, the same are made to internalize the long-term cost of opportunistic behavior and long-term benefits of mutual cooperation via a government-led cooperative behavior underpinned by *(i) ex-ante assignment of risk to the superior risk bearer*[133]*; and (ii) a bias towards contract adjustment and against termination within the confines of the legal doctrine of commercial impracticability.* While partnership contracting allows ex-post renegotiation, bargaining would have to occur within the metes and bounds of the legal doctrine of commercial impracticability to forestall regulatory capture and preserve the incentives for investment, efficiency and cooperation.

2.2.1. Ex-ante Optimal Risk Assignment, Contract Adjustment and Termination: A partnership contracting assigns all risks[134] to the private operator who is in the best position to evaluate and manage risks through risk diversification and mitigating opportunities at the least cost on account of his control rights and technical and financial resource advantage. The private operator, however, has conditional access to risk-sharing and termination based on the legal doctrine of commercial impracticability and frustration of purpose.[135] Investment risks are assigned to the private operator, while allowing automatic price adjustments to account for variable economic

[133] See Scott (987) and Smythe (2003) for governance of relational contracts.

[134] Defined as the probability of a particular event happening multiplied by its corresponding impact level, risks are classified into different types. For instance, Grimsey and Lewis (2002, 2004) allude to at least nine risks for infrastructure projects: technical, construction, operating, revenue, financial, force majeure, regulatory/political, environmental and project default risks. In their taxonomy, risks are categorized into global and elemental with the former covering risks associated with the project agreement, including political, legal, commercial and environmental risks and the latter with project per se, encompassing the construction, operation, finance and revenue generation risks. Within the framework of a partnership contracting which anchored of superior risk bearer principle, the political risks are assumed by the government, commercial risks are assigned to the private operator and environmental risks are shared subject to conditional risk-sharing. See Marques and Berg (2010) for a discussion on different types of risks.

[135] The notion is derived from the legal doctrine of impossibility in the English common law where non-performance of a contractual obligation is excused due to the emergence of an unanticipated supervening event which is beyond the control of either party and not expressly accounted for in the contract. The emergence of an unanticipated event radically changes the circumstances in which performance is called to be rendered. For analytical purposes, the doctrine of commercial impracticability refers to the impossibility to perform without frustrating the commercial purpose of the contract and thus discharge is claimed by the supplier while for the frustration of purpose it is the recipient who claims to be discharged as performance of the supplier renders it useless to the recipient as result of a radical change in circumstances. See Kovac (2011) for a detailed discussion of the different interpretations of the legal doctrine of impossibility.

risks (*e.g., inflation rate and exchange rate risks)* and emergence of unbargained-for circumstances. The absence of automatic price adjustment mechanism for volatile macroeconomic variables could lead to high risk premium and costly bargaining, while an unstable market environment precipitates numerous irregular events that would be efficiently dealt with ex-post. Owing to their relatively low probability of occurrence and adverse impacts on the contractual balance, irregular events are unbargained for; they are accorded proper treatment when it happens. The non-occurrence of these unbargained-for irregular events constitutes the basis of the initial terms of the agreement such that when it occurs the contract would have to be adjusted in order to approximate the expected level and distribution of gains and, consequently, preserve the incentive for efficiency, investment and cooperation.

Accordingly, a partnership contracting allows contract adjustment in the emergence of unbargained-for circumstances and permits termination if efficiency and investment objectives of a concession contract are frustrated on account of an enduring shift in market and political environment *(e.g., substantial reduction in the level of investment and operational efficiency requirement)* which would render a concession arrangement an incompatible contractual choice. With the occurrence of an unbargained-for event sans a clear showing that investment and efficiency objectives have been frustrated, the parties may temporarily share the risks or explore various adjustment mechanisms, such as modifications in the price regulatory method or a slight alteration in the equity structure as discussed in *Section 2.3*. In effect, a partnership contracting exhibits a strong bias towards adjustment rather than discharge by requiring a fundamental breach of the contract *(i.e., frustration of investment and efficiency goals of concession)* to trigger termination. This is akin to the stance of French administrative jurisprudence which is anchored on the critical role of private water companies in enhancing service delivery during the time when municipalities could not finance investments needed for universal access to water.[136]

For developing countries, I argue that there are more compelling reasons to be biased towards contract adjustment and against discharge: (*i) while a concession-based privatization scheme is explored as a crucial reform strategy to enhance service delivery, there is a traditional bias towards public ownership and against profit-seeking private corporations; and (ii) there are significant but manageable*

[136] See Blanc and Botton (2010).

informational restraints due to unstable market environment and limited regulatory experience resulting in poor estimates of variables used in setting performance obligations (e.g., future consumption patterns, exchange rates, inflation and other macro-economic variables) and limited credibility in enforcing a contract, which, in turn, spawns acrimonious bargaining. The gains from a concession arrangement are thus high and so is the temptation to terminate it. That being the case, terminating the contract would therefore mean forgoing a crucial governance mechanism and incurring substantial welfare losses *(i.e., reinforcing the threat of public opportunism resulting in increased risk premium).*

Where concession is an incentive-compatible choice, the bargaining cost is set to diminish over time as incentives for mutual cooperation is established. A bias towards contract adjustment thus seeks to compel the parties to mutually cooperate *(i.e., private partner invests and operate efficiently and the government accords the former a reasonable rent)* and realize the superior long-term benefits of a concession arrangement by inducing them to internalize the long-term cost of non-cooperative behavior *(i.e., allowing retaliation as additional information becomes available to allow proper assessment of performance).* By compelling the parties to stick to the contractual relationship sans any irrevocable fundamental shift in market environment and substantial breach of the contract, a partnership contracting seeks to minimize transaction cost associated with having to find new partners with no guaranteed change in the contracting behavior as institutional incentives for mutual cooperation have yet to be established.

Under partnership contracting, either party may seek contract adaptation and termination before the arbitration tribunal. The arbitration court may decide to terminate the contract if there is a clear showing that the private operator frustrates the efficiency and investment objectives of a concession arrangement without any fault on the part of the government *(e.g., indirect expropriation by disallowing appropriate price adjustments).* When the frustration of investment and efficiency objectives is imputable to *both* parties, a partnership contracting endorses a continuation of the agreement unless the concession ceases to be an incentive-compatible choice. Without any enduring shift in market environment, a partnership contracting allows termination only after a reasonable period when investment is largely recouped in order to facilitate proper ascertainment of whether the private operator makes a fundamental breach of his obligations without any fault of the government based on efficiency and investment tests as detailed below.

2.2.2. Government-led Conditional Cooperation. Partnership contracting obliges the government to adopt a conditional cooperative behavior to neutralize the greatest threat to the transaction: public opportunism. The threat of public opportunism is substantial and imminent in a bargaining environment marked by massive sunk investment and pervasive political interference. By reducing the threat of public opportunism, a government-led cooperative behavior sets the contractual relationship off for a highly rewarding stable pattern of mutual cooperation by making opportunistic behavior less attractive than a cooperative behavior. Within the framework of a partnership contracting, the regulator is contractually bound to make a reasonably generous application of efficiency and investment tests where there is uncertainty surrounding the performance of the private partner, and to continually enhance its regulatory capacity. Any doubt as to how the terms of the contract may be interpreted and applied would have to be resolved in favor of the private operator.

While a government-led cooperative behavior may appear to accommodate skewed distribution of gains in favor of the private operator, it actually seeks to increase the premium on mutual cooperation. In the long run, trade gains are expected to increase as adequate incentives for mutual cooperation are established. Moreover, the skewness of the distribution of gains in favor of the private operator arising from a generous application of efficiency and investment tests cannot be too large and persistent where concession is an incentive-compatible choice. Concession as an incentive-compatible choice is anchored on proportionality between the bargaining and informational advantage of the private operator (arising from his investment and operational rights), the investment and efficiency requirement and the concomitant exigency to insulate the transaction from redistributive political interference, and pervasiveness of inefficient political interference. As a result, the scope for private opportunism and public opportunism is sufficiently constrained precluding highly unequal distribution of gains.

2.2.3. Bargaining Dynamics of a Government-led Partnership Contracting. To demonstrate the rationale of a partnership contracting, consider a government who awarded a concession contract to a private operator through a competitive bidding process. The intent of the government upon entering into a concession contract is to encourage investment and enhance operational efficiency in order to improve service delivery at least cost. The private operator, on the other hand, expects to realize a fair and reasonable compensation on the use of his financial and technical resources.

With limited competition, the goals of the contracting parties are partially aligned*, i.e., profit maximization could compromise service affordability and/or quality undermining consumer welfare.* But as discussed in Section 2.1, producer and consumer welfare are sufficiently aligned in a context where a concession arrangement is deemed an incentive-compatible ownership choice. Where there is high investment and efficiency requirement and consumers have high ability to pay, the private operator gets to fully exploit his financial and technical resource advantage and realize economies of scale yielding efficiency and investment gains large enough to amply benefit himself and the consumers.

Consistent with the private operator's financial and technical capacity declared in the technical and financial proposals he submitted during the bidding preparation stage, the private operator promised to deliver a service level Y_{pr}^0 at price P_{pr}^0. The output Y_{pr}^0 and price P_{pr}^0 are expressly stipulated in the contract. The private operator is granted the right to decide on inputs, namely, effort e and investment I. Based on the private operator's estimates, Y_{pr}^0 would require a level of investment I_{pr}^0. At projected level of risk and uncertainty σ_{pr}^0 at the time of contracting, the private operator envisaged an effort level e_{pr}^0 (*e.g., finding an optimal financing mix and innovative ways of enhancing operational efficiency*) to minimize the cost of investment or capital I_{pr}^0 at C_{pr}^0. The financial and operational efficiency e_{pr}^0 required to deliver Y_{pr}^0 at minimum cost C_{pr}^0 demands an efficient commercially practicable rent Π_{pr}^0. With the projected service cost at C_{pr}^0 and the commercially practicable rent at Π_{pr}^0, the service price is perched at P_{pr}^0. Y_{pr}^0 at P_{pr}^0 is valued by the government at V_{pr}^0, higher than the value of performance of the utility under public management $V_{pu}(Y_{pu}, P_{pu})$ by $\varphi_{pr,pu}^0$. Under public management, the price of the service was kept at $P_{pu} < P_{pr}^0$ but under-investment and operational inefficiency resulted in a service level that is far inferior to what the private operator is expected and promised to deliver during the contract period such that: $V_{pu}(Y_{pu}, P_{pu}) < V_{pr}(Y_{pr}^0, P_{pr}^0)$ by $\varphi_{pr,pu}^0$.

<u>*Efficient Commercially Practicable Rent and Financial Equilibrium.*</u> In entering into the concession agreement, the government expects to realize long-term gains $\varphi_{pr,pu}^0$ while the private operator perceives a long-term return on his effort and expenditures of Π_{pr}^0 on the assumption that the inputs required to deliver Y_{pr}^0 at price P_{pr}^0 are I_{pr}^0 and e_{pr}^0 which are contingent on the level of risk and uncertainty σ_{pr}^0. Assuming that the perceived state of nature σ_{pr}^0 of the private operator is

sustained over the contract period, the marginal disutility of exerting effort level e_{pr}^{0} and I_{pr}^{0} is equal to the marginal benefit of the agreement to the private operator Π_{pr}^{0} yielding gains to the government $\varphi_{pr,pu}^{0}$. As argued earlier, the public and private gains Π_{pr}^{0} and $\varphi_{pr,pu}^{0}$, respectively, are equally substantial when concession is an incentive-compatible choice; the trade gains of the government $\varphi_{pr,pu}^{0}$ are strongly positively related to the private gains Π_{pr}^{0}. To preserve the incentives for efficiency, investment and cooperation, the government would have to accommodate the necessary adaptation to keep the equilibrium of the contract intact, *i.e., the government shares risks if there is a radical shift in the state of nature causing disproportionate burden to the private operator*. Otherwise, efficiency and investment incentives are distorted and the private operator may fully exploit his bargaining and informational advantage (*i.e., engage in costly bargaining and performance shading)* as shown below. Keeping the balance of the contract intact serves to preserve the incentives for efficiency, investment and cooperation and, consequently, precludes the dissipation of gains from the exchange.

With perfect information, *i.e., the projected and actual state of nature are the same*, Π_{pr}^{0} represents an efficient commercially practicable rent. To realize the expected efficiency and investment gains Π_{pr}^{0} and $\varphi_{pr,pu}^{0}$, both parties must operate within the zone of efficient commercially practicable rent. Absent any substantial change in the investment level and market risk and uncertainty, significant deviations from the focal efficient commercially practicable rent attenuates efficiency and investment incentives, thus, gradually frustrating the efficiency and investment objectives of a concession arrangement. The expected gains from a concession arrangement may not therefore materialize when the terms of the contract are grossly violated or when the necessary equilibrium-restoring contract adjustments are not effected. The state of nature, however, may irrevocably vary to an extent that private financing becomes exorbitantly expensive with respect to the ability of the consumers to pay, thus, demanding a significant alteration of the terms of the contract, *i.e., a different ownership structure involving mixed financing.*

Informational restraints makes negotiation towards proper adjustment of the efficient commercially practicable transaction cost-intensive. At the early stage of contracting, for instance, information relevant to the negotiation may be deficient, if not privately held. It may be difficult to make a precise assessment of the performance of the private operator with respect to his

contractual obligations. The government, however, could utilize information signals which may be correlated with the private operator's information on the real impact of a drastic change of circumstances on the welfare of the private operator. For instance, the government may refer to the performance of the public corporation or past reports of the private operator.

To further elucidate the exigency of contract adaptation and the government-led cooperative behavior, let us suppose that an equilibrium-distorting unbargained-for event occurs (*e.g., a spike in borrowing costs that would not have made trade possible if it were the circumstances that prevailed or expected to prevail by the parties at the time of contracting given the tight profit constraint*). As a consequence, the actual risk of the private operator turned out to be exceedingly higher than what the private operator intended to cover when he agreed to deliver V_{pr}^{0} at an efficient commercially practicable rent Π_{pr}^{0} during the time of contracting. Absent any contract adjustment, the distribution of gains would be unreasonably and unfairly unequal. With V_{pr}^{0} the private operator now has to pay a higher cost of capital C_{pr}^{1} reducing the rent (on his investment and operational efficiency) from Π_{pr}^{0} to Π_{pr}^{1}. To maintain the financial equilibrium of the contract, the private operator petitions for an adjustment in service level Y_{pr} or price P_{pr}.

There exists an efficient commercially practicable adjustment or risk-sharing δ_{pr}^{*} that keeps the incentive structure of a concession arrangement intact. The private operator and the government, however, may have different estimates of the efficient commercially practicable adjustment. With a partnership contracting, the government is obliged to share the losses based on *efficiency and investment tests*. The efficiency and investment tests ascertain whether the commercial losses or the substantial reduction in rent arising from the occurrence of adverse unbargained-for circumstance could have been minimized had the private operator exercised the level of financial and operational efficiency it claimed to have during the pre-bidding stage. To reduce uncertainty about government's private valuation of the concession (*i.e., to reduce perceived regulatory risks*), a partnership contracting obliges the government to adopt a generous application of these two tests at the early stage of concession where there are severe informational deficiencies. The regulatory agency may thus share at least half of the losses if: *(i) the size of the investment made by the private operator is higher than under public management over comparable periods adjusted for differences in market risk and uncertainty that prevailed during said periods* ($I_{pr} > I_{pu}$)*:* ***the investment test****; or (ii)*

operational efficiency (e.g., staff productivity) of the utility under the concession arrangement is higher than under public management $e_{pr} > e_{pu}$*:* ***the efficiency test****.* If either of the two tests is satisfied, the private operator may not have fully exploited his bargaining and informational advantage, making it highly plausible that the desired performance outcomes can still be attained in the long run as informational deficits are reduced and incentives for mutual cooperation is established.

Rationale behind a Government-led Cooperative Behavior. A government-led conditional cooperative behavior whereby the government manifests willingness to accommodate some information rent in favor of the private operator is an optimal strategic response to the emergence of an equilibrium-distorting event in a long-term contract with informational deficiencies. A cooperative behavior offers the government higher payoff than the alternative as can be illustrated in a sequential bargaining game. The private operator may adopt two strategies: (i) a cooperative strategy otherwise called as a *fair profit strategy*; and (ii) a noncooperative strategy, alternatively termed as a *redistributive profit strategy*. For the private operator, a cooperative strategy means engaging in performance shading and bargaining only to an extent necessary to recover investment and efficiency losses brought by the emergence of an unbargained-for event, while a noncooperative strategy involves full exploitation of bargaining and informational advantage to capture virtually all gains from the exchange. As regards the regulator, a cooperative strategy means enforcing the contract in accordance with a partnership contracting, *i.e., adjust the contract when an unbargained-for event occurs based on a generous application of investment and efficiency tests*. A noncooperative strategy by the regulator pertains to a rigid enforcement of the contract without due regard to the equilibrium-distorting radical shift in market circumstances.

State's Noncooperative Strategy: Relative Payoffs of the Contracting Parties

If the government chooses to narrowly interpret the contract in a manner that grossly prejudices the private operator but the latter still opts to take a cooperative strategy, the former's long-term payoff would be his expected gains from the agreement φ_{pr}^{0} diminished by reduced efficiency and investment gains arising from private operator's exploitation of his bargaining and informational advantage θ *(i.e., shirking on hard-to-contract-for quality of investments)* $v^{nc}(\theta)$, the

bargaining cost $b^{nc}(\theta)$ and the arbitral awards $\tau^{nc}(\theta)$ to the private operator. When the government strictly enforces the contract, the payoff to the private operator who opts to take a cooperative strategy would be his expected gains Π_{pr}^{0} reduced by losses occasioned by the emergence of an unbargained-for event $\gamma(\delta_{\mathrm{pr}}^{*})$ and the bargaining cost $b^{nc}(\theta)$ but offset by gains from innocuous performance shading $v^{nc}(\theta)$ and the arbitral awards τ^{nc} . Innocuous performance shading refers to a level of performance shading that may not be detected and, hence, would not be subject to penalties; it has no adverse impact on long-term efficiency.

Concession: Pay-off Matrix		Public Partner	
		Rigid Contract Enforcement	Partnership-based Contract Adjustment
Private Partner	Fair profit strategy	$\varphi_{pr}^{0} - v^{nc}(\delta_{pr}^{*}) - b^{nc}(\theta) - \tau^{nc}(\theta)$, $\Pi_{pr}^{0} - \gamma(\delta_{pr}^{*}) + v^{nc}(\delta_{pr}^{*}) - b^{nc}(\theta) + \tau^{nc}(\theta)$	$\varphi_{pr}^{0} - b^{cc}(\theta)$, $\Pi_{pr}^{0} - b^{cc}(\theta)$
	Redistributive profit strategy	$\varphi_{pr}^{0} - v^{nn}(\theta) - b^{nn}(\theta)$ $\Pi_{pr}^{0} - \gamma(\delta_{pr}^{*}) + v^{nn}(\theta) - b^{nn}(\theta)$	$\varphi_{pr}^{0} - v^{cn}(\theta) - b^{cn}(\theta) + \tau^{cn}(\theta)$, $\Pi_{pr}^{0} + v^{cn}(\theta) - b^{cn}(\theta) - \tau^{cn}(\theta)$

If the regulator's strict enforcement of contract, however, is matched by the private operator's redistributive profit strategy, the government's payoff would be the expected gains from a concession arrangement φ_{pr}^{0} diminished by efficiency and investment losses of excessive performance shading $v^{nn}(\theta)$, which is larger than $v^{nc}(\delta_{pr}^{*})$, and bargaining cost $b^{nn}(\theta)$, which is higher than $b^{cn}(\theta)$ and $b^{nc}(\theta)$. The private operator fully exploits his bargaining and informational advantage θ by scrimping on quality-enhancing investments beyond what is necessary to offset the losses brought by the emergence of an unbargained-for event and even institutes an action for recovery of losses before the arbitral court. The payoff to the private operator in taking a noncooperative strategy as a response to the noncooperative behavior of the regulator would be his expected profit Π_{pr}^{0} plus the gains from performance shading $v^{nn}(\theta)$ but reduced by bargaining cost $b^{nn}(\theta)$, which is higher than $b^{cn}(\theta)$ and $b^{nc}(\theta)$. This results in large investment and efficiency losses and escalating bargaining cost hurting both parties. Since both parties are at fault, neither party is entitled to an arbitral award. A cooperative strategy would be preferred by the private operator even with rigid contract enforcement unless the contract is highly incomplete, which in turn provides the private operator strong *de facto* bargaining and

informational advantage. In a severely incomplete contract setting *(i.e., wide scope for bargainng due to the emergence of unbargained-for events)* with high efficiency and investment requirement, the private operator enjoys greater bargaining and informational advantage; it can be difficult to make him fully internalize the investment and efficiency losses of performance shading yielding an exceedingly high $v^{nn}(\theta)$. As a result, a noncooperative strategy becomes more attractive to the private operator than the cooperative one.

State's Cooperative Strategy: Relative Payoffs of the Contracting Parties

Irrespective of the strategy of the private operator, the government stands to gain more from taking a cooperative behavior with severe contractual incompleteness, high efficiency and investment requirement and, consequently, strong bargaining and information advantage of the private operator. Under such conditions, the government's noncooperative strategy would result in massive efficiency and investment losses $v^{nn}(\theta)$ and bargaining cost $b^{nn}(\theta)$ would be exceedingly large. The private operator thus faces a weak incentive to cooperate demanding a government-led cooperative behavior to make a cooperative strategy more attractive than a noncooperative strategy. If the government initiates to behave cooperatively, *i.e., adjusts the contract in accordance with the legal doctrine of commercial practicability,* and the private operator responds favorably, the long-term gains of the former would be $\varphi_{pr}^{0} - b^{cc}(\theta)$. The bargaining cost $b^{cc}(\theta)$ pertains to the minimum cost of properly evaluating performance of the concessionaires via constructive negotiation or good faith bargaining. If the government's cooperative behavior is matched by the private operator with a noncooperative strategy, the payoff to the government would be φ_{pr}^{0} diminished by performance shading $v^{cn}(\theta)$ and bargaining cost $b^{cn}(\theta)$, which is lower than when the government takes a noncooperative strategy $b^{cn}(\theta) < b^{nc}(\theta) < b^{nn}(\theta)$. The payoff to the government, however, may be further increased by penalties and charges $\tau^{cn}(\theta)$ imposed by the regulator and affirmed by a panel of arbitrators on the private operator. The payoff to the government of taking a cooperative strategy if matched by the private operator with a noncooperative strategy is higher than when both adopt a noncooperative strategy due to escalating bargaining cost and investment and efficiency losses. When the government behaves cooperatively, the private operator would have much to gain from taking a cooperative strategy

than otherwise as the latter is able to economize on bargaining cost and do away with penalties and charges.

Over time, the parties would increasingly benefit from mutual cooperation and the private operator is set to suffer greater losses if he maintains a noncooperative behavior. The cost of noncooperative behavior is bound to rise sharply over time as informational and bargaining advantage θ decreases on account of increased regulatory experience and capacity and reduced informational deficits, making it easier to detect performance shading. Also, the scope for performance shading narrows as the adverse effects of under-investment in network maintenance and rehabilitation and the impact of low effort level on service quality become more evident (*e.g., more supply interruptions and increased water distribution losses due to leakages)*. Incentives for efficiency and cooperation is thus strengthened at the latter stage of the concession; hence, the efficient bias towards contract adjustment and against termination.

To sum up the discussion above, the incentive for mutual cooperation is anchored on the following conditions: (i) the suitability of a concession arrangement as a choice of ownership, *i.e., high efficiency and investment requirement combined with pervasive political interference*, which jointly determine the magnitude of gains from the exchange and the bargaining advantage of the private operator; (ii) the degree of contractual incompleteness *(e.g., importance of hard-to-contract-for quality attributes of the service and inevitability of ex-post bargaining due to difficulties to account for the impact of irregular events on service obligations*), which determines the *de facto* bargaining and informational advantage of the private operator; and (iii) the regulatory and arbitral institutions, which amplify the cost of noncooperative behavior and the gains of taking a cooperative strategy by the contracting parties. Without substantial trade gains of an incentive-compatible concession contract, the contracting parties would not have an incentive to sustain the agreement if one party is perceived by the other to have taken a noncooperative strategy. With meager gains from the exchange, the gains derived by one party from behaving opportunistically would have adverse effects to the other party, inciting costly bargaining leading to the dissipation of the trade gains. In an incomplete contract setting where the private operator enjoys strong informational and bargaining advantage and where a concession arrangement serves as a key reform strategy, the payoff to the government of taking a conditional cooperative behavior would be manifestly larger

than the alternative. But while regulatory and arbitral decisions may be constrained to forestall private opportunism in an incomplete contact setting, there are numerous incentive mechanisms that may be explored to reduce informational and bargaining advantage of the private operator, affording a greater role for regulatory and arbitral institutions as detailed in Section 2.3.

2.3. Ex-ante and Ex-post Incentive Mechanisms. A principal advantage of a contractual arrangement under sufficient private ownership is the increased availability and enforceability of ex-ante and ex-post incentive devices which may be adapted and improved over time to suit evolving needs and competencies of the contracting parties. These incentive devices can be relational, transactional in orientation or a mix of the two. From an ex-ante incentive *(i.e., allocation of control rights to a private entity to strengthen investment and efficiency incentives)* and ex-post transaction cost (*i.e., bargaining over proper contract adjustments or ex-post risk reallocation*) standpoint, I explore how the choice of price regulatory method, equity structure, the establishment of a regulatory agency and an arbitration mechanism may influence incentives for efficiency, investment and cooperation.

The concession arrangement has been assailed for its failure to generate substantial cost savings and enhance service delivery on account of the strong profit orientation of the private operator, high cost of private capital, and contractual failures.[137] These contractual hazards, however, can be remedied through proper contract design and enforcement strategies in consonance with the principles of a partnership contracting. A partnership contracting generally favors the use of a price cap method with cost pass-through clauses, limited public financing, a cooperative approach to regulation, and a recourse to arbitration tribunal subject to limited judicial review. Over time, however, the contract may limit the scope for bargaining via the adoption of high-powered, transactional ex-ante and ex-post incentive mechanisms.

2.3.1. Price regulatory method

To preclude excessive pricing *(i.e., pricing strategies that generate increasing profits sans any significant improvement is service delivery)*, the price of the service is regulated using either of the

[137] See Marques and Berg. (2011).

two methods or their variants: (i) price cap; and (ii) rate of return. Price regulatory methods are sometimes used as a permanent or temporary substitute for a regulatory agency, which may not be established until the contract is already in force.[138] In an incomplete contract setting, however, proper enforcement of a price-regulatory method may require an independent and competent regulatory agency and a recourse to an arbitration tribunal to ascertain efficient price adjustments. The relative suitability of a price cap and a rate-of-return regulation is primarily influenced by: (*i.) the contractibility of the exchange; (ii) the level of market risk and uncertainty; (iii.) availability of capital; (iv) importance of hard-to-contract-for quality attributes of a resource; and (v.) the presence of a well-functioning regulatory agency.*

Under a price-cap regulation, a fixed payment is transferred to the firm independent of the realized cost.[139] In setting the cap, the regulator estimates the operating cost of the firm and other related costs and capital expenditures. To maximize profit, firms would then have to keep the unit operating cost as low as possible from the price cap. A price cap scheme thus creates a high-powered incentive for cost-cutting measures, which may not be desirable if it generates hard-to-contract-for negative externalities on other equally important areas of the performance.[140] For instance, setting the price at sub-optimally low level may induce firms to invest less in hard-to-contract-for quality attributes of the service, such as system maintenance and improvements resulting in supply interruptions and poor water quality. Aside from creating a bias against hard-to-contract-for quality attributes, a price cap may reduce incentive for cooperative adjustments in the emergence of unbargained-for circumstances. The government may insist on implementing the price cap to extort cooperation rents as demonstrated by disruptive renegotiation of concession contracts in Latin America where price cap regulation is widely adopted. The likelihood of a rigid enforcement of contract could increase risk premium and discourage investment, especially in countries where there is a long history of below-cost pricing of water services.

The disincentive to engage in cooperative bargaining can be moderately remedied, however, by a partnership contracting as *discussed in Section 2.2* where the parties are obliged to accommodate

[138] See Hertog (2010).
[139] See Gautier and Yvrande-Billon (2008) and Porcher (2010).
[140] See Hart (2003).

contract adjustments in the occurrence of an equilibrium-distorting unbargained-for circumstances. This is facilitated by a price cap method with cost pass-through clauses to account for unbargained-for market reversals in the pricing of the service.[141] The rate-of-return is more relational in orientation than a price cap; the former is widely adopted among water public corporations. Under a rate-of-return regulation, regulatory agencies decide on the revenue requirement or cost of service, hence, it is also called cost of service regulation, based on which the price structure is determined for different consumer categories. Although the process can be cumbersome in that it requires constant monitoring and auditing of firm's expenses, it encourages parties to engage in consultation and negotiation which could help avoid future conflicts.

Too much latitude for consultation and negotiation, however, may undermine efficiency in the absence of a well-functioning regulatory agency. The consumers may end up vastly subsidizing private capital through high water costs, while incurring substantial ex-post negotiation cost over the "prudence" and "efficiency" of the investment made by the firms and the "appropriate" rate of return on investment. Under the rate-of-return scheme, the firms do not only increase revenue per unit of good sold, but also for every unit of capital investment made, thus, creating an incentive to over-invest. The perverse investment incentive effects are likely to be minimal, however, in a sector that is highly capital—intensive and where there is substantial supply and demand uncertainty and regulatory risks, such as water service provision in developing countries. *The cost reimbursement method may be preferred when: (i) the value of the service has multiple interdependent, hard-to-contract-for attributes; (ii) the market environment is unstable making the ex-ante contract susceptible to negotiation; (iii) there is severe under-investment on account of high market and political risks and uncertainty; and (iv.) there exists a well-functioning regulatory body.*

2.3.2. Financing Structure

To remedy the inadequacies of any price regulatory method, private financing may be complemented with public financing. Equity participation by the government offers numerous advantages in terms of minimizing regulatory costs, reducing risk premium, and protecting consumer welfare. Under mixed financing or institutionalized PPPs, public sector retains

[141] See Guasch (2006).

corporate control, while the management of technical operations is typically carried out by a private company. The infusion of public equity could help stabilize and lower the rent on investments in developing countries where the financial markets are too thin and unstable to supply reasonably priced capital [142] Reduced information asymmetry and burden-sharing resulting from mixed financing also entitles the government to obtain more accurate information and bargain for enhanced consumer welfare. The impact of risk-sharing effect of public financing could be significant in water supply sector where there is substantial supply and demand risks *(e.g., water supply situation may be affected by weather conditions and level of demand by housing projects)*. The positive risk-reducing effect and shrinkage in information asymmetry, however, may have to be weighed against the opportunity cost of public financing and its impact on efficiency incentives and regulatory risks.

As the equity structure becomes more public, the relationship could be "inefficiently" relational leading to accommodation of both political and commercial interests and various forms of compromises. Indeed, mixed ownership structure has been found to be less efficient than pure ownership forms. While government equity participation may increase public accountability, ease informational constraints and facilitate internal resolution of disputes, the regulatory process is made more complicated due to obvious conflicts of interest in the role of the government as both a client and an equity holder.[143] On the producer side, there are concerns on how the nominated director from the government would perform its duties and obligations to the company pertaining to the confidentiality of information and organizational/operational strategy in dealing with disputes/termination. When there is substantial threat of public opportunism, private operator may demand sufficient private ownership. Public financing thus tends to be disfavored when the motivation is to limit inefficient political interference and strengthen efficiency incentives. Hence, the preference towards full private financing of concession contracts with conditional access to risk-sharing in a partnership contracting as detailed above.[144] It is worth mentioning that in several developed economies where the political market is relatively efficient (e.g. *France, Spain, Italy and Germany)*, the government heavily subsidized network investment, while the private operator finances operating expenses.[145]

[142] See Moszoro (2014).
[143] See Marques and Berg (2010).
[144] See Moszoro (2014).
[145] See Cavaliere et al. (2015).

Where inefficient political interference results in substantial resource losses and under-investment, full private financing may be considered within the framework of a partnership contracting. Limited public financing, however, may be explored where a large segment of the population have limited ability to pay; there is wide information asymmetry; and contract is highly incomplete. If there is substantial market and political risk and uncertainty, but consumers have high ability to pay and efficiency and investment requirement is high, full private financing within the framework of a partnership contracting would be well-suited; it would reduce risk-premium and encourage investment without undermining efficiency incentives. At high level of risk and uncertainty, however, public financing could reduce risks to levels that may encourage long-term, quality-enhancing investments. Hard-to-contract-for quality investments tend to be stifled by strong risk concerns.

To further constrain political interference, preclude subsidization of capital and avoid conflicts of interest, the contract may set specific conditions such as: (i) the public party shares may not have voting rights, but only economic rights (sometimes known as class B shares); (ii) the public party as an equity partner may not be obliged to infuse additional equity; otherwise, the economic rights of the public party would be maintained even if its equity share increased; and (iii) define the rights to sell to third parties subject to prohibitions on the disposal of public assets.[146] Other incentive tools may also be explored to achieve the risk-sharing and premium-reducing effect of public financing within the framework of a partnership contracting. These include the provision of fiscal incentives, temporary equity financing to fill viability gap, and the establishment of contingent claims *(e.g., political risks, including sudden changes in laws and policies, loss-recovery provisions due to unexpected market reversals, including wide swing in the exchange rate and price levels)*.

2.3.3. Ex-post Governance Mechanisms: Regulation and Dispute Resolution Mechanisms

A well-capacitated and independent regulatory agency and dispute resolution mechanisms accord additional ex-post governance in the enforcement of a regulatory contract. As discussed above, these two mechanisms play a vital role in facilitating a value-enhancing bargaining

[146] See APMG International.

dynamics; they moderate the negative effects of information and bargaining asymmetries on incentives for investment, efficiency and cooperation through effective contract monitoring. Contract monitoring covers a wide range of activities, such as supervising service quality, resolving contractual disputes, applying sanctions and rewards, and public consultation, among others.

Regulatory Agency: An independent and competent regulatory agency plays a vital role in minimizing the transaction cost of enforcing an incomplete contract. A partnership contracting, as discussed in Section 2.2, endorses a government-led cooperative behavior in interpreting and implementing an incomplete contract. A conditional cooperative behavior as opposed to a control approach is particularly important at the early stage of concession when the regulatory agency has yet to gain adequate regulatory experience and competence. A control approach is fixated on deterring non-compliance with contractual obligations through sanctioning mechanisms. This may not be suitable when compliance is difficult to establish due to information and capacity constraints. Taking a control approach at the early stage of concession may lead to more legal and regulatory disputes due to informational deficiencies. This is aggravated by the fact that at the early stage of the concession regulatory capacity may still be too weak to afford the regulator sufficient credibility to enforce compliance.

Rather than relying on sanction mechanisms, a conditional cooperative approach focuses on setting clear guidelines on developing reporting requirements and obliging the concessionaires to make regular, timely and consistent reporting in order to detect problems early, reduce information asymmetry and minimize bargaining cost.[147] At the latter stage of the concession, the regulator may combine elements of cooperative and control approaches as parties acquire better market information and regulatory capacity is enhanced. The subsequent shift from a cooperative approach to a control approach may also be desirable to limit regulatory capture. Specific regulatory treatments (e.g. stricter auditing rules) are important at the latter stage of concession to guard against possible under-regulation as the regulator and the private operator may have already developed a highly cooperative relationship to an extent of stifling proper regulation.

[147] See OECD (2011).

Dispute Resolution Mechanism. The presence of a contract-based dispute resolution mechanism is an integral component of long-term concession contracts, especially in developing countries where administrative and legal institutions are too weak to grant informed and unbiased resolution of disputes.[148] The incorporation of special arbitration procedures into the agreement could lend additional governance in enforcing long-term contracts; it facilitates an impartial investigation of facts pertinent to the settlement of the dispute. As pointed out in Section 2.2, the arbitration tribunal is essential in administering socially efficient contract adjustment and termination. If one of the parties behaves opportunistically *(i.e. significantly deviate from the efficient commercially practicable rent)*, the aggrieved party may file a complaint for recovery of efficiency and investment losses before the arbitration tribunal. In contrast to litigation, arbitration is an attenuated adversarial process of resolving disputes using relatively simple and informal methods.

Although parties may choose to define the powers of the arbitrators and set the procedures to be used in arbitration, arbitrators are typically chosen from among individuals unrelated to the parties in the dispute and are selected on the basis of their technical expertise and integrity. The industry-specific knowledge of arbitrators enable them to effectively assume the role of a "gap-filler", *i.e., arbitrators determine the appropriate contract adaptation and supply the terms of the agreement, which the contracting parties failed to unambiguously provide for, in order to resolve disputes*. In resolving disputes, arbitrators tend to use extra-contract evidence to establish the intent of the contracting parties.[149] To safeguard the neutrality and simplicity of contract enforcement, the parties often agree that arbitral decision be made final and executory with limited judicial review. Limited judicial review would minimize uncertainty into the contractual relationship and establish proper relationship between arbitration and the judicial process. Contractually expanded review could put courts in the awkward position of having to apply unfamiliar rules and procedures.[150] The arbitral decisions, however, may be subject to judicial review when there is doubt on the fairness and neutrality in the arbitrator's interpretation of the parties' agreement

[148] In developed economies where markets are relatively stable and thus the need for contract adaptation is minimal, an effective enforcement of a regulatory contract may not necessitate the establishment of contract-based arbitration mechanism nor an independent regulatory agency. The disputes are settled through a highly knowledgeable and experienced appellate court that settles disputes as in the case of France. Over centuries of case law and legal doctrines facilitate consistent and effective implementation of administrative contracts (See Bakovic et al. 2003).

[149] See Kirgis (2007).

[150] See Goldman (2003).

or arbitral awards are capricious or manifest a disregard of the law (*e.g., the awards are procured by corruption or fraud, arbitrators are guilty of misconduct or exceeded powers*).[151]

Arbitral decisions are alleged to be investor-bias.[152] The perceived partiality of arbitral decisions, however, relates to the failure of the parties, particularly the government to make the appropriate balancing of the interest of consumers and the private operator. The arguably pro-investor arbitral decisions were made on account of indirect and direct expropriation by the government through "emergency" measures aimed at avoiding supply disruptions and deterioration in the delivery of service *(e.g., usurpation of management control, deportation of the company manager, abrupt termination and repudiation of the concession contract and take-over of the water facilities and business by the local state-owned supplier, the use of regulatory authority to compel the company to stop invoicing customers for certain taxes; and the unilateral change of the legal framework that governed the company)*. The arbitration tribunal found these measures to be "going beyond normal contractual behavior" and constitutive of indirect expropriation as they have the effect of "destroying the economic viability of the concession"; "depriving the investor of the use or value of its investment", and "impairing by unreasonable or discriminatory measures the management, maintenance, use, enjoyment or disposal of investments", and "unreasonably disrupting the contract for political reasons". The state was faulted for failing to provide "fair and equitable" treatment of the investment made by the private partner, *i.e., the government did not accommodate appropriate contract adjustments necessary to "restore a reasonable equilibrium to the concession" and preclude the frustration of "legitimate expectations of the company's investment"*. It is worth stressing, however, that although most arbitral awards required the government to pay large compensation, there are a few cases where the tribunal awarded no compensation to the investors as the latter were unable to prove any quantifiable or commercial loss nor any causal link between the violations of the government and the diminution of the value of its investment.

Although recourse to arbitration is supposed to facilitate efficient contract adjustment and termination, most of the cases brought to the arbitration tribunal lead to termination of the contract and subsequent take-over by the government of the facility. There is a clear showing of double-sided opportunism in arbitration cases with the claims made by the private partner often

[151] See Goldman (2003).
[152] See Chaise and Polo (2015).

more than three times the arbitral awards. In most cases, both the governments and the companies refused to make any compensatory payment. Arbitration claims were often dropped as part of a negotiated settlement to minimize reputational damage for both parties. Such negotiated settlements between the government and the private operator, however, may not be socially optimal, especially in a context where a concession arrangement constitutes a key reform strategy as detailed in Section 2.1. This points to the exigency of proper design of ex-ante incentive mechanisms to narrow the scope for disagreement and induce cooperative adjustments via the espousal of the principles of a partnership contracting.

3. An Illustrative Case Study: Privatization of Water Service Delivery in Metro Manila

As in most parts of the world, the provision of water services had been a monopoly of the public sector in the Philippines until 1997 when the public water utility, Metropolitan Waterworks and Sewerage System (MWSS), was privatized. With a service area that spanned 40 cities and municipalities and a total population of 11 million, the privatization of the MWSS was the largest in the world with an investment commitment of over USD7 billion, which was more than half of the total investment commitments to private infrastructure projects in water and sewerage in the world in 1997.[153] But while the privatization of MWSS has helped the government address the wide investment gap in the water supply sector and improve operational efficiency, the desirability of the concession-based privatization is besmirched by recurrent regulatory disputes and unmitigated tariff increases. Within the framework of a partnership contracting, I set out to explain the dynamics of bargaining and the consequent level and allocation of trade gains between the parties by examining the design of the contract, including ex-post governance mechanisms in light of the bargaining environment at the time of contracting, especially the motivation behind the shift from public management to a concession arrangement.

[153] See Negishi (n.d.).

3.1. Why MWSS was privatized

Just like many countries in the world, there has been a strong policy bias towards public management in the water supply sector in the Philippines. In the mid-1990s, however, a confluence of events made privatization economically exigent and politically viable: *(i) decades of operational inefficiencies and under-investment culminated in a "water crisis" which the government was hard put in resolving under the old institutional set-up; and (ii) the installation of a reform-oriented government.*

Factors behind the Water Crisis Situation. Since 1878, water service delivery in Metro Manila and adjacent provinces had been under public management. Akin to many public utilities in developing countries, however, the public corporation struggled with inefficient political interference, limited public financing and bureaucratic rigidity. In 1971 Metropolitan Waterworks and Sewerage System (MWSS) was created in an attempt to address said issues under Republic Act 6273. Said statute granted the MWSS through its Board of Trustees corporate powers and functions. The key management decisions (e.g., setting water rates) were essentially decided upon by the President who held appointing rights over the members of the MWSS Board and its General Manager. Water rates were set at below cost-recovery levels at variance with the 12 percent rate of return prescribed by law. Water payments represented only 13 percent of MWSS income.

As a public corporation, public financing was discouraged; MWSS had to borrow money from Official Development Assistance (ODA) agencies, such as the World Bank, which was fully guaranteed by the national government pursuant to the MWSS Charter. The Department of Finance also wanted the MWSS to take full responsibility of its financial obligations in order to reduce the fiscal burden of the national government. Although ODA loans were long-term and low-cost, they carry financial conditionalities, i.e., they required the MWSS to run the utility like a private company meaning it had to be a profit-making entity.[154] With cost inefficiencies, the MWSS stayed afloat by scrimping on network maintenance. As a result, service quality further deteriorated making users even less willing to pay for water supply services.[155]

[154] See Rivera (2014).
[155] See Rivera (2014).

Overstaffing likewise was one of the culprits of the weak financial stance of the MWSS. The intent of the MWSS Charter to strengthen staff performance incentives failed to deliver the intended results. With 8,000 employees, receiving competitive salaries, the MWSS maintained 13 employees per 1,000 connections, which was at least twice the figure of comparable utilities in the region.[156] The figure was reduced to nine employees per 1,000 connections during mid-1990s, albeit still higher than that of water utilities in comparable cities, such as Bangkok (4.6) and Jakarta (7.7). The relatively low staff productivity level of MWSS was attributed to several factors, such as the disregard of performance reviews in determining staff compensation; the legal constraints on firing poor performers; and nepotism; among others.[157] The adverse effects of inefficient staffing patterns were made worse by bureaucratic procurement procedures; securing office supplies would involve filling up all sorts of forms with the whole procurement process taking several months.[158]

Increasing Demands for Efficiency and Investment: By mid-1990s, MWSS was debt-laden and services continued to deteriorate. Meeting water service requirements of the burgeoning urban population demanded a sizable investment. About one-third of the 10.6 million residents in Metro Manila did not have individual household connections. Most of these unserved households belonged to low-income group who lived in informal settlements. MWSS had established standpipes in slum areas but these were very limited in number. Many of these standpoints were not operational because its management failed to remit collected funds. Households were also unwilling to continue payment due to intermittent water supply.[159] Only a quarter of those that had piped connections had 24-hour piped supply. Fringe areas were subjected to scheduled water rationing during summer months when water supply became limited. On the average, water supply services were available 16 hours a day.[160] A large proportion of households in Metro Manila relied on vended water. Based on a ground study by JICA (1992), 40 percent of total water use were supplied by private water supply systems while 80 percent of industrial establishments

[156] See Dumol (2000).
[157] See Rivera (2014).
[158] Procuring large items would take an average of four years as it required a feasibility study, a loan approval by a multilateral financing institution, and biddings for consultants and civil works (See Dumol 2000).
[159] See David and Inocencio (1998)
[160] See David and Inocencio (1998).

relied on private water systems and their own wells.[161] A significant share of water sold through vendors was actually MWSS water secured by meter tampering and illegal connections. With widespread leakages and pilferage, water distribution losses ranged from 55 to 67 percent from early 1980 up to mid-1990s with only less than half of the water produced earned revenues.[162]

Cost of Restructuring under Public Management vs. Privatization. To stem further resource losses, the government contemplated on restructuring the organizational set-up, enhancing staff compensation incentive scheme, instituting training and reorienting behavioral practices, adjusting tariff and administering cost-saving measures and prudent investment and sound asset management practices. All of these measures were expected to be funded through government equity, loans and grants from multilateral agencies and donor governments, syndicated financing arrangements and internal cash generation.[163] Aside from the hefty price tag of those policy reforms, there was widespread belief that they would all come to naught sans a complete overhaul of the ownership structure.[164] Many of the problems of the MWSS, particularly those relating to procurement and financing and the proclivities of staff to extract as many benefits as possible from the company with minimal effort were attributed to the company's being owned and operated by the government.[165]

The exigency of privatization resonated with the reform-oriented Ramos Administration which implemented the most aggressive privatization programs in infrastructure. Although there were policy impediments to MWSS privatization *(e.g., As per MWSS Charter, the water supply system and its operation and maintenance must be supervised and controlled by the state)*, the Ramos Administration was encouraged to pursue the same by the successful privatization of the energy sector in the early 1990s. Cognizant of public sentiments against privatization, the Ramos Administration ventured to raise public awareness of an impending water crisis to galvanize public support for privatization. The information campaign was followed by the enactment of the National Water Crisis Act (NWCA) and other policy issuances that sought to strengthen the legal basis for MWSS privatization. NWCA granted the President the legal authority to privatize

[161] See JICA (1992).
[162] See Dumol (2000).
[163] See Ebarvia (1994).
[164] See David (2000).
[165] See Dumol (2000).

MWSS. As part of the reorganization of the utility, the MWSS reduced its workforce by 30 percent via early retirement program and cut tariffs by 38 percent.[166]The NWCA also criminalized water theft. The front loading of reforms signified the political commitment of the Ramos Administration to restructure the utility.

3.2. Contract Preparation and Bidding Procedures

Without any prior experience in privatizing a large water utility, state officials sought the assistance of International Finance Corporation to design the bidding procedures and write the contract. The French consultancy firms were also hired as a precondition for a grant extended by the French government. The winning bidders covered the rest of the consultancy fees. Several committees were formed to draw up a privatization strategy. Considering the political sensitivity of water privatization, the Philippines eschewed several offers of rewarding the contract on a negotiated basis and opted for an open and transparent bidding procedure. The open bidding process was based on a two-envelope system containing technical and financial proposals. The proposals were accompanied by performance bonds. To pre-qualify in the bidding process, the companies had to be a consortium of a local sponsor with financial and managerial capabilities to implement the business plan and an international operator with global experience in managing water utilities. The bidders had to satisfy several other structural qualifications. As per constitutional requirements, foreign shareholding of the consortium had to be held at a maximum share of 40 per cent; the same had to be managed and operated by Philippine nationals. More than half of the shareholdings should be Philippine-owned, broken down into 10 per cent for employees, 20 to 30 per cent for the main sponsor and 20 per cent for the other local investors.[167]

Around 50 local and foreign companies expressed interest to participate in the pre-qualifying stage of the bidding, which was remarkably high by developing country standard.[25] Of the 50 companies that submitted bidding proposals, four consortia pre-qualified for the bidding: (i.) Manila Water, which included International Water and Ayala Corporation; (ii.) Maynilad, which comprised Lyonnaise des Eaux and Benpres Holdings; (iii.) Compagnie Generale de Eaux and Aboitiz Equity Ventures; (iv.) Anglian Water Corporation and Metro Pacific Corporation.[29]

[166] See Soriano (2013).
[167] See APEIS.

Table 1. Bids of the Four Bidders		
West Zone	Percent Bids	Peso Bids
Ayala-International Water	28.63	Php 2.5
Benpres-Lyonnaise des Eaux	56.59	Php 4.97
Aboitiz-Compagnie Generable des Eaux	56.88	Php 4.99
Metro Pacific-Anglian Water International	66.90	Php 5.87
East Zone		
Ayala-International Water	26.39	Php 2.32
Aboitiz-Compagnie Generable des Eaux	62.88	Php 5.52
Metro Pacific-Anglian Water International	64.51	Php 5.66
Benpres-Lyonnaise des Eaux	69.79	Php 6.13
Source: Dumol, 2000		

For benchmarking purposes, the MWSS service area was divided into East Zone and West Zone to be operated separately by the two winning bidders. Splitting the service area into two was also envisaged to serve two other purposes: *to have a ready replacement in case the other concessionaire fails to provide the service, and to balance the negotiation power between the concessionaires and the newly established regulator*.[168] To ensure that the privatization would immediately deliver a reduction in water rates, bids were capped at the existing MWSS tariffs of 8.78 Philippine peso per cubic meter. The concessions were awarded based on the lowest average water tariff bids. All the bids turned out to be substantially lower than the prevailing MWSS rate of Php8.78 per cubic meter. Manila Water *(Ayala Corporation, Philippines, and International Water, UK-USA)* and Maynilad *(Benpres Corporation, Philippines, and Lyonnaise des Eaux, France)* won the bidding after submitting exceedingly low bids of P2.3 per cubic meter and P4.9 per cubic meter, respectively.[169] The government attributed the remarkably low bids to high investor confidence, while the less sanguine critics thought the bids were dive bids that were meant to win the contract with the expectation that they can be renegotiated.

The lowest bidder Manila Water was given the option to choose one of the two zones of the MWSS service area. Manila Water opted for the east zone where most of its business establishments were located. The west zone, which covered the largest and the most developed and densely populated area of the city with a total population of seven million or 60 percent of the population and water connections in the service area, went to Maynilad.[170] The west zone was bounded in the west by the coastal area of Manila Bay where groundwater depletion had already lowered water tables

[168] See International Finance Corporation (2010).
[169] See International Finance Corporation (2010).
[170] See International Finance Corporation (2010).

increasing pumping costs and causing saline water intrusion. With an older pipe distribution network, the west zone registered relatively large water distribution losses *(estimated to be 60-70% in comparison to 50-55% for the East Zone)*.

Table 2. Features of the Service Area		
Features	West Zone	East Zone
Land Area (sq. km.)	540	1,400
Service Area	17 cities/municipalities	23 cities/municipalities
Total Population, 2007	8 M	6 M
Population Served, 2007	5.6 M	5.4 M
Water Production	2,400 MLD	1,600 MLD
House Service Connections	App. 700,000	App. 610,000
Source: MWSS		

3.3. Salient Provisions of the Contract

The delegation of water service provision to Maynilad and Manila Water operates under a 25-year concession contract.[171] The Concession Agreement (CA) grants the private operators an exclusive right to manage, operate, repair and refurbish the facilities in their service area, including the right to bill and collect revenues for the water services supplied in order to recover all their investments within the contract period. At the end of the concession period, the asset base and all additional assets invested by the concessionaires are turned over to the public sector. The government, however, may choose to extend the contract, organize another competitive bidding or directly run the system.

The CA embodies the tenor of a partnership-based contracting, albeit with greater relational slant. The CA encourages the parties to "*use reasonable efforts to resolve any disagreements or disputes concerning the interpretation or implementation of the CA*" through consultation and negotiation. Under Article 7 of the CA, the MWSS is expected upon the request of the concessionaire to "*cooperate in all reasonable ways to facilitate the fulfillment by the concessionaire of its responsibilities under the Concession*". *The cooperation to be rendered by the MWSS does not involve any form of financial assistance or guarantees, which is consistent with the intent of a concession arrangement, i.e., to attract private capital and strengthen incentives for efficiency.* As provided in Article 10 of the CA, either

[171] The contract period covers 1 August 1997-6 May 2022.

party may file for early termination if the other party fails to fulfill his end of the bargain. The concessionaires may file for early termination if the MWSS is found to prevent the concessionaire from performing its obligations. The MWSS may also terminate the contract if the concessionaire, based on the reasonable opinion of the Regulatory Office, effectively abandons the CA, *i.e., the concessionaire jeopardizes the provision of water services in a significant part of its service area.* Based on these provisions, the CA sets a high threshold for triggering termination by the government, exemplifying a strong bias against termination in conformity with the stance of a partnership contracting.

3.3.1. Price regulatory method

The CA adopts a low-powered price regulatory method, setting tariffs based on a cost-plus scheme where all costs are reimbursed and earn a market-based appropriate discount rate (ADR). Article 9 of the CA provides for general procedures for rate adjustments but it does not set any fixed formula on how to achieve specific service level or imposes efficiency targets using key performance indicators. Article 9.4 of the CA states:

Article 9.4: It is the intention of the parties that the rates shall be set at a level that will permit the concessionaire to recover over the 25-year term of the concession net of grants, operating, capital maintenance and investment expenditures efficiently and prudently incurred.

The absence of a rigid formula for price adjustments provides the private partner ample leeway to focus on expanding service coverage and enhancing service quality. Water rates are adjusted to permit the concessionaire to recover all the "efficiently and prudently" expenses incurred over the concession period of 25 years plus Philippine business taxes and payments corresponding to debt service on MWSS loans and concessionaire loans incurred to finance such expenditures. The key performance indicators (KPIs) mutually agreed between the concessionaires and MWSS/RO serve as the basis for determining the prudent and efficient expenditures of the Concessionaires. *Other mechanisms to determine prudency and efficiency of expenses are to be explored by the RO with the concessionaires. As expected of a long-term partnership contract, the contract are couched in broad terms to accommodate transparent and structured negotiation between the contracting parties necessary to account for changes in bargaining conditions.*

In lieu of a rigid price regulatory method, the private operators have to meet specific criteria for price adjustments. The contract expressly requires the concessionaires to take into account the following: (i) impact of the proposed adjustments on low-income domestic households; (ii) the desirability of sending economically efficient price signals to customers to encourage sustainable consumption patterns; and (iii) the appropriateness of reducing cross-subsidies between different customer categories.

The adjustment of the tariffs is undertaken every five years through a rate rebasing exercise. The rate rebasing exercise involves a detailed review of past and projected cash flows necessary for the fulfillment of the performance obligations of the concessionaires. The determination of the "appropriate" rate of return is made separately at the time of each generalized rate rebasing. The ADR is adjusted to keep it in line with the prevailing rates of return charged on the operation of long-term infrastructure concession arrangements in other countries that have similar credit standing as the Philippines. The ADR approximates the efficient commercially practicable rent discussed in Section 2.1 with the latter laying greater emphasis on evolving bargaining conditions (*e.g., informational asymmetry and regulatory capacity*).

The use of an investor-friendly cost-plus scheme reflected the desired size of investment and the prevailing bargaining conditions at the time of contracting. The private operator agreed to assume the financial obligations of the government on top of their service obligations in exchange for an investor-friendly price regulatory method. The financial and service obligations include the following:

(i) *The concessionaires must pay concession fees to repay MWSS debts and fund the operating budget of the Regulatory Office and the residual MWSS;*

(ii) *The private operators have to pay the cost of expanding raw water supply needed to meet water service obligations during the first ten years of the concession period. This means having to reduce non-revenue water and rehabilitating old facilities and developing new ones. Within a ten-year period, water service coverage was expected to reach 96 percent. The expansion in service coverage included the establishment of public standpipes for households in depressed*

areas where users may not be able to pay individual connection fees or where the cost of connection may be too high relative to expected revenue[172]*;*

(iii) The concessionaires were also under obligation to provide uninterrupted water supply to all connections and maintain water pressure at 16 psi three years from the date the agreement entered into force, and meet national health and environmental standards on quality of drinking water.

As an additional safeguard to preserve the efficiency and investment objectives of a concession arrangement, the CA also requires the concessionaires to maintain an equity share of 20 percent for the first five years and 10 percent thereafter and post a performance bond, bank guarantee or other security acceptable to MWSS on each rebasing date from which the penalty for non-compliance with the CA would be deducted.

3.3.2. Ex-post Risk-sharing mechanisms

To make the concession arrangement even more attractive to investors, the cost-reimbursement method comes with various cost pass-through schemes. The CA provides for adjustment and loss-recovery mechanisms to account for the impact of a change in circumstances on the *commercial practicability* of the transaction. The adjustment and loss-recovery mechanisms include (i) inflation indexation which allows the concessionaires to adjust their tariffs annually to consumer price index (CPI)-based inflation; and (ii) extra-ordinary price adjustment (EPA) to accommodate any adjustment arising from unforeseen events, including changes in law and government regulations.

Article 9.3 of the CA states that it is the intention of the parties that should certain unforeseen events occur during the term of the concession, rates may be adjusted to account for the financial consequences of such events. The concessionaire may at any time require the Regulatory Office to consider circumstances that the concessionaires believe constitutes grounds for extra-ordinary price adjustment and vice versa. The EPA may be effected if the Regulatory Office, following consultation with the concessionaire, determines that amendments should be made to the service

[172] See Rivera (2014).

obligations. *In effect, the concessionaires are insured against unanticipated or unaccounted-for variations in market and regulatory risks. These are risks that the parties did not intend to cover when they promised to deliver the performance targets (i.e., unbargained-for events).*

To further entice the concessionaires to invest, the contract grants several fiscal incentives, including a six-year income tax holiday, a preferential tariff of three per cent on capital equipment imports and tax credits on locally fabricated capital equipment; and exemption from local government and franchise taxes and the Value Added Tax (VAT) on the supply and distribution of water.

3.3.3. Regulatory and arbitral institutions

With a wide scope for negotiation, gap-filling mechanisms, *i.e., regulatory agency and arbitration court* are crucial for the proper interpretation and enforcement of the contract. An incomplete contract affords substantial residual control rights to the regulator, the concessionaires and arbitration tribunal. The MWSS Regulatory Office (RO) is tasked to monitor and enforce compliance with the terms of the contract, implement rate adjustments, arrange for public dissemination of relevant information, respond to complaints against concessionaires, and prosecute or defend proceedings before the Appeals Panel. The CA, however, was constrained by the MWSS Charter in establishing an independent and well-capacitated regulatory body. The original plan, as advised by the IFC, was to create an external regulatory office akin to the Office of Water Services of the United Kingdom. The establishment of an external regulatory office, however, would have to go through a lengthy legislative enactment process. The government thus proceeded to create a semi-autonomous regulatory office within the MWSS. As mentioned above, the annual operating budget of the regulatory office would be partly funded by the concession fees paid by the water operators. Section 11.1 of the CA provides:

> *The MWSS Board of Trustees shall establish and fund a regulatory office to be organized and operated in a manner consistent with the description contained in Exhibit A hereto, subjected to changes thereto that the MWSS Board of Trustees may make from time to time, and shall have the functions and powers described in that Exhibit. Decisions of the Regulatory Office requiring action by the MWSS Board of Trustees, including decisions affecting the level of Standard Rates, shall promptly be submitted to the Board…*

As noted above, the CA prescribes the parties to "*use reasonable efforts to resolve any disagreements or disputes concerning the interpretation or implementation of the CA*" through consultation and negotiation. If parties fail to settle their disputes for themselves, either party may choose to bring the dispute before an arbitration panel. As stipulated in Article 13 of the CA, the Appeals Panel is composed of a member appointed by concessionaires, a member appointed by MWSS, and a third member, the Chairman or presiding arbitrator, appointed by the International Chamber of Commerce. Any decision or award of the appeals panel is deemed final and binding upon the parties. To the maximum extent permitted by applicable law, the party waives any right to seek any interlocutory or other relief from any judicial or regulatory body or to appeal or seek the review of an Appeals Panel award by any court, regulatory body or other tribunal. The out-of-pocket costs incurred by the Appeals Panel in connection with any concession-related proceeding brought before it are apportioned by the parties.

3.4. Contract Enforcement: Recurrent Legal and Regulatory Disputes

Despite the introduction of relational norms to the contract, the contractual relationship between the MWSS-RO and the two concessionaires was discordant, albeit not to an extent of unequivocally frustrating the investment and efficiency objectives of the contract. The parties are at variance regarding the application of the provisions on the ADR and what constitutes efficient and prudent spending, among others. Except for the most recent dispute, all disagreements were resolved with the Philippine government having to: *(i.) pay legal fees amounting to several millions of dollars; (ii.) accommodate wide price adjustments with the introduction of new loss-recovery mechanisms; (iii.) scale-down performance targets; and (iv.) devise a bail-out program for one of the water concessionaires.*

3.4.1. Early Stage of the Concession. A series of supervening events at the early stage of the concession agreement put a strain on contractual relationship. The contract had to be renegotiated on account of two major unanticipated events: (i) *the Asian financial crisis which led to the depreciation of the peso by over 50 percent; and (ii) an unprecedented drought accompanied by a change in government rules on the allocation of raw water which reduced water supply by 35 percent.*[173]

[173] See Negishi (n.d.).

MWSS-Manila Water Dispute on the Rate of Return: In March 1998, less than a year into the agreement, Manila Water submitted a petition for an extraordinary price adjustment (EPA) to account for massive financial losses it suffered owing to the Asian financial crisis and a severe drought. Unanticipated cost overruns of existing projects that were originally developed by the government put further strain on the finances of the company.[174] The proposed EPA of Manila Water, however, was significantly higher than the figure computed by MWSS-RO, prompting the latter to deny the concessionaire's petition. The company in turn sought redress before the Appeals Panel. The wide difference in their EPA estimates resulted from their disparate application of the provisions on the appropriate discount rate (ADR). The CA provides the parties some flexibilities in determining the ADR:

> *In determining the Appropriate Discount Rate, the Regulatory Office shall apply conventional and internationally accepted methods, and in particular shall make estimates of the cost of debt in domestic and international markets, the cost of equity for utility businesses in the Philippines and abroad and shall make adjustments to such estimates to reflect country risks, exchange risks and any other project risks. The Regulatory Office, at its sole discretion, may consider the Concessionaire's rate of return, either state or implied in its bid, in determining the Appropriate Discount Rate.*

Manila Water argued that the ADR should be based on market conditions that prevailed at the time the petition for EPA was made, proposing an ADR of 18 percent, monumentally lower than the 5.2 percent ADR computed by the MWSS-RO. The MWSS-RO, on the other hand, determined the ADR based on implied discount rate of the financial model submitted in the bid. The crisis, however, made it more expensive for the concessionaires to access the financial market for their capital investment projects due to the sudden jump in risk premiums as a result of the Asian financial crisis.[175] The market circumstances during the crisis were radically different from that which prevailed during the negotiation of the contract. Aptly so, the Appeals Panel sided with Manila Water on the use of current rates as the basis for ADR updating, but the Panel arrived at a much lower ADR of 9.3 percent. In the parlance of a partnership contracting, the Appeals Panel succeeded in bringing the two parties back in the zone of efficient commercially practicable rent. Notwithstanding, the parties were at each other's throats again during the first rebasing exercise.

[174] See Negishi (n.d.).
[175] See Xun and Malaluan. (2008).

Unlike in the previous dispute, however, a compromised agreement was reached as parties' estimates differed only by a small margin. The parties agreed to set the tariff at P17 per cubic meter, slightly lower than Maynilad's proposed tariff of P19.54 per cubic meter and higher than the agency's approved tariff of P15.65 per cubic meter.

MWSS-Maynilad Disputes: Disruptive Renegotiation. Maynilad, on the other hand, was in deeper financial trouble owing to its huge foreign-denominated debts which swelled after the peso lost half of its value. Maynilad assumed the USD720-million foreign debt of the MWSS; the same also inherited much of the water distribution losses of the MWSS caused by aging and poorly maintained distribution networks. The size and condition of the water infrastructure in its service area was found to be larger and in a poorer state than was indicated in the bidding documents. Facing an imminent danger of bankruptcy, Maynilad asked the government for additional loss-recovery mechanisms. Although initially the MWSS-RO was not amenable to Maynilad's proposed amendments, a series of negotiations led to the accommodation of Maynilad' request through Amendment No. 1.

Amendment No. 1 introduced two key mechanisms: *the foreign currency differential adjustment (FCDA); and the accelerated extraordinary price adjustment (AEPA)*. The FCDA was a quarterly rate adjustment of P4.07 per cubic meter which allowed the concessionaires to recover present and future foreign exchange losses incurred from servicing the foreign-denominated debt of the MWSS beginning 2002 until the end of the contract period.[176] AEPA, on the other hand, was a rate adjustment of P4.21 per cubic meter for Maynilad and P1 per cubic meter for Manila Water to recover foreign exchange losses from 1997 to 2000. A Special Transitory Mechanism was also in place to enable the concessionaires to recover the foreign exchange losses during the period not covered by the FCDA and the AEPA. Additionally, targets for expansion and NRW were also revised downwards to lower capital expenditure requirements in the early years of operation. *Shortly after Amendment No. 1, average tariff of Manila Water increased from P2.32 per cubic meter in 1997 to P4.51 pcm in 2002, while that of Maynilad rose sharply to Php11.39 pcm in 2002 from P4.96 pcm in 1997.*

[176] See Freedom from Debt Coalition (2008).

Early Termination and Arbitral Decision. In the first-rate rebasing exercise in 2002, Maynilad sought further tariff adjustments. In 2001, the company was already operating at an annual net loss of 1.1 billion pesos. Subsequently, the company stopped paying concession fees and requested the MWSS to initiate a price adjustment. The proposed price adjustment, however, would perch the tariff at P34.72 per cubic meter, much higher than the P24 per cubic meter recommended by MWSS-RO's external experts; hence, Maynilad's petition was denied. Instead of filing a comlaint before the Appeals Panel, one of the consortium's partner filed a notice of early termination, citing that MWSS's refusal to grant its request for a tariff relief in 2002 constituted a failure to conduct a fair and objective rate rebasing exercise. The concessionaire accused the MWSS-RO of preventing it from fulfilling its obligations to creditors and government in violation of the terms of the CA.

MWSS-RO, however, contended that it was Maynilad that failed to comply with the Agreement as the latter discontinued to pay concession fees and was unable to reduce NRW, maintain and construct two aqueducts and infuse USD80 million in equity. The MWSS-RO further claimed that it gave all necessary support to Maynilad and that the financial troubles of the company were brought by its overestimation of revenue, underestimation of costs, and failure to cushion itself from foreign exchange risks. It is worth noting that allegations regarding Maynilad's weak financial management were validated by a study conducted by Wu and Malaluan (2008). In its defense and counterclaim, Maynilad denied that it was contractually obliged to reduce NRW or invest an additional USD60 million in equity. The company further maintained that it had in fact performed its obligations to maintain and repair the BNAQ-5 aqueduct and that it was under no obligation to construct the other one since the need for the construction of the aqueduct arose from the poor construction of the BNAQ-5 aqueduct by the MWSS.

Within a partnership contracting framework discussed in Section 2, Maynila disputably failed to meet the efficiency test but not the investment test; the contractual relationship may thus be continued. Taking into account the investment made by Maynilad and the severe informational and enforcement constraints of the MWSS-RO, the latter could have cut the bargaining costs if it agreed to a price adjustment close to what Maynilad demanded and made the necessary price readjustment in subsequent rate rebasing exercise when it could better assess Maynilad's performance. The failure of the regulatory agency to accommodate the necessary contract adaptation, however, was addressed by the arbitral court.

Crucial Arbitral Decisions: The Arbitration Panel ruled in favor of the MWSS on the issue of payment of concession fees and drawdown of performance bond to cover all the delinquent fees owed by Maynilad to MWSS.[177] Maynilad's non-payment of concession fees compelled MWSS to tap the debt market to refinance maturing loans. The arbitral decision was in accordance with the intent of a concession contract to unburden the government of any financial obligations. The Panel also rightly did not issue any decision on the service target adjustments as these are expressly stipulated in the contract, while it sided with the concessionaire on all other issues. MWSS was also found to have misinterpreted the "cash flows" of the company resulting in substantial disallowances; hence, the MWSS was ordered to approve the proposed rates of Maynilad. More importantly, the Panel found that neither side had sufficient grounds for termination and concluded with an order for both parties to continue fulfilling their obligations, and restart "goodwill" discussions on the fairness and objectivity of the rate rebasing exercise.[178]

The Local Court and Politics: To stem its financial hemorrhage, Maynilad filed a petition for rehabilitation at the Quezon City Regional Trial Court. The court imposed a stay order which protected the company's assets from its creditors and allowed them to proceed with the restructuring plan. The court classified the USD120 million performance bond as part of the company's assets. The MWSS-RO challenged the stay order in the Supreme Court, which was allegedly made under pressure of the Executive who was then seeking re-election during that year and thus needed the support of the influential local partner of the consortium, the Benpres Group[179]. The MWSS-RO was initially opposed to Maynilad's petition, but it eventually negotiated a compromise agreement via Amendment No. 2.

Renationalization and Re-privatization: Amendment No. 2 committed the government to limit its drawing of the USD120 performance bond to USD50 million with the unpaid concession fees converted into equity.[180] The National Economic Development Authority (NEDA),[181] however,

[177] See Ibon Foundation (2005).
[178] See Chavez (n. d.).
[179] The Benpres Group owns the country's largest electricity distribution company, holds interest in telecoms, toll roads and the biggest television channel.
[180] See Chavez (n. d.).
[181] NEDA is the agency tasked to approve projects undertaken through build-own-and-operate scheme and contractual arrangements.

disapproved Amendment No. 2. Maynilad in turn submitted a new rehabilitation plan to the RTC in September 2004. The new rehabilitation plan involved the purchase by MWSS of the equity of the foreign partners of Maynilad worth USD27 million, a partial write-off of the debts of Maynilad to reduce accumulated losses, a tariff adjustment from P19.92 to P30.19 per cubic meter and a downscaling of service targets.[182] The renationalization of the water system was temporary. The government pledged to fully re-privatize the operation when the company's finances were restored. In December 2006, the consortium of DM Consunji Holdings, Inc. (DMCI) and Metro Pacific Investments Corp. (MPIC) won the bid for the government's stake in Maynilad, beating Ayala-owned Manila Water Co. and BPI Capital Investments.

3.4.2. Latter Stage of the Concession. Disagreements between the contracting parties persisted even at the latter stage of the concession but their disputes now go beyond ADR and price adjustments. It relates to auditing rules and the nature of the agreement, i.e., whether the concessionaires are public utilities or mere agents of the MWSS, which would have bearing on their tax obligations and profit limits.

MWSS-RO on Downward Price Adjustments. After a series of upward price adjustments during the last two rate-rebasing exercises, the third rebasing exercise ordered the concessionaire to reduce their rates, inciting another round of disputes between the MWSS-RO and the two concessionaires. Manila Water, which proposed a basic rate increase of Php5.83 pcm, was ordered to cut its rate by Php1.45 pcm, while Maynilad, which requested a rate increase of Php8.58 pcm, was advised to reduce its rates by Php1.29 pcm, placing the average tariff of Manila Water and Maynilad at Php23.12 pcm and Php33.99 pcm, respectively.[183]The reduction in water rates was mainly attributed to three factors: *(i.) prohibition on passing of income taxes on to customers; (ii.) stricter auditing procedures where transaction documents, such as vouchers and receipts are examined to determine disallowances of expenses; and (iii) a lower ADR due to declining cost of capital.*

Non-recovery of corporate income tax. The restriction on the recovery of corporate income tax through customer fees is a new regulation adopted based on the resolution issued by the MWSS-RO in 2013. Since the start of the concession, corporate income tax had been treated as a

[182] See Freedom from Debt Coalition (2008).
[183] See Landingin (2013).

recoverable expense by the concessionaires. In March 2004, the MWSS-RO issued a notice of extra-ordinary price adjustment to both concessionaires to account for the recalculation of the recoverable expenses of the concessionaires in response to the Supreme Court ruling. The SC resolution dated April 9 2003 in Republic v. Manila Electric Company (MERALCO) held that income tax payments of a utility are not expenses which contribute to or are incurred in connection with the production of output. The move of the MWSS was questioned by the concessionaires citing that unlike MERALCO they are not public utilities; they were mere agents and contractors of MWSS as per Concession Agreement. In June 2004, the MWSS Board of Trustees directed its RO and concessionaires to create a Technical Working Group (TWG) to help the parties find a mutually acceptable resolution.

The TWG took the view that unlike Meralco, the concessionaires were not public utilities, but were just agents of MWSS due to the following reasons: *(i) the intent of the CA is for the MWSS to remain as a public utility providing waterworks and sewerage services, while the concessionaires are its agents and contractors, consistent with the framework of a concession arrangement; (ii) it is the MWSS that has the legislative franchise under its Charter, while the concessionaires do not have a franchise; (iii) the MWSS contracted the services of the concessionaires to perform certain functions and authorized them, by way of agency, to exercise certain rights in performing their obligations; (iv) during the bidding and selection of concessionaires, the latter had submitted their bids on the basis of MWSS representation that it would retain its status as a public utility having jurisdiction, supervision and control over all waterworks and sewerage system within Metro Manila, Rizal and Cavite; and (v) based on the framework of the Concession Agreements (specifically on Art. 1 Definitions, Art. 2.1 Grant of Concession, and Art. 9.4 General Rate Setting Policy/Rate Rebasing Determination), the MERALCO ruling has no relevance to the concessionaires' situation.*[184] *The MWSS-RO approved and adopted all the findings and recommendations of the TWG report as contained in its memorandum to the MWSS Board of Trustees dated July 29, 2004 rescinding its previous resolution.*

In 2013, however, the MWSS-RO put forward new arguments for disallowing the treatment of income tax as a recoverable expense, such as that: (i*) income taxes are not in the list of "Philippine business taxes" set out in 1997 CA; (ii) concessionaires, as taxpayers, have a duty to pay income tax; and*

[184] Freedom from Debt Coalition v. MWSS-RO, 2007, G.R. No. 173044

(iii) while the concessionaires may not be public utilities, they are subject to the same laws and rules applicable to the principal, the MWSS.[185] In disagreement with the MWSS, the concessionaires filed a case before the International Chamber of Commerce (ICC). The ICC, however, issued a different ruling on the two concessionaires, that is, it permitted the recovery of corporate income tax for Maynilad but not for Manila Water. With disparate ruling on the two concessionaires, the MWSS plans to file a case with the Supreme Court of the Philippines. Maynilad, insisted that the arbitral decision is final and executory. The CA, however, allows for judicial review under special circumstances. With the delays in the tariff adjustments, both concessionaires are demanding the Philippine government compensation for revenue losses. Maynilad is demanding P3.44 billion in compensation for its revenue losses due to the delayed implementation of the arbitration panel-approved rate increase in December 2014. Manila Water, on the other hand, is seeking P79 billion or approximately USD 1.79 billion in potential revenue losses from 2015 up to the end of its contract in 2037 caused by the non-recovery of CIT.

Disallowances of expenses. The downward adjustment in average basic water charges was due to the imposition of stricter auditing procedures by the MWSS-RO which resulted in the disallowances for operating and capital expenditures. Substantial disallowances were made for unsubstantiated expenses and unliquidated cash advances, infrastructure projects and unjustified variation orders, among others. The MWSS-RO effected disallowances of over a hundred billion pesos in future capital expenditures of the companies. OPEX Accounts with major disallowances include salaries and benefits in excess of benchmarks, advertising expenses not directly related to Concession operations, unnecessary management and technical fees, donations and sponsorship not related to Concession operations and business meetings and representation expenses not related to Concession service operations, or in excess of paid allowances.[186]

The MWSS-RO performed three-fold tests to determine whether the expenses should be recovered in the form of tariffs: *(i) relationship test; (ii) allowable expense test; and (iii) prudence and efficiency test.* With the contract having been in force for several years, the use of more rigorous tests is proper. The relationship test examines if the expenses are made to fulfill concessionaires'

[185] See MWSS Annual Report (2013).
[186] See MWSS Annual Report (2014).

obligations, while the allowable expense test sees if the expenses made are covered in the contract. The prudence and efficiency test assesses whether the expenses are incurred in a prudent and efficient manner. The MWSS-RO also allows variation orders if the concessionaire can show that the variation was occasioned by unforeseen events that could not have been reasonably anticipated even with due diligence. Although it can be difficult to establish whether the expenses are indeed used to fulfill the concessionaires' obligations efficiently, the MWSS-RO presented unarguably valid grounds and used fair and reasonable methods for most of the disallowances, such as the disallowances on charitable contributions and media expenses. Allowing the concessionaires to recover the charitable contributions does not only amount to having the water users involuntarily pay for the company's charitable contributions, but it also allows the concessionaires to earn profit from such contributions through the ADR. As reasonably argued by the MWSS-RO, the media expenses cannot all be recovered as they were made to promote the services of the concessionaires' subsidiaries operating outside the concession area.

Estimating the ADR. The regulatory office used the 10-Year Republic of the Philippines bond yields as the reference risk-free rate, which is one of the components of ADR. The private operator insisted on using the 25-year bond which carries more risks and thus charges a higher rate of return. The use of shorter tenor was justly argued by the regulatory office to be the more appropriate basis for the following reasons: the ADR is adjusted every five years; the debt tenors of the private operator averaged between seven and ten years; nearly all regulatory groups in world use a risk-free tenor of five to ten years; and reassessment of investment is made at intervals shorter than the concession term or the remaining life of the asset. The MWSS-RO set the ADR at 7.35 percent, lower than that proposed 8.95 percent of ADR of Manila Water and Maynilad, a percentage point difference in the ADR amounts to several millions in pesos. Interestingly, the two water operators revised the figure down to 7.89 percent when it submitted its proposal to the arbitration court, much closer to the ADR of the MWSS-RO.

3.5. Performance of Water Concessionaires: An Assessment

At the early stage of the concession, the concession-based privatization fell short of the desired outcomes. Based on a survey conducted by the World Bank and the MWSS called the Public Assessment of Water Services in 2000, 67 percent of the 10,000 household respondents thought that water services did not improve and even became worse since privatization, albeit not to an extent of manifestly frustrating the investment and efficiency objectives of a concession contract. Against the chronically poor performance of the MWSS, the two concessionaires, especially Manila Water, performed better in service coverage and non-revenue water even during a crisis period in 1997-1998. Ten years hence, gains from the arrangement have become more evident in terms of service coverage, non-revenue water, water availability, and water rates.

Table 3. Non-Revenue Water and Water Service Coverage: Pre and Post-Privatization

Period	Maynilad, Financial Model	Maynilad, Actual	Maynilad, Financial Model	Manila Water, Actual
Non-Revenue Water (%)				
Pre-Concession: 58				
1997	57.4	63.3	57.4	63
1998	47.9	60.5	47.9	55.2
1999	42	67	42	53
2000	30.8	65.5	30.8	51
2001	29.8	65.99	29.8	52
Water Service Coverage (%)				
Pre-Concession: 67				
2001	87	79	77	76
2006	97	75	94	98
Source: MWSS				

3.5.1. Trends in the Prices of Water Supply Services

Upon entry into force of the concession agreement, the average all-in tariff of Manila Water and Maynila fell by 54 percent and 18 percent, respectively *(See Table 4)*. The average tariffs remained below pre-privatization level until the third year into the agreement. The concession contracts had to be renegotiated on account of the emergence of two supervening events, *i.e., the Asian financial crisis and an unpredented drought*. Water tariffs were drastically adjusted upward to keep the water companies afloat. As a result, all-in tariffs of Manila Water and Maynilad during period 1998-2002 recorded an average annual growth rate of 33 percent and 44 percent, respectively.

Table 4. Pre and Post-Privatization Tariffs								
Period	**Average Tariff**				**Average All-In Tariff**			
Pre-Privatization	8.56				8.78			
Period	Manila Water	% Change	Maynilad	% Change	Manila Water	% Change	Maynilad	% Change
Pre v. Post Privatiztion: Immediate Tariff Reduction	**-73%**		**-42.06%**		**-54%**		**-18%**	
1998-2002: Ave. Annual Growth Rate	**24%**		**32%**		**33%**		**44%**	
1998	2.32		4.96		4.02		7.21	
1999	2.6	12%	5.8	16.94%	4.37	9%	8.23	14%
2000	2.76	6%	6.13	5.69%	4.55	4%	8.63	5%
2001	3.46	25%	8.69	41.76%	5.4	19%	11.72	36%
2002	4.51	30%	11.39	31.07%	9.37	74%	19.92	70%
2003-2008: Ave. Annual Growth Rate	**19%**		**24%**		**16%**		**12%**	
2003	10.06	123%	11.39	0.00%	13.6	45%	19.92	0%
2004	10.4	3%	11.39	0.00%	14.01	3%	18.71	-6%
2005	13.95	34%	19.72	73.13%	18.57	33%	30.19	61%
2006	14.94	7%	19.84	0.61%	19.87	7%	32.51	8%
2007	15.90	6%	20.53	3.48%	20.51	3%	32.96	1%
2008	19.64	24%	24.86	21.09%	24.55	20%	32.05	-3%
2009-2013: Ave. Annual Growth Rate	**8%**		**6%**		**8%**		**12.4%**	
2009	21.91	12%	26.90	8.21%	27.99	14%	31.19	-3%
2010	23.08	5%	28.29	5.17%	30.12	8%	37.4	20%
2011	25.11	9%	30.43	7.56%	33.57	11%	40.80	9%
2012	27.44	9%	32.92	8.18%	38.12	14%	45.27	11%
2013	28.99	6%	33.97	3.19%	37.3	-2%	46.66	3%

Note: The gap between average tariff and all-in average tariff is accounted for by environmental and sewerage charges, and miscellaneous fees
Source: MWSS-RO

In subsequent years (2003-2008), all-in tariffs continued to increase, albeit at a slower rate. The average annual growth rates of all-in tariffs of Manila Water and Maynilad in period 2003-2008 were 16 percent and 12 percent, respectively. The average annual growth rate of Manila Water's all-in tariffs further declined in 2009-2013, while there was a marginal increase in the average annual growth rate of Maynilad's all-in tariff during said period. The decline in all-in tariffs partly

reflected the decrease in risk premium as indicated by the appropriate discount rate (ADR). The ADR has been trending downward *(i.e., 2003-2007: 10.4 percent; 2008-2012: 9.3 percent; and 2013-2017: 7.89 percent).*

3.5.2. Non-Revenue Water, Water Service Coverage and Water Availability

In terms of NRW [187], the two concessionaires performed poorly in earlier periods due to pilferage, leakages in pipes, joints and fittings and overflow at the utility's reservoir. NRW is considered as the best overall indicator of efficiency of water utility management, particularly in terms of operation and system maintenance. Managing NRW is one of the most complex and difficult tasks of a water operator. [188] In 2001, water distribution losses of Maynilad reached 66 percent, higher than the pre-privatization level of 58 percent. There is a wide disparity in the projected NRW in the financial model and the actual NRW reflecting severe informational deficiencies on the state of water distribution networks buried underground and the overall operating environment *(See Table 3)*. Addressing water distribution losses in Metro Manila was made more difficult by inaccurate data provided by MWSS on the length and location of the underground networks.[189] Maynilad initially planned to decommission old pipe lines and lay down new ones to reduce non-revenue water, but the actual length of the network turned out to be 4,000 kilometers, much longer than the 2,500 kilometers stated in the bid document prepared by the government.[190] The additional cost of replacing 1,500 kilometers of pipelines led to the abandonment of the plan.

Table 5. Maynilad, Performance Indicators, 2007-2014

Period	Investment (Php B)	Water Losses	Supply Coverage
2007	37.8 (2007-2012)	67	46
2008		60	58
2009		57	65
2010		51	71
2011		42	84
2012		41	96
2013		35.4	97.8
2014		31.1	97.7

Source: Maynilad

In 2012, water supply coverage of Maynilad and Manila Water was reported to be at 96 percent and 99 percent respectively. Manila Water was also able to reduce its non-revenue water to 11

[187]Defined in terms of percentages, NRW refers to the difference between the amount of water put into the distribution system and the amount of water billed to consumers.
[188]See Espiritu (2011).
[189] See Cheng (2013).
[190] See Special Unit for South-South Cooperation.

percent since 2010, while Maynilad cut the distribution losses from 60 percent in 2008 to 31.1 percent in 2014 *(See Table 5)*. Maynilad reported an allocation of approximately P2 billion for its NRW Reduction program, which covers meter management, leak repairs, and pipe replacement. Maynilad under the new management[191] has invested Php37.8 billion during period 2007-2014, nearly quadrupled the amount invested in period 2003-2006 when the MWSS and Benpres-Lyonnaise still owned the majority shares of the company. The MWSS-RO, however, could not independently verify the figures due to "limited personnel".[192]

In 2013, Manila Water and Maynilad recorded over 25,000 and 81,734 new connections in 2013, respectively. Over 204,000 families or about 40,000 households mostly in informal settlements in Metro Manila, however, have yet to obtain individual piped connections. These areas, however, were also underserved under public management. ADB and Manila Water have been reaching out to low-income communities through the company's "Tubig para sa Barangay" (Water for the Community) project which offered low connection fees and affordable water tariffs. Just recently, ADB and Manila Water also embarked on an education campaign on wastewater management to restore the health of the Pasig River, Metro Manila's polluted main waterway.[193] Maynilad, on the other hand, has steadily enhanced water availability. Over 96 percent of the customers of Maynilad now have 24-hour water supply compared to over one-third in 2006.

Table 6. Performance of the Water Concessionaires, 2012 and 2013

Indicators	Manila Water (East Zone)		Maynilad (West Zone)	
	2012	2013	2012	2013
Water Service Connections	896,148	921,898	1,969,656	2,051,390
Non-Revenue Water (%)	11.12	12.3	27.29	25.52

Source: MWSS-RO

Table 7. Maynilad, Water Availability, 2007-2015

Indicators	2007	2008	2009	2010	2011	2012	2013	2014
24-hour service (% of households with piped connections)	46	58	65	71	84	96	97.8	99.9

Source: Maynilad

[191]Maynilad Water Services, Inc. (Maynilad) was owned by Benpres Holdings Corporation and Suez Lyonnaise de Eaux In 2005, Benpres and Suez ceded management and control of Maynilad to MWSS. It was rebid the following year in which MCI-MPIC Water Company, a joint venture between Metro Pacific Investments Corporation (MPIC) and DMCI Holdings, Inc. (DMCI), won and acquired 83.96% of Maynilad's shares. In 2013, Marubeni Corporation of Japan acquired a 20% stake in DMCI-MPIC Water Company and became a strategic partner of the Metro Pacific-DMCI consortium.

[192] See Ibon Foundation. (2013).

[193] See Rivera (2014).

3.5.3. Performance of Water Concessionaires vs. Public Corporations and Other Private Utilities

Compared to other large private utilities and corporatized water districts, although they are still much smaller than the two water concessionaires in terms of capitalization and number of connections, the water rates of Maynilad and Manila Water are lower. The cost of 30 cubic meters of water in three largest urban cities in the Philippines (Davao, Cagayan and Cebu), served by water districts, is higher than in Metro Manila. In earlier periods (2003 & 2009), the average tariffs of the two concessionaire remained comparable to those of other large private utilities, while their service coverage was higher than that of other private utilities principally on account of their remarkably high staff productivity.

Table 8. Performance of Water Concessionaires v. Comparable Water Utilities, 2016

Indicators	Maynilad	Manila Water	Davao WD	Cagayan WD	Cebu WD	Clark Water Corporation
Water Bill (In Php, 30 cubic meters),	651	440	467	842	518	338

Source: Manila Water

Table 9. Performance of Water Concessionaires v. Other Large Utilities, 2003 & 2009

Utilities	AR		Water Coverage		NRW		Continuity		Connection Fee		No. of Connections (In '000)	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
Maynilad	.33	.46	-	-	68	64	18	24			607.7	762
Manila Water	.24	-	-	-	48		21	24			425.8	-
Subic Water	.42	.59	87	74			24	24		67	27.5	32
Bohol Water Utilities Inc.	.12	.25	40	72	58	24	20	24	8.7	52	3.48	12
Balibago	.28	.37	57	67	-	-	24	24	8	4.9	9.2	13
Davao WD	.2		53	59	33	25	24	24	27	62	143.1	
Cebu WD	.37	.6	38	54	32	29	20	22	72	96	99.15	120

Source: IBNET
Note: AR=Averag Revenue/Tariff

Table 10. Spending and Staffing Behavior of Water Concessionaires vs. Other Large Utilities: 2003 & 2009

Utilities	UOC		Staff/1,000 Conn.		Labor Cost Share		Collection Period (days)		Operating Cost Coverage Ratio	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
Maynilad	.3	.06	3.9	2.3	25	40			1.08	1.82
Manila Water	-	-	-	-	30	-	-	-	-	-
Subic Water	.29	.31	6		22	24	118	103	147	2
Bohol Water Utilities Inc.	.12	.18	10.5	5	31.6	27	31	47	1.02	1.42
Balibago	.25	.28	6	1.2	22	28	34	69	1.14	1.35
Davao WD	.14	.23	6.5	5.9	27	36	48	62	1.48	1.46
Cebu WD	.25	.39	7.3	7.4	54	16	53	59	1.49	1.52

Source: IBNET
Note: UOC=Unit Operating Cost

4. CONCLUSION AND POLICY RECOMMENDATIONS

The high incidence of costly contract renegotiation in developing countries has been taken as an indication that a concession arrangement is an impracticable model for water service provision in developing countries. Notwithstanding, the costly bargaining of the contracting parties has not shown to frustrate the investment and efficiency objectives of a concession arrangement and render the same manifestly inferior to public management. From a regulatory bargaining standpoint, the high incidence of contract renegotiation is an invitation to explore proper contract design and enforcement strategies in order to realize the envisaged superior gains of shifting from public management to a concession arrangement. Drawing on transaction cost economics and law and economics scholarship, I have shown that a partnership approach to contracting marked by a government-led cooperative behavior and relational application of the legal doctrine of impracticability in the enforcement of an incomplete contract would be an effective governance strategy to incentivize efficiency, investment and cooperation. This is particularly so in an environment where there is severe informational deficiency and high efficiency and investment requirement, but regulatory risk is substantial due to the prevalence of inefficient political interference.

The water service provision in Metro Manila constitutes a context where concession is deemed an optimal ownership choice as discussed at length in Section 2.1. Metro Maynila is a large market in terms of population and users' ability to pay; it thus allows the private operator to exploit its financial and technical resources and realize substantial economies of scale. As such, the shift from public management to a concession arrangement offers hefty gains net of bargaining costs thus providing incentives for parties to engage in cooperative adaptation. Also, the design of the CA, albeit not without flaws, can be deemed to have substantially complied with the elements of a partnership contracting*, i.e., it embodies a suitable allocation of control rights and adopts the right incentive tools.* The CA supports a structured negotiation whereby contracting parties are mutually bound to aid each other in fulfilling their reciprocal obligations; otherwise, the aggrieved party may file a complaint before the arbitration tribunal. The tenor of the contract *(i.e., ex-ante risk allocation as reflected in the choice of price regulatory method and early termination clauses)* which bears strong investment incentives also rightly reflects the exigencies of the bargaining environment (*i.e., exigency of private investment amidst a high level of perceived regulatory risks and uncertainty owing to the substantial resource losses under public management)* at the time of contracting.

The multiple aspects of the performance of water service provision *(i.e., service coverage, non-revenue water and affordability)* combined with the emergence of supervening events rendered the CA highly incomplete and susceptible of opportunistic negotiation. Under such conditions, the transaction cost economics would tend to disfavor outsourcing the operations to avoid costly bargaining. In the case of Metro Manila, however, there was a strong investment and efficiency motive arising from the increasing competing needs for public funds and the high efficiency and investment requirement of the urbanized and densely populated service area. As noted earlier, such market circumstances offer efficiency and investment gains large enough to offset the bargaining cost, especially in the long run, barring severely flawed contract design and excessive corruption. Still, a highly incomplete contract necessitates a well-functioning regulatory agency to facilitate efficiency-promoting cooperative adaptation. A well-functioning regulatory agency would be vital in enforcing the contract in accordance with a partnership-based application of the doctrine of impracticability. But as mentioned in the preceding chapter, the regulatory agency has limited monitoring capacity and independence. With weak regulatory capacity, the

use of a cost-plus scheme, fiscal incentives and other risk-sharing mechanisms to attract private capital led to sub-optimally high expenditure levels resulting in substantial rents (as each unit of capital earns a rent under a cost-plus scheme) and high water rates.

When regulatory competence and knowledge is limited, a highly pro-consumer regulatory stance and a control approach to regulation has shown to be counterproductive; it only resulted in costly bargaining with the government still ended up yielding to the demands of the concessionaires. Bargaining towards an efficient commercially practicable rent was made costly by the regulatory agency's failure to take a conditional cooperative behavior. The government has not taken the lead role in establishing stable patterns of cooperative behavior as demonstrated by its insistence to use the implied ADR in the bid despite a drastic reversal of market conditions. The issue of corporate income tax being a recoverable expense should have been settled between the contracting parties with the MWSS-RO informing the concessionaires as to why such tax privilege may no longer be sustained; the agency could have considered negotiating for a staggered removal of said fiscal incentive.

Notwithstanding the glitches in the contract design and enforcement, the suitability of a concession arrangement in a context marked by high efficiency and investment requirement has been established over time. The service level has improved with the distribution of gains becoming less skewed towards the private operator over time. Still, there is a wide scope for minimizing bargaining costs to enhance the level and distribution of gains from the CA in favor of the consumers. The government may be able to further stabilize water rates at minimum bargaining cost by providing minimal public financing, while the MWSS-RO would have to continually enhance its regulatory capacity and encourage cooperative behavior via a structured, transparent, constructive negotiation underpinned by a partnership-based application of the legal doctrine of commercial impracticability.

Strengthening the Regulatory Agency. Strengthening regulatory capacity may help discourage frivolous disputes (*e.g., Manila Water demanding compensation for projected revenue losses as a result of the delayed implementation of the rate adjustments that were not approved by both by the MWSS-RO and the arbitration court)*. The MWSS-RO still lacks the capacity to make an accurate and impartial

evaluation of the performance of the concessionaires. Aside from depending on the concession fees to carry out their functions, the MWSS-RO relies on the numbers submitted by the companies to assess their performance.[194] Enhancing independence and capacity of the regulator signals to the private operators the intent of the government to curb both public and private opportunism *(i.e., charitable contributions and donations would not be considered as recoverable expenses).* This would encourage the private operator to be more prudent and efficient in their spending. To narrow the latitude for costly bargaining, the parties may have to continually work towards setting proper guidelines and standards for determining what "efficiently and prudently" incurred expenses are. Additionally, the parties would have to strive to continually engage each other to promote mutual understanding of each partner's evolving capabilities and limitations in fulfilling their respective contractual obligations *(i.e., exchange of views on price regulatory design, including auditing rules and removal of tax privileges).*

Public Financing to Complement Private Financing. Under the existing concession arrangement, the private operators have been able to narrow the investment gap in the sector and enhance operational efficiency. The disputes between the two parties pertain to the "appropriate" allocation of gains and losses which, in turn, affects service affordability. Minimal public financing may help narrow bargaining and information asymmetries resulting in minimal bargaining cost without distorting the incentive structure. By sharing the burden of the project, minimal public financing may also help reduce regulatory risk premium and impel parties to engage in dialogues and good faith negotiation.

There are a few concession agreements in the Philippines where the government maintains an equity share of 20 percent to 50 percent. These utilities, however, operate in relatively small urban areas involving modest level of investment and technical competencies; hence, private partner is not likely to demand sufficient private ownership. Considering the performance of Subic Water Corporation (SWC) and Bohol Water Utilities Inc. (BWUI), the right equity share may be not more than 20 percent. The spending and staffing patterns of BWUI in which the provincial government has an equity share of 20 percent, is as efficient as those utilities that are

[194] See Negishi (n.d).

fully privately financed, while the water rates have been relatively low. Considering that the water users in Metro Manila have relatively high income[195] and the concession area involved a large amount of capital investment, the equity share of the government in Maynilad and Manila Water may not exceed that of BWUI and SWC. Further, public financing may be explored as a temporary measure while the MWSS-RO has yet to address institutional inadequacies and provide adequate incentives for mutual cooperation.

[195] Based on the National Statistics Office data, Metro Manila has an average annual income of Php 356,000 or 1.7 times the country's average income. The average annual income of the vast majority of regions falls below Php200, 000. The low-income users represent about 20 percent of the total number of water users in Metro Manila.

CONCLUSION

The shift away from public ownership and towards private ownership to enhance water utility performance has been motivated by the envisaged superior efficiency and investment incentive structure of the latter. As manifestly borne out by the experience of many developing countries, including the Philippines, however, the gains from ownership shifts vary across transactional settings, hence, the seeming irrelevance of ownership. Accordingly, the study examines the role of ownership by exploring it as a mode of governance that employs different ex-ante and ex-post incentive devices to promote proper regulation of water utilities.

Ownership-Performance Nexus: Qualifying the Superiority of Private Ownership

The results of econometric and case studies on the performance and behavior of water utilities in the Philippines detailed in *Chapter 1* have indicated superior overall performance of private utilities to that of state-owned utilities on account of the former's efficient and equitable pricing, spending and staffing behavior (i.*e., price reflects service level and water users' ability to pay*). Notwithstanding, the private utilities may not readily substitute LGU-run utilities in highly politicized low-income areas where the prices of water supply services are set at below cost-recovery levels. Private utilities, however, stand to competitively provide water supply services in lucrative areas widely served by water districts. Corporatization via the water district model has shown to be a delicate remedy to the inefficiency of publicly-owned utilities. Despite the introduction of private sector operating principles, particularly the accommodation of profit motive, the spending patterns of water districts resemble that of LGU-run utilities marked by a strong bias towards personnel expenses, while their pricing behavior could be likened to that of an ill-regulated profit-seeking utility. The accommodation of profit motive and introduction of private sector operating principles did not alter the incentive structure of water districts; it simply facilitates further redistribution of welfare gains away from the consumers and towards the employees via unreasonably high tariffs and hefty personnel compensation. Employees have shown to capture the internal returns of the utility to the detriment of low-income consumers.

With their high-pricing behavior, water districts have emerged as a poor alternative to LGU-run utilities in low-income areas, while their cost inefficiencies render them inferior to private utilities

in high-income areas with high efficiency and investment requirement. Water districts opt to serve high income areas where they can charge higher water rates independent of the service level and users' ability to pay as they aggressively pursue financial sustainability goals. The accommodation of profit motive among state-owned utilities has shown to generate perverse incentive effects mainly on account of poor enforcement of regulatory laws and policies under state ownership. The spending, staffing and pricing behavior of water districts signify the accommodation of interests of various public and private agents at the expense of the water users. This is in stark contrast with private utilities which proved to be highly susceptible of being properly regulated. Where the political market is inefficient, the results of the studies favor maintaining the low-powered incentive structure of public ownership and confining the adoption of high-powered corporate principles within the realm of private ownership.

Refocusing the Role of a Regulatory Oversight under a Two-tiered Regulatory System

Motivated by the limited enforceability of regulatory laws and policies under state ownership and the political and policy biases against the operation of private water utilities, *Chapter 2* presents a refocused role of a regulatory oversight whereby the same performs its harmonizing and checking functions through its adjudicatory powers over ownership shifts and regulatory conflicts under a two-tiered regulatory system. The regulatory oversight can promote efficient functioning of all ownership types by ensuring that traditional regulatory methods and approaches are modified or supplanted if they prove to be susceptible to rent extraction or if they undermine efficiency and investment incentives. A regulatory oversight is thus depicted as an ex-ante and ex-post governance mechanism that promote regulatory compliance and competition mainly through its adjudicate powers concerning ownership shifts and regulatory conflicts with rule-making functions on the guiding principles on the design and enforcement of contracts and licenses to operate. This constitutes an incremental governance approach to promoting private sector participation and overall regulatory effectiveness aimed at avoiding adverse outcomes of wrongfully imposing a *feasible* and *favored* ownership structure. Where one ownership structure cannot be readily substituted for another due to a dire transactional setting *(i.e., prevalence of inefficient political interference and, concomitantly, high degree of market risk and uncertainty thereby discouraging private operators)*, an outright policy preference towards private ownership is bound to be frustrated.

In the same vein, a two-tiered regulatory system where specialized regulators are placed under a common regulatory oversight with adjudicative functions is preferred to a single regulator. Specialized regulators would be necessary where each ownership type is made to respond to disparate market constraints and incentives thus requiring special and differential regulatory treatments under the governance of a regulatory oversight. A regulatory oversight that operates within the relatively depoliticized arena of adjudication with well-targeted policy making functions, *i.e., promote regulatory competition and compliance by adjudicating ownership shifts and regulatory conflicts*, is consistent with the policy orientation of the Philippines towards decentralization and debureaucratization of administrative responsibilities to enhance accountability.

A Partnership Approach to Contracting: Explicating the Functioning of Private Ownership

To further resolve the seeming irrelevance of ownership*, Chapter 3* dissects the structural attributes of private ownership to explicate its advantages and limitations as a mode of governance and, concomitantly, introduces *private ownership suitability conditions* and a *partnership approach* to designing and enforcing regulatory contracts. Under a partnership contracting, the parties are induced to treat each other as partners on account of their equally large contribution and risks to the realization of superior gains from an incentive-compatible ownership arrangement. To induce the parties to treat each other as partners, the same are made to internalize the long-term cost of opportunistic behavior and long-term benefits of mutual cooperation via a government-led cooperative behavior underpinned by *(i) ex-ante assignment of risk to the superior risk bearer*[196]*; and (ii) a bias towards contract adjustment and against termination within the confines of the legal doctrine of commercial impracticability.* While partnership contracting allows ex-post renegotiation and a wide scope for sharing gains and losses, the bargaining would have to occur within the metes and bounds of the legal doctrine of commercial impracticability to forestall regulatory capture and preserve the incentives for investment, efficiency and cooperation.

A probe into the structural properties of private ownership unravels various ex-ante and ex-post incentive devices *(e.g., design of regulatory agencies and contracts and other enforcement strategies)* that can be adapted to disparate transactional settings. A more credible enforcement

[196] See Scott (987) and Smythe (2003) for governance of relational contracts.

of these incentive devices under private ownership makes the welfare gains of the same superior to those of state ownership. Relatedly, the nullifying ex-ante incentive and the ex-post transaction cost-minimizing motives of shifting to private ownership can be reconciled as further discussed below. One of the major takeaways in the study is that a long-term bargaining account of ownership is a cogent analytical framework in unraveling the fundamental differences in the incentive structure and regulatory effectiveness of public ownership and private ownership and their variants as modes of governance; it is also highly instructive in ascertaining the proper design and enforcement of ex-ante and ex-post incentive mechanisms (e.*g., the design of a regulatory agency, financing schemes and price regulatory method*). Through the prism of regulatory bargaining, I have shown how private ownership may provide incentives for efficiency, investment and cooperation yielding the following findings.

i. *Efficiency, investment, and flexibility are desirable goals that are best served under sufficient private ownership characterized by the assumption of greater responsibilities, risks and bargaining advantage over the resulting gains by the private operator;*
ii. *The incentive motive, i.e., the high-powered incentives for efficiency and investment of shifting from public management to private ownership, is intimately tied to the transaction cost-minimizing motive. The reasons being that the incentive mechanisms acquire greater enforceability under private ownership which in turn minimizes transaction cost. Further, the substantial investment and efficiency gains presented by an incentive-compatible concession arrangement induce mutual cooperation between contracting parties;*
iii. *Proper design and use of a suite of incentive devices to strengthen incentives for mutual cooperation entails taking into account evolving bargaining realities, particularly informational deficiencies and bargaining asymmetries. A partnership contracting shows that a context-based relational use of the legal doctrine of commercial impracticability in enforcing a concession arrangement enhances incentives for efficiency, investment and cooperation; and*
iv. *Relatedly, concession as an incentive-compatible ownership choice is anchored on proportionality between the bargaining and informational advantage of the private operator (arising from his investment and operational rights), the investment and efficiency requirement and the concomitant exigency to insulate the transaction from redistributive political interference, and pervasiveness of political interference. This*

narrows the scope for private and public opportunism thereby creating an incentive for efficiency, investment and cooperation.

A Bargaining Account of Ownership: The Incentive and Transaction Cost Problem

In transaction cost economics and incomplete contracting literature, private ownership is a transfer of crucial control rights to a private entity. In an incomplete contract setting, such assignment of control rights to a private entity alters the incentive structure of the utility; it affords informational and bargaining advantage to the party who has both the financial and resource advantage and superior valuation of investment and efficiency (as the private operator's/owner's purpose and survival are hinged on investment and efficiency) thereby incentivizing investment and efficiency and minimizing bargaining cost *(i.e., the private operator does not have to engage in costly bargaining to obtain his larger share of the trade gains*). In public contracting, the private operator, who is obliged to make a sizable sunk investment, faces substantial risks of expropriation by the government. Public opportunism, however, is constrained by the threat of the private operator's full exploitation of his informational and bargaining advantage. With the substantial gains from a suitable ownership choice, the double-sided opportunism is shown in the study to converge towards mutual cooperation through proper enforcement strategies embodied in a partnership contracting as detailed below.

The dissociation of the incentive and transaction cost motive appears to arise from not taking a long-term, relational bargaining account of ownership. While public management may have internalized the bargaining game, making it appear more transaction cost-efficient than private ownership, the real cost of bargaining lies in the incentive effects of internalizing the bargaining game. As evidenced by the performance of corporatized water districts in the Philippines, the internalization of the bargaining game generates gargantuan resource losses creating an exigency to drastically alter the control structure towards private ownership in order to strengthen efficiency incentives. In the case of the highly politicized water service provision in developing countries, the externalization of the bargaining game offers a wide scope for the much-needed rebalancing of interests between investors and consumers. As demonstrated by the privatization experience of the Philippines, the control structure of private ownership tends to create a moderating effect to the inefficient pricing, spending, and staffing biases of publicly-owned utilities.

The high bargaining cost at the early stage of the concession reflects the biases of the parties against each other's interest which need to be neutralized via a bargaining process under the governance of various incentive tools and regulatory and arbitral institutions. Although incentive devices, particularly the establishment of a well-functioning regulatory agency may appear to be a tall order for developing countries, a long-term investment in proper contract design and enforcement under private ownership would yield enormous returns as it strengthens incentives for efficiency, investment and cooperation between public and private agents. The presence of well-performing private utilities is bound to up the level of competition in the water supply sector, inducing state-owned water utilities to be more demand-responsive. This in turn would perch the government in a favorable bargaining position to obtain fair contract terms under different PPP schemes.

Forestalling Ownership Irrelevance

As noted earlier, the envisaged gains from private ownership are not automatic, but externalizing the bargaining game under regulated private ownership enhances the enforceability of an arsenal of ex-ante and ex-post incentive devices which could be used to induce profit-oriented private operators to serve public welfare concerns by strengthening incentives for efficiency, investment and cooperation. A partnership approach to contracting developed herein is essentially an enforcement strategy, which is an antithesis of the New Public Management approach. NPM explores various institutional reforms, including the adoption of private sector operating principles, within public ownership. A partnership contracting, on the other hand, underscores the relevance of ownership with a slant towards sufficient private ownership due in large part to the former's structured bargaining dynamics governed by the regulatory contract and institutions that seek to preserve efficiency and investment incentives.

Within the framework of a partnership contracting, the government via the regulatory agency is obliged to initially establish the incentives for mutual cooperation by making a relational application of the legal doctrine of commercial impracticability. A relational use of the legal doctrine of commercial impracticability purports adjusting the contract if an equilibrium-distorting unbargained-for event occurs based on the efficiency and investment tests. At the early stage of the concession, a partnership recommends a generous application of investment and efficiency tests on account of informational deficiencies. The bias against contract adjustment is anchored on the role of concession as a reform strategy, which may not be the case in developed

economies; hence, the tilt towards contract adjustment may be re-examined when applied in a disparate setting. The tilt towards contract adjustment seeks to make the parties internalize the superior gains from mutual cooperation and the cost of noncooperative behavior in a context where concession is an incentive-compatible choice. A partnership contracting argues for a government-led cooperative behavior of which exigency is evident in an incomplete contract setting where public opportunism can be matched by full exploitation of bargaining and informational advantage by the private operator. This results in substantial efficiency and investment losses and escalating bargaining cost as illustrated in a sequential bargaining game. Aside from making an express contractual provision on government-led cooperative behavior, the government is induced to establish the incentives for mutual cooperation through the use of low-powered incentive devices and ex-post governance mechanisms at the early stage of the contractual relationship where there is severe informational deficiencies about the parties and the operating environment.

Avenues for Further Research

In this study, I simply illustrate how ownership as a governance mechanism shapes the incentive structure of the utilities and minimizes transaction cost from an integrated dynamic bargaining standpoint. The discussion on these incentive mechanisms is aimed at explicating the merits and limitations of private ownership vis-à-vis public ownership as cited above. And while it identifies specific conditions under which certain incentive devices may be suitable; it does not endeavor to make policy recommendations on how each and every incentive device may have to be designed for each and every set of circumstances. Although the situation of water service provision in the Philippines provides a lush setting to explore the complexities of ownership as a control and incentive structure as noted earlier, the use of the same as an illustrative case study was pursued mindful of the variedness of the experiences of developing countries; hence, the disinclination to make sweeping policy prescriptions. It has been made clear in the study that further examination of various incentive tools, which embody varying mix of relational and transactional norms, under public and private ownership across disparate settings would provide cogent policy insights on how to facilitate proper functioning of different ownership types.

An interesting area for further research would be to examine how traditional public accountability mechanisms, such as consultation and utility-users partnerships operate under private ownership and explore strategies to professionalize these mechanisms without inefficiently politicizing the

privatization process and impairing the desired incentive structure. Further exploration of relational and transactional norms in the design and enforcement of different incentive devices, especially the application of the legal doctrine of commercial impracticability could yield better strategies to minimize bargaining cost without blunting the incentives for efficiency and investment. Although the legal doctrine of impracticability has shown to be a vital enforcement strategy, proper use of said doctrine across disparate settings has yet to be established. There remains a wide gap to be filled in finding the optimal design and enforcement of administrative contracts *(i.e., whether to treat it as an administrative/public contract that must be subject to public consultation and expanded review of local courts or a private/commercial contract insulated from political influence and interference and follows strict enforcement of the legal doctrine of impracticability)* and defining the roles and functions of key stakeholders in light of the purpose and peculiarities of public contracting. While I have argued that a regulatory oversight could play a pivotal role in enhancing the functioning of state-owned utilities and private utilities, its goals, functions and approaches may differ across market and political settings. Regulators are granted with disparate levels and scope of authority and capabilities. The variedness of regulating contractual provisions and renegotiation would be worth exploring in comparative legal studies.

BIBLIOGRAPHY

Acemoglu, D. (2003). Why not a political Coase: Social conflict, commitment, and politics, *Journal of Comparative Economics* (31) 620-652. Retrieved from http://economics.mit.edu/files/4461

Aghion, P. and R. Holden. (2011). Incomplete Contracts and the Theory of the Firm: What have we learned over the past 25 years? *Journal of Economic Perspectives*, 5(2), 181-197.

Aghion, P. and R. Holden. (2011). Incomplete Contracts and the Theory of the Firm: What have we learned over the past 25 years? *Journal of Economic Perspectives, 5(2), 181-197*.

Aghion, P. and J. Tirole. (1997). Formal and real authority in organizations. *Journal of Political Economy 105(1): 1-2*9.

Aguiba, M. and E. Lopez. *DBP extends P4-B funding to LWUA, water districts. Manila Bulletin, Sep 21, 2003.* Retrieved from http://isslerhall.org/drupal/content/philippine-water-financing-dbp-lwua)

Alchian A. and H. Demsetz. (1972). Production, Economic Costs and Economic Organization. *The American Economic Review*, Vol. 62 (5) pp. 777-795. Retrieved from https://business.illinois.edu/josephm/BA549_Fall%202010/Session%205/Alchian_Demsetz%20%281972%29.pdf

Alesina, A. and A. Drazen. (1991). Why are stabilizations delayed? *American Economic Review, 81, 1170-88.*

Andrés, L. A., et al. (2011). *Governance in State-Owned Enterprises Revisited: The Cases of Water and Electricity in Latin America and the Caribbean.* Policy Research Working Paper; No. 5747. World Bank. https://openknowledge.worldbank.org/handle/10986/3508 License: CC BY 3.0 IGO.

Andres, L., et al.. (2008), Regulatory Governance and Sector Performance: Methodology and Evaluation for Electricity Distribution in Latin America', *World Bank Policy Research Working Paper No.4494*.

Andres, L et al. (2007*). Do regulation and institutional design matter for infrastructure sector performance?* Policy Research Working Paper Series 4378, The World Bank.

Anwandter, L. and T. Ozuna. (2002). Can Public Sector Reforms Improve the Efficiency of Public Water Utilities? *Environment and Development Economics, 7: 687-700*.

Araral, E. (2008). The failure of water utilities privatization: Synthesis of evidence, analysis and implications. *Policy and Society, 27(3), 221-228*.

Armstrong, M. and Sappington, D. (2007). *Recent developments in the theory of regulation*. In M. Armstrong and R. Porter (eds), HandbookofIndustrial Organization. Amsterdam: North-Holland.

Aryeetey, E. (2001). *Priority Research Issues Relating to Regulation and Competition in Ghana. Centre on Regulation and Competition*. Institute for Development Policy & Management. University of Manchester. Working Paper Series, Paper No. 9.

Asian Development Bank. (2013). *Philippines: Water Supply and Sanitation Sector Assessment, Strategy, and Roadmap.* Philippines: ADB. Retrieved from http://www.adb.org/sites/default/files/institutional-document/33810/files/philippines-water-supply-sector-assessment

Asian Development Bank. (2010). *Every Drop Counts: Learning from Good Practices in Eight Asian Countries*. Manila:ADB.

Asian Development Bank. (2005). *Rationalizing Water Tariffs for Private Utilities under the National Water Resources Board*. Retrieved from http://www.ircwash.org/sites/default/files/IDP-2005-Rationalizing.pdf

Asian Development Bank. (2004). *Water in Asian Cities. Utilities' Performance and Civil Society Views*. Manila.

APMG International. *Equity Participation by the Government.* Retrieved from https://ppp-certification.com/ppp-certification-guide/45-equity-participation-government.

Asia-Pacific Environmental Innovation Strategies (APEIS). *Research on Innovative and Strategic Policy Options Good Practices Inventory, Implementation of public-private partnership for water supply and sanitation services in Metro Manila*. Retrieved from UE2_3051%20(1).pdf

Auriol, E. and P. Picard. (2011). *A Theory of BOT Concession Contracts*. Retrieved from file:///C:/Users/hp-PC/Downloads/coredp2011_19web.pdf

Bagley, N. and R. Revesz. (2006). Centralized Oversight of the Regulatory Oversight, Columbia *Law Review, Vol. 106.*

Baietti, A. et al. (2006). *Characteristics of well-performing public water utilities.* Water supply and sanitation working notes, no. 9, Washington D.C.: World Bank, Available from http://documents.worldbank.org/curated/en/110951468155137465/characteristics-of-well-performing-water-utilities.

Bakovic, T., B. Tenenbaum and F. Woolf. (2003). *Regulation by Contract: A New Way to Privatize Electricity Distribution*. Washington D.C: World Bank.

Bardhan, P. (2002). Decentralization of Governance and Development. *Journal of Economic Perspectives (16) 185-205.* Retrieved from https://www.aeaweb.org/articles?id=10.1257/089533002320951037

Barzel, Y. (2006). *Transaction Costs and Contract Choice*. Retrieved from http://econ.washington.edu/files/2013/05/Barzel-Transaction-Costs-and-Contract-Choice.pdf

Barberis, N. et al. (1996). How Does Privatization Work? Evidence from the Russian Shops. *Journal of Political Economy, 104 (8), 764–90*.

Barro, R., (1973). The control of politicians: an economic model. *Public Choice, 14, 19-42.*

Barzel, Y. (2006). *Transaction Costs and Contract Choice*. Retrieved from http://econ.washington.edu/files/2013/05/Barzel-Transaction-Costs-and-Contract-Choice.pdf

Barzel,Y. (1997). *An Economic Analysis of Property Rights*. UK: Cambridge University Press.

Bayliss K. (2003). Utility privatisation in sub-Saharan Africa: a case study of water. *Journal of Modern Afr. Stud, 41(4), 507–31*.

Becker, G. (1983). A Theory of Competition Among Pressure Groups for Political Influence, *Quarterly Journal of Economics, 98, 371-400*.

Becker, G. (1985). Public Policies, Pressure Groups, and Deadweight Costs. *Journal of Public Economics, 28, 329-47.*

Benitez, D., O. Chisari and A. Estache (2003). Can the Gains from Argentina's Utilities Reform Offset Credit Shocks? *In* Ugaz C. Waddams Price (ed.), *Utility Privatization and Regulation: A Fair Deal for Consumers?* Northampton, MA: Edward Elgar.

Benitez D. et al. (2001). *Can the gains form Argentina's utilities reform offset credit Shocks.* Finland: United Nations University WIDER.

Berg, S. (2013). *Best Practices in Regulating State-owned and Municipal Water Utilities*. Retrieved from https://repositorio.cepal.org/bitstream/handle/11362/4079/1/S2013252_en.pdf

Berg, S. et al. (2000). Designing an Independent Regulatory Commission. Retrieved from http://regulationbodyofknowledge.org/wp-content/uploads/2013/03/Berg_Designing_an_Independent.pdf

Berg, S. and J. Tschirhart. 1988. *Natural Monopoly Regulatiom*. Cambridge: Cambrige University Press. Retrieved from http://assets.cambridge.org/97805213/38936/frontmatter/9780521338936_frontmatter.pdf

Besley, T. and M. Ghatak. (2001). Government versus Private Ownership of Public Goods. *Quarterly Journal of Economics*. Retrieved from https://pdfs.semanticscholar.org/2357/f1d5d037eb1ef4af4f0c7eaa7e6217da5a04.pdf

Bitrán, G. and E.Valenzuela. (2003). *Water Services in Chile: Comparing Private and Public Performance Public Policy for the Private Sector. No 255 March*. Retrieved from http://rru.worldbank.org/PapersLinks/Open.aspx?id=1998 Calabresi, Guido and Douglas.

Biais, B. and Perotti, E. (2002). Machiavellian privatization. *American Economic Review, 92, 240–258.*

Birdsall, N. and J. Nellis. (2003). Winners and Losers: Assessing the Distributional Impact of Privatization. *World Development 31 (10), 1617–33.*

Bitrán, G. and E.Valenzuela. (2003). *Water Services in Chile: Comparing Private and Public Performance.* Public Policy for the Private Sector. No 255 March. Retrieved from http://rru.worldbank.org/PapersLinks/Open.aspx?id=1998 Calabresi, Guido and Douglas.

Blanc, A. and S. Botton. (2010). *Water services and the private sector in developing countries: Comparative perceptions and discussion dynamics.* Retrieved from https://www.ircwash.org/sites/default/files/Blanc-2012-Water.pdf

Bloom, N., et al. (2012). The Organization of Firms across Countries. *Quarterly Journal of Economics, 1663–1705.*

Bloom, N., et al. (2009). *Recent Advances in the Empirics of Organizational Economics*. Retrieved from http://web.stanford.edu/~nbloom/AR.pdf

B¨orner, K. (2004). *The political economy of privatization: why do governments want reforms?* Fondazione Eni.

Bortolotti, B. and Siniscalco, D. (2004). *The Challenges of Privatization. An International Analysis.* Oxford: Oxford University Press.

Bortolotti and Pinotti. (2003). *The Political Economy of Privatization*. Retrieved from http://www.feem.it/userfiles/attach/Publication/NDL2003/NDL2003-045.pdf

Boycko, M., S., A. and Vishny, R.W. (1996). A theory of privatization. *The Economic Journal, 106, 309–319.*

Braadbaart, O., M. Blokland, and K. Schwartz. (eds.). (1999). *Private Business, Public Owners: Government Shareholdings in Water Enterprises*. The Hague, Ministry of Housing, Spatial Planning and the Environment.

Brillantes, A. and D. Moscare. (2002). *Decentralization and Federalism in the Philippines: Lessons from Global Community.* Retrieved from http://unpan1.un.org/intradoc/groups/public/documents/eropa/unpan032065.pdf

Brousseau, E. and S. Saussier. *Contracting with Governments.* Retrieved from file:///C:/Users/hp-PC/Downloads/SSRN-id1408168.pdf

Burgess, S. and P. Metcalfe. (1999). *Incentives in Organisations: A Selective Overview of the Literature with Application to the Public Sector*. CMPO Working Paper Series No. 00/16.

Carpentier, A., Nauges, C., Reynaud, A., and Thomas, A. (2006). Effets de la délégation sur le prix de l'eau potable en france: Une analyse à partir de la littérature sur les effets de traitement. *Economie et Prévision, 3(174):1–19.*

Cavaliere, A. et al. (2015). *A Normative Analysis of Local Public Utilities: Investments in Water Networks.* Retrieved from http://www.siecon.org/online/wp-content/uploads/2015/10/Cavaliere.pdf

Cavaliere, A. and S. Scabrosetti. (2008). *Privatization and efficiency: from principals and agents to political economy. Journal of Economic Surveys*, ___. Retrieved from http://ageconsearch.umn.edu/bitstream/12201/1/wp060099.pdf

Chaise, J. and M. Polo. (2015). *Globalization of Water Privatization: Ramifications of Investor-State Disputes in the "Blue Gold" Economy.* Boston College International and Comparative Law Review, Vol. 38(1), Retrieved from http://lawdigitalcommons.bc.edu/iclr/vol38/iss1/2.

Chavez, J. (n.d.). *Short update on the failed privatization in the Philippines.* Retrieved from http://www.11.be/11/component/one/artikel/detail/detail/short_update_on_the_failed_water_privatization_the_philippines,102131

Cheng, D. (2013). *Invisible Water Networks: The Politics of Non-Payment in Manila's Low-Income Communities*. Retrieved from http://eau.sagepub.com/content/early/2013/02/18/0956247812469926.full.pdf

Cheung, S. (1969). Transaction Costs, Risk Aversion and the Choice of Contractual Arrangements. *Journal of Law and Economics, 1969, 12(1), 23-42.*

Che, J. and Y. Qian. (1994). *Boundaries of the firm and governance: understanding China's township and village enterprises*, mimeo, Stanford University.

Cheung*, S*.N.S., ed. (*2005)*. *Economic Explanation*: Selected Papers of Steven N.*S. Cheung*, Hong Kong: Arcadia Press Childs.

Chong, E., Huet, F., Saussier, S., and Steiner, F. (2006). Public-Private Partnerships and Prices'. *Review of Industrial Organisation*, Vol. 29, Nos 1-2, pp 149-169.

Chong, E., Huet, F. and Saussier, S. (2006). Auctions, Ex Post Competition and Prices: The Efficiency of Pubic-Private Partnerships'. *Annals of Public and Cooperative Economics*, Vol 77, No. 4, pp 521-554.

Clarke, G., K. Kosec, and S. Wallsten. (2004). *Has Private Participation in Water and Sewerage Improved Coverage? Empirical Evidence from Latin America.* Working Paper no. 04-02 (January), American Enterprise Inst.–Brookings Joint Center Regulatory Studies, Washington, DC.

Claude M. and A. Peeroo. (2011). *Liberalization in the Water Sector: Three Leading Models.* Rolf Kunneke and Matthias Finger. International Handbook of Network Industries: The Liberalization of Infrastructures, Edward Elgar, pp.310-327. Retrieved from halshs-00624303>

Coase, R. (1960). The Problem of Social Cost. *The Journal of Law and Economics*, 3(Oct., 1960), pp. 1-44. Retrieved from http://grecof2.econ.univpm.it/esposti/wiki/lib/exe/fetch.php?media=didattica:coase_jle1960.pdf

Coase, R. (1937). The Nature of the Firm. *Economica, 4 (*Nov., 1937), pp. 386-405. Retrieved from http://www.colorado.edu/ibs/es/alston/econ4504/readings/The%20Nature%20of%20the%20Firm%20by%20Coase.pdf

Collins, H. (1999). Regulating Contracts. Oxford. Oxford University Press

Crocker K. and S. Masten. (2002). *Prospects for private water provision in developing countries: lessons from19th-century America*. In Thirsting for Efficiency: The Economics and Politics of Urban Water Reform, ed. M Shirley, pp. 317–47. London: Elsevier Sci.

Crozier, Michel. (1964). *The Bureaucratic Phenomenon*. Chicago: University of Chicago Press.

da Cruz, Nuno et al. (2012). *Measuring the efficiency of water utilities: a cross-national comparison between Portugal and Italy*. Water Policy, 14 (5). p. 841. ISSN 1366-7017.

Dargantes, B., V. Chiong, H. Dargantes and E. Mira. (2014). Quasi-Public: Water Districts in the Philippines, In D. McDonald, ed., *Rethinking Corporatization and Public Services in the Global South*. London: Zed Books Lt.

Dahl, R. A., & Lindblom, C. E. (1953). *Politics, economics and welfare*. New York: Harper & Brothers.

Danilenko, A., C. van den Berg, B. Macheve and L. Moffitt. (2014). The IBNET Water Supply and Sanitation Bluebook 2014. Washington, D.C.World Bank.

David, C. (2000). *MWSS Privatization: Implications on the Price of Water, the Poor and the Environment.* Manila: Philippine Institute for Development Studies.

David, C. and A. Inocencio. (1998). *Understanding demand for household water: Metro Manila Case*. Retrieved from http://idl-bnc.idrc.ca/dspace/bitstream/10625/14878/5/108376.pdf

Davis, Jennifer. (2005). *Private Sector Participation in Water and Sanitation Sector*. Cambridge, MA: MIT Press.

De Alessi, L. (1980). The Economics of Property Rights: A Review of the Evidence. *Research in Law and Economics 2, l-47.*

den Hertog, J. ed. (2012). *Economic theories of regulation*. UK: Edward Elgar Publishing Ltd.

Debande, O. and G. Friebel. (2003). *A Theory of "Give Away" Privatization*. Retrieved from http://publications.ut-capitole.fr/id/eprint/2090

Debande O., and G. Friebel. (1999). *A Positive Theory of Insider Privatization*. Discussion Paper 99/05, Stockholm Institute of Transition Economics

Debande, O. and G. Friebel. (1996). *Privatization, employment and managerial decision-takin*g, mimeo, ECARE,Université Librede Bruxelles.

Delmon, V. (2014). *Structuring Private Sector Participation Contracts for Small Scale Water Projects*. Retrieved from http://www.wsp.org/sites/wsp.org/files/publications/PPP-Contracting-Toolkit.pdf

Dela Cruz, I. (2014). *Philippine Political Law*. Manila: National Bookstore.

Demsetz, H. (1967). Toward a Theory of Property Rights. *The American Economic Review,* 57(May, 1967), pp. 347-359. Retrieved from http://www.econ.ucsb.edu/~tedb/Courses/Ec100C/Readings/Demsetz_Property_Rights.pdf

Department of Budget and Management. (2011). *Revised Local Water District Manual on Categorization, Re-categorization and other Related Matters*. Retrieved from http://www.lwua.gov.ph/wd_classification/Revised-Local-Water-District-Manual-MaCRO.pdf

Department of Interior and Local Government. (2013). *Building Water Integrity: User's Guide on Citizens' Monitoring on Local Water Governance through Public Finance Process.*

Dewatripont, M. and G. Roland. (1999). *Soft budget constraints, transition and financial systems*. ECARE, Université Libre de Bruxelles and CEPR.

Domingo, R (13 July 2014). MWSS strikes down controversial resolution. *Philippine Daily Inquirer*. Retrieved from http://newsinfo.inquirer.net/437973/mwss-strikes-down-controversial-resolution

Donahue, J. (1989). *Privatization and public spending*. See Ref. 109. pp. 14– 33 55b. Donahue J. 1989. The evidence on efficiency. See Ref. 109. pp. 57–78.

Dore M., J. Kushner and K. Zumer. (2004).Privatization of water in the UK and France: What can we learn? *Util. Policy* 12:41– 50.

Dumlao-Abadilla, D. (2016, March 29). DMCI reduces stake in Subic Water Utility. *Philippine Daily Inquirer*. Retrieved from http://business.inquirer.net/208972/dmci-unit-reduces-stake-in-subic-water-utility.

Dyck, A. and L. Zingales. (2002). *Private benefits of control: an international comparison*. NBER Working Paper n. 8711.

Drometer, M. (2006). *Hyperbolic Discounting and Politics: The Beneficial Effects of Bureaucrats*. Bavarian Graduate Program in Economics.

Dumol, M. (2000). *The Manila water concession: A key government official's diary of the world's largest water privatization.* Retrieved from http://documents.worldbank.org/curated/en/2000/07/443557/manila-water-concession-key-government-officials-diary-worlds-largest-water-privatization.

Ebarvia, M. (1994). *Outlook of Supply and Demand: Metro Manila and the Philippines*, Vol. 12 (5), September-October, Manila: PIDS.

Ehrhardt, D. and N. Janson. (2010*). Can Regulation Improve the Performance of Government-Controlled Water Utilities*? Retrieved from **10.2166/wp.2010.112**

Eisenberg, M. (2009). *Impossibility, Impracticability and Frustration*. Berkely Law School. Retrieved from https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?referer=https://www.google.it/&httpsredir=1&article=1401&context=facpubs

Eisendrath, A. (2013). *Water Utility Corporatization. United States Agency for International Development* (USAID). Retrieved from http://www.energytoolbox.org/.

Enrico, M., B. Bortolotti and P. Pinotti. (2003). *The political economy of privatization*. Nota di Lavoro 45.2003, Fondazione Eni Enrico Mattei.

Estache, A., A. Gomez-Lobo, and D. Leipziger. (2001). Utilities Privatization and the Poor: Lessons and Evidence from Latin America. *World Development, 29 (7), 1179–98.*

Estache A, Rossi M. (2002). How different is the efficiency of public and private water companies in Asia? *World Bank Econ. Rev., 16(1), 139–48 55.*

Estache A, Kouassi E. (2002). *Sector organization, governance, and the inefficiency of African water utilities*. Policy Res. Work. Pap. Ser. 2890. World Bank, Washington, DC.

Esguerra, J. (2003). *The corporate muddle of Manila's water concessions.* Retrieved fromhttp://www.ucl.ac.uk/dpuprojects/drivers_urb_change/urb_infrastructure/pdf_public_private_services/W_WaterAid_Manila_Water_Concessions.pdf.

Espiritu, R. (2011). *Manila Water District, Philippines*. Retrieved from http://www.un.org/waterforlifedecade/green_economy_2011/pdf/session_2_green_jobs_cases_philippines.pdf

Esty, B. C. and A. Sesia (2010). *An overview of project finance & infrastructure finance— 2009 update.* Harvard Busines School Case No. 210-061.

Esty, D. (2015). *Regulatory Excellence: Lesson from Theory and Practice*. Yale University. Retrieved from https://www.law.upenn.edu/live/files/4714-esty-ppr-bicregulatordiscussionpaper-062015pdf

Faccio, M. (2004). *Reluctant privatization*. Working Paper 04-37, Fondazione Eni

Fayole, Henri. (1949). *General and Industrial Management*. New York: Pitman.

Feirrera da Cruz, N. et al., (2014). *Measuring the Efficiency of Water Utilities: A Cross-National between Portugal and Italy*. Retrieved from http://eprints.lse.ac.uk/59785/1/__lse.ac.uk_storage_LIBRARY_Secondary_libfile_shared_repository_Content_Da%20Cruz,%20N%20F_Measuring%20efficiency_Da%20Cruz_Measuring%20the%20efficiency_2014.pdf

Freedom from Debt Coalition. (2008). *On the 10-year privatization scheme of MWSS*. Retrieved from http://fdc.ph/programs/water/news-on-water/329-fdc-position-paper-on-the-10-year-privatization-scheme-of-mwss

Freedom from Debt Coalition v. MWSS-RO, 2007, G.R. No. 173044, Retrieve from sc.judiciary.gov.ph/jurisprudence/2007/december2007/173044.htm.

Frydman, R., C. Gray, M. Hessel, and A. Rapaczynski. (1999). When Does Privatization Work? The Impact of Private Ownership on Corporate Performance in the Transition Economies. *Quarterly Journal of Economics, 114 (11), 1153–91.*

Gallagher, M. (1991). Proportionality, disproportionality and electoral systems. *Electoral Studies, 10, 33-51.*

Garn, M., J. Isham and S. Kahkonen. (2002). *Should We Bet on Private or Public Water Utilities in Cambodia: Evidence on Incentives and Performance from Seven Provincial Towns.* Retrieved from http://ideas.repec.org/p/mdl/mdlpap/0219.html

Gassner, K., et al. (2009). *Does Private Sector Participation Improve Performance in Electricity and Water Distribution*. World Bank: Washington D.C.

Gauthier, A. and A. Yvrande-Billon. (2008). *Contract Renewal as an Incentive Device: An Application to the French Urban Public Transport Sector.* Working paper.

Goldberg, V. (1976). Regulation and Administered Contracts. *The Bell Journal of Economics.* 7(2), 426-448.
Goldman, L. (2003*). Contractually Expanded Review of Arbitration Awards*. Harvard Negotiation Law Review.
Gonzaga. R. (2012, October 29). SBMA, Olongapo to sell water utility shares. *Philippine Daily Inquirer*. Retrieved from http://newsinfo.inquirer.net/298010/sbma-olongapo-to-sell-water-utility-shares.
Goodhart, C.A.E. et al. (1998). *The Institutional Structure of Financial Regulation' in Financial Regulation, Why, How and Where Now*?, Routledge Publication, London and New York.
Goodnow, Frank. (1900). Politics and Administration: A Study in Government. New York: Macmillan.
Goodnow, Frank. (1900). *Politics and Administration: A Study in Government*. New York: Macmillan.
Grimsey D, and Lewis, M. (2004). *Public Private Partnerships* (Edward Elgar, Cheltenham).
Grossman, S., and O. Hart. (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy 94(4): 691-719.*
Guasch, J. L. (2000). *Lessons from Ten Years of Concessions: Determinants of Performance.* Unpublished paper presented at the World Bank, June.
Guasch, et al. (2004). *Renegotiation of Concession Contracts in Latin America.* In World Bank Policy Research Working Paper. Washington, DC.
Guasch, J.L. (2004). *Granting and Renegotiating Concession Contracts: Doing It Right*. World Bank Institute.
Guasch J. et al. (2008). Renegotiation of Concession Contracts in Latin American Countries. *Review of Industrial Organization*, 29, 55-73.
Guasch, J. L. et al. (2006). Renegotiation of Concession Contracts. A Theoretical Approach. *Review of Industrial Organization*, 25, pp. 55-73.
Gulick, Luther, and Lydal Urwick, eds. (1937). Papers on the Science of Administration. New York: Institute of Public Administration, Columbia University
Guirini, A. et al. (2015). *The Effects of Operational and Environmental Variables on the Efficiency of Danish Water and Wastewater Utilities*. Retrieved from file:///C:/Users/hp-PC/Downloads/water-07-03263.pdf
Hall, D. et al. (2010). *Replacing failed private water contracts.* London: Public Services International Research International Unit.
Hall, D. and E. Lobina (2008). *Water Privatization*. Public Services International Research Unit. Retrieved from http://gala.gre.ac.uk/1704/1/PSIRU_Report_%289820%29_-_2008-04-W-over.pdf
Hall, D. and E. Lobina. (2006). *Pipe Dreams: The Failure of the Private Sector to Invest in Water Services in Developing Countries. Public Services International*. University of Greenwich, London. International Monetary Fund. Public-Private Partnerships12 March 2004.
Hall, R., E. Lobina, and R, de la Motte. (2005). *Public Resistance to Privatization in Water and Energy*. Retrieved from http://www.psiru.org/reports/2005-06-W-E-resist.pdf
Hall D. and E. Lobina. (2003). *Problems with Private Water Concessions: A Review of Experience*. Public Services International Research Unit.
Haltinwanger, J. and M. Singh. (1999). Cross-country evidence on public sector retrenchement, *The World Bank Economic Review, 13:23-66.*
Hanemann, W.M. (n.d.). *The Economic Conception of Water*. Retrieved from http://gspp.berkeley.edu/assets/uploads/research/pdf/The_economic_concpetion_of_water.pdf
Hart, O. and B. Holmstrom. (2008). *Theory of Firm Scope*. NBER Working Paper No. 14613 December 2008 JEL No. D23, L23.

Hart, O. and J. Moore. (2006). *Incomplete Contracts and Ownership: Some New Thoughts*. Retrieved from http://www.aeaweb.org/annual_mtg_papers/2007/0105_1015_1702.pdf
Hart, O. (2003). Incomplete contracts and public ownership: remarks and application to public Private Partnerships. *Journal of Economics,* 114(486), C69-C76.
Hart, O. (2002). *Incomplete Contracts and Public Ownership*. CMPO Working Paper Series No. 03/061.
Hart, O. and J. Moore. (1999). Foundations of Incomplete Contract. *The Review of Economic Studies*, 66(1), 115-138.
Hart, O., A. Shleifer and R. Vishny. (1997). The Proper Scope of Government: Theory and Application to Prison. *The Quarterly Journal of Economics*, 112(4), 1127-1161.
Haskel, J. and S. Szymanski. (1993). Privatization, Liberalization, Wages and Employment: Theory and Evidence for the UK. *Economica, 60(23), 161-181.*
Hertog den, J. (2010). Review of Economic Theories of Regulation. Retrieved from https://www.uu.nl/sites/default/files/rebo_use_dp_2010_10-18.pdf
Holburn, G. and P. Spiller. (2002). *Interest group representation in administrative institutions: The impact of consumer advocates and elected commissioners on regulatory policy in the United States*. University of California Energy Institute. Energy Policy Economics Working Paper.
Hughes, O. (2003). *Public Management and Administration: An Introduction*, 3rd ed. New York: Palgrave Macmillan.
Hoppe, E. and P. Schmitz. (2010). *Public versus Private Ownership: Quality contracts and the allocation of investment tasks*. Retrieved from https://www.iame.uni-bonn.de/Public%20versus%20private%20ownership.pdf
Ibon. (___). *EO 271 and the plan to privatize water.* IBON Features Vol. X Nos. 16-17. Retrieved from http://www.w4pn.org/index.php/w4pn-latest-features/4-w4pn-latest-features/19--eo-279-and-the-plan-to-privatize-water-districts.html
Ibon Foundation. (2013). *Looming water rate hikes.* Manila: Ibon Foundation.
Ibon Foundation. (2005). *Water Privatization: Corporate Control versus People's Control*. Manila: IBON Foundation.
International Finance Corporation. (2010). P*ublic-Private Partnership Stories: Manila Water.*
Jamora, L. (2008). *Development and Regulation of Water Utilities: The Philippine LWUA Experience*. Retrieved from http://www.lwua.gov.ph/tech_mattrs_08/development_regulation.htm
Jadhav, N. (n.d.). *Single Regulator vs. Multiple Regulators*. Retrieved from http://www.drnarendrajadhav.info.
Japan PFI Association. (2003). *Impact Evaluation Study on Public-Private-Partnership. Japan PFI Association.*
JICA. (1992). *Study for Groundwater Development in Metro Manila*, Final Report, Manila.
Jensen, M. and E. Fama. (1983). Separation of Ownership and Control. *Journal of Law and Economics, 26 (2*), *pp. 301-325*. Retrieved from http://jstor.org/stable/725104.
Jones, S., et al. (1999). Share issue privatizations as financial means to political and economic ends*. Journal of Financial Economics, 53, 217-53*.
Kanbur, R. (2007). *Development Disagreements and Water Privatization*: Bridging the Divide. Retrieved from www.people.cornell.edu/pages/sk145
Kaufman, Herbert. (1991). *Time, Chance, and Organizations*. 2d ed. Chatham, NJ: Chatham House.
_____. (1973). *Administrative Feedback*. Washington, DC: Brookings Institution. ———. 1960. The Forest Ranger: A Study in Administrative Behavior. Baltimore: Johns Hopkins University Pres
Kim, J. and J. Mahoney. (2005). Property Rights Theory, Transaction Costs Theory, and Agency Theory: An Organizational Economics Approach to Strategic Management.

Managerial and Decision Economics", (26) pp. 223-242. Retrieved from http://www.business.illinois.edu/josephm/Publications/MDE_Kim%20and%20Mahoney%20(2005).pdf

Kirgis, P. (2007). *Judicial Review and the Limits of Arbitral Authority: Lessons from the Law of Contract, 81St. John's L. Rev.99*. Retrieved from http://scholarship.law.umt.edu/faculty_lawreviews/124

Kirpatrick, P. and Y-F. Zhang. (2004). *State versus Private Sector Provision of Water Services in Africa: An Empirical Analysis.* University of Manchester, Centre on Regulation and Competition, Working Paper Series, No. 70 http://www.competition regulation.org.uk/conferences/southafricasep04/kirkpatrick&parker&zhang.pdf

Klein, M. (2012). *Corporatization and the behaviour of public firms: how shifting of control rights affects political interference.* EPPP Discussion Paper Series, No. 2012-03, (Paris, Sonne Bonne Business School, 2012). Retrieved from http://chaire-eppp.org/files_chaire/corporatization-klien.pdf.

Klein, Michael, and Philip Gray (1997). "Competition in Network Industries – Where and How to Introduce It," In Public Policy for the Private Sector, The World Bank Group.

Klein, *M*. (1996). *Economic regulation of water companies.* Washington: World Bank.

Kornai, J. (1986). The soft budget constraint. *Kyklos 39: 3–30.*

Kornai, J. et al. _____. *Understanding soft budget constraint*. Retrieved from https://www.sss.ias.edu/files/papers/econpaper19.pdf

Kovac, M. (2011). *Comparative Contract Law and Economics*. UK: Edward Elgar Publishing Ltd.

Krause, G. and K. Meier eds., ____. *Politics, Policy and Organizations*. Retrieved from http://www.untag-smd.ac.id/files/Perpustakaan_Digital_1/BUREAUCRACY%20Politics,%20Policy,%20and%20Organizations..%20Study%20of%20Bureaucracy.pdf

Krawiec, K. and S. Baker. (2006). *Incomplete Contracts in an Incomplete World*. Retrieved from http://scholarship.law.duke.edu/faculty_scholarship/2038/.

Laffont, JJ. and J. Tirole. (1993). *A Theory of Incentives in Procurement and Regulation.* Cambridge, MA: MIT Press.

Laffont, JJ. And J. Tirole. (1988). *The Politics of Government Decision-Making: A Theory of Regulatory Capture.* Cambridge, MA: MIT Press.

Landingin, R. (3 July 2013). *MWSS, water firms clash over taxes, disallowed expenses*. Retrieved from http://pcij.org/stories/mwss-water-firms-clash-over-taxes-disallowed-expenses/

La Porta, R, and Florencio Lopez-de-Silanes. (1999). The Benefits of Privatization: Evidence from Mexico. *Q.J.E. 114 (November): 1193–1242.*

Larbi, G. (1999). *The New Public Management Approach and the Crisis States*. Retrieved from http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/5F280B19C6125F4380256B6600448FDB/$file/dp112.pdf

Leano, C. (2004). *A Re-examination of the LWUA-Water District Concept*. Retrieved from http://www.lwua.gov.ph/technical_matters_10/leano_paper.htmf

Lee, T. and S. Jouravlev. (1998). Regulating the private provision of drinking water and sanitationservices.*CEPAL Rev.65:155– 68.*

Le Lannier and Porcher (2011*). Efficiency in Public and Private Water Companies*. Retrieved from http://chaire-eppp.org/files_chaire/wpchaireaude.pdf

Levy, B. and P. Spiller. (1994). The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation. *Journal of Law, Economics, and Organization, 10(2), 201-46*. US: Oxford University Press.

Levin J. and S. Tadelis. (2007). *Contracting for Government Services: Theory and Evidence from the US Cities.* Retrieved from http://www.nber.org/papers/w13350

Li, D. (1992). *Public ownership as a su¢cent condition for the soft budget constraint.* University of Michigan working paper.
Li, D. (1995). *A theory of ambiguous property rights in transition economies*, mimeo, University of Michigan.
Llanto, G. (2013). Water Financing Programs in the Philippines: Are We Making Progress? *Philippine Institute for Development Studies*, Discussion Paper Series No. 2013-34 (2013). Retrieved from http://dirp4.pids.gov.ph/ris/dps/pidsdps1334.pdf)
Lobina, E. and D. Hall. (2014), Corporatization in the European water sector: lessons for the global south. In D. McDonald, ed., *Rethinking Corporatization and Public Services in the Global South*. London: Zed Books Lt.
Local Water Utilities Administration. (___). *Manual on Water Rates*. Retrieved from http://www.lwua.gov.ph/downloads_10/LWUA_water_rates_manual.pdf
LWUA. *LWUA Board Resolution*. Retrieved from http://www.lwua.gov.ph/about_lwua_14/rates_prospective.pdf
Lopez Holdings Corp. Retrieved from http://lopez-holdings.ph/news-2003/405-backgrounder-on-arbitration-panel-rules-on-mwss-maynilad-dispute
Maggetti, M. (2007). The Role of Independent Regulatory Agencies in Policymaking: A Comparative Analysis of Six Decision-making Processes in the Netherlands Sweden and Switzerland, Paper prepared for: The Fourth ECPR General Conference, Pisa, Italy, 6-8th September 2007.
McCubbins, M. and T. Schwartz. (1984). Congressional Oversight Overlooked: Police Patrols versus Fire Alarms. *American Journal of Political Science 28 (2), 165–79.*
McDonald, D. (2014). *Public Ambiguity and the Multiple Meanings of Corporatization*. In D. McDonald, D., ed. (2013). *Rethinking Corporatization and Public Services in the Global South*. London: Zed Books Lt.
McKenzie, D., and D. Mookherjee. (2003). The Distributive Impact of Privatization in Latin America: Evidence from Four Countries. *Economia*, 3, 161–218.
McIntosh A. and C. Yn˜iguez. (1997). *Second Water Utilities DataBook: Asian and Pacific Region.* Manila: Asian Dev. Bank.
McQuaid, R.W. (2000). *The Theory of Partnership*: why have partnerships. In S.P. Osborne (ed.). Public-Private Partnerships: Theory and practice in international perspective (pp. 9-36). New York: Routeledge.
Manasan, R. (2008). *Public Enterprise Reform: The Case of Philippines.* Retrieved from http://dirp3.pids.gov.ph/ris/dps/pidsdps9501.pdf
Manasan, R. (2007). *IRA Design, Issues and Challenges.* Retrieved from http://dirp4.pids.gov.ph/ris/pn/pidspn0709.pdf
Manasan, R. (1995). Public Enterprise Reform: The Case of the Philippines, 1986-87. Retrieved from https://dirp3.pids.gov.ph/ris/dps/pidsdps9501.pdf
Maquito, M. (___). *Understanding Water Districts in the Philippines, 1986*-87. Retrieved from http://www.aisf.or.jp/sgra-in-english/seminar14/MaquitoWater.pdf
Marques, R. and S. Berg. (2011a). Risks, Contracts and Private Sector Participation in Infrastructure. *Journal of Construction Engineering and Management, Volume 137(11).*
_____ (2011b). Public-Private Partnership Contracts: A Tale of Two Cities with Different Contractual Arrangements. *Public Administration, Volume 89(4).*
_____ (2010), “Revisiting the Strengths and Limitations of Regulatory Contracts in Infrastructure Industries”, *Journal of Infrastructure Systems*, 16(4).
Marin. P. (2009). Public-Private Partnerships for Urban Water Utilities: A Review of Experiences in Developing Countries. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/2703/53017.pdf?sequence=6&isAllowed=y

Maskin, E. and C. Xu. (1999). *Soft budget constraint theories: From centralization to the market.* Retrieved from http://scholar.harvard.edu/files/maskin/files/soft_budget_constraint_theories_from_centralization_to_the_market.pdf

Maskin, E. and J. Tirole. (1999). *Unforeseen Contingencies and Incomplete Contracts*. Retrieved from http://scholar.harvard.edu/maskin/files/unforeseen_contingencies_and_incomplete_contracts.pdf.

Masten, S. (1999). *Contractual Choice*. Retrieved from http://encyclo.findlaw.com/4100book.pdf

Megginson, W. R. et al. (2000). *The choice between private and public markets: evidence from privatizations*. Working paper, Athens, University of Georgia.

Megginson, W. R. Nash, and M. van Randenborgh. (1994). The financial and operating performance of newly privatized firms: An international empirical analysis*. Journal of Finance, 49, 403-452.*

Megginson, W. and J. Netter. (2001). From State to market: a survey of empirical studies on privatization. *Journal of Economic Literature, 39, 321-389.*

Meier, Kenneth J., and L. G. Nigro. (1976). Representative Bureaucracy and Policy Preferences: A Study in the Attitudes of Federal Executives. *Public Administration Review 36:458–69.*

Meister, A. (2010). The Role of Regulatory Agencies in Public Policymaking Issues. Retrieved from http://www.aneel.gov.br/documents/656835/14876412/Artigo_Andre_Meister.pdf/e4032805-f77d-4dd1-92b8-ca387ebf2721

Menard, C. and M. Saleth. (2011). *The Effectiveness of Alternative Water Governance Arrangements. Investing in Water for a Green Economy*. Services, infrastructure, policies and management, United Nations Environment Program/Routledge, pp.152-174, 2012, 978-0415-50126-2. Retrieved from https://halshs.archives-ouvertes.fr/halshs-00624250/document

Menard, C. and Saussier, S. (2002). Contractual Choice and Performance: Water Supply in France', in E. Brousseau and J.M. Glachant (eds.). The Economics of Contracts: Theories and Applications, Cambridge University Press.

Ménard, C. (2009). Why to Reform Infrastructures and With What Institutional Arrangements? The Case of Public Private Partnerships in Water Supply. In R. Kunneke, J. Groenewegen and J.F. Auger, *The Governance of Network Industry*. Edward Elgar Publishing, Cheltenham, UK.

Menard, C. and M. Saleth. (2011). *The Effectiveness of Alternative Water Governance Arrangements. Investing in Water for a Green Economy. Services, infrastructure, policies and management.* United Nations Environment Program/Routledge, pp.152-174, 2012, 978-0-415-50126-2. Retrieved from https://halshs.archives-ouvertes.fr/halshs-00624250/document

Metropolitan Waterworks and Sewerage System (MWSS). 2014. Annual Report 2014.

Metropolitan and Waterworks Sewerage System. Annual Report 2012.

Metropolitan and Waterworks Sewerage System. Annual Report 2013

Metropolitan Cebu Water District v. Margarita Adala (2007), Retrieved from http://sc.judiciary.gov.ph/jurisprudence/2007/july2007/168914.htm

Mitnick, B. (1980). *The Political Economy of Regulation: Creating, Designing, and Removing Regulatory Forms.* New York: Columbia University Press.

Montemayor, C. (2003). *The Manila Water Privatization Fiasco and the Role of Lyonnaise/Ondeo*. Presentation for the Summit.

Moe, R. and R. Gilmour. (1995). Rediscovering Principles of Public Administration: The Neglected Foundation of Public Law. *Public Administration Review. 55.*

Moszoro, M. (2015). *Averting Double Sided Opportunism in Infrastructure Investment (Unpublished)*.
Moszoro, M. (2015). *Public Private Monopoly*. Retrieved from https://www.imf.org/external/pubs/ft/wp/2008/wp0801.pdf.
Moszoro, M. (2014). *Efficient Public-Private Capital Structures*. Annals of Public and Cooperative Economics, 85:1 2014, pp. 103-126.
Muller M. (2003). Public-private partnerships in water: a South African perspective on the global debate*. Journal of International Development, 15, 1115–25.*
The Municipality of Compostella, Cebu v. NAWASA (1966), Retrieved from http://www.lawphil.net/judjuris/juri1966/dec1966/gr_21763_1966.html
The Municipality of Lucban v. NAWASA (1961), Retrieved from Retrieved from http://www.lawphil.net/judjuris/juri1961/oct1961/gr_l-15525_1961.html
Mutuku, N. (2008). *Case for Consolidated Financial Sector Regulation in Kenya.* Retirement Benefits Authority. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1837354
National Water Resources Board. (____). *Primer on Tariff Setting and Regulation*. Retrieved from http://www.nwrb.gov.ph/images/Site_image/Primer_on_Tariff_Setting_&_Regulation.pdf
NEDA (2010). *Philippine Water Supply Sector Roadmap*. Retrieved from http://www.lwua.gov.ph/downloads_14/Philippine%20Water%20Supply%20Sector%20Roadmap%202nd%20Edition.pdf
Negishi, T. (n.d.). *Regulatory Framework for the Manila Water Concessionaires*. Retrieved from http://kamome.lib.ynu.ac.jp/dspace/bitstream/10131/7304/1/6Negishi.pdf
Niskanen, W.A. (1973). *Bureaucracy: Servant or master.* London: Institute of Economic Affairs.
Niskanen, W. (1971). *Bureaucracy and Representative Government*. Chicago: Aldine Athernton.
Noll, R., M. Shirley, and S. Cowan. (2000). *Reforming Urban Water Systems in Developing Countries.* In Economic Policy Reform: The Second Stage, edited by Anne O. Krueger. Chicago: Univ. Chicago Press.
Noll, R. (1983). The Political Foundations of Regulatory Politics. *Journal of Institutional and Theoretical Economics . 139:377-404*, reprinted in Congress . M. McCubbins and T. Sullivan (eds.), Cambridge University Press, 1987.
Noll, R. (1985). Behavior of Administrative Agencies. In Noll (ed.), *Regulation and the Social Sciences*. California: University of California Press.
North, D. (1990). *Institutions, Institutional Change and Economic Performance.* Cambridge: Cambridge University Press.
Ogus, A. (2002). *Comparing Regulatory Systems: Institutions, Processes and Legal Forms in Industrialized Countries*. UK: University of Manchester. Retrieved from http://regulationbodyofknowledge.org/wp-content/uploads/2013/03/Ogus_Comparing_Regulatory_Systems.pdf
Olson, M. (1965). *The Logic of Collective Action*. Cambridge, Mass: Harvard University Press.
Organization for Economic Cooperation and Development. (2015). *OECD Guidelines on Corporate Governance of State-Owned Enterprises*. 2015. Paris: OECD.
OECD. (2011). *Guidelines for economic performance-based contracts between water utilities and municipalities.* Paris: OECD.
OECD. (2009). *State-owned Enterprises and the Principle of Competitive Neutrality*. Paris: OECD
Pacces, A. (2015). *Normative Law and Economics: Asking the Right Questions*. RILE Working Paper Series No. 2015/03. Retrieved from http://ssrn.com/abstract=2583773.
Palaneeswaran, E. and M. Kumaraswamy. (2000). *Benchmarking contractor selection practices in public sector construction – a proposed model, Engineering, Construction and Architectural Management*, 7(13), 3, pp. 285-299, https://doi.org/10.1108/eb021153

Peltzman, S. (1976). Toward a More General Theory of Regulation. *Journal of Law and Economics*, 19, 211-240.

Pérard, Edouard. (2008). *Private Sector Participation and Regulatory Reform in Water Supply: The Southern Mediterranean Experience.* Working Paper 265, OECD Development Center, Paris.

Perez-Corral, V. (2001). *Monitoring MWSS - Water Rates.* Retrieved from http://www.forum-adb.org/pdf/01-35.pdf.

Perry J. and H. Rainey. (1988). The Public-Private Distinction in Organization Theory: A Critique and Research Strategy. *Academy of Management Review*, 1988, 13(2). Retrieved from https://pdfs.semanticscholar.org/a324/43cea925b04ef54f7c241357340dc07ceff8.pdf.

Persson, T. and G. Tabellini. (2001). *Political institutions and policy outcomes: What are the stylized facts?* Bocconi University, mimeo.

Persson, T. and G. Tabellini. (2000). *Political economics: explaining economic policy.* Cambridge (MA), The MIT Press.

Philippine Association of Water Districts Directory. (2011).

Pollitt, M. (1999). *A survey of the liberalization of public enterprises in the UK since 1979,* University of Cambridge Department of Applied Economics. Working Paper No. 9901.

Porcher, S. (2010). *Public-Private Partnerships and the Life Cycle of Contracts: Case of Water Industries in France.* Retrieved from http://chaire-eppp.org/files_chaire/ppp-lifecycle-2_0.pdf

Posner, R. (2004). Law and Economics of Contract Interpretation. *Texas Law Review*, 83 (1581).

Posner, R. (1974). Theories of Economic Regulation. *Bell Journal of Economics, 5, 335-358.*

Prasad, Naren. (2006). Privatisation Results: Private Sector Participation in Water Services After 15 Years. *Development Policy Review, 2006, 24 (6), 669-692.*

Public-Private Infrastructure Advisory Facility, Retrieved from https://ppiaf.org/sites/ppiaf.org/files/documents/toolkits/highwaystoolkit/6/pdf-version/1-13.pdf

Public Private Partnership (PPP) Country Profile: the Philippines. (2013). Retrieved from http://www.eria.org/projects/PPP_in_Philippines_ERIAsummary_March_2013.pdf

PPP Center. (2012). *Developing Public-Private Partnerships in Local Infrastructure and Development Projects: A PPP Manual for LGUs, 2012*. Quezon City: PPP Center, Available from https://ppp.gov.ph/wp-content/uploads/2012/07/PPP-Manual-for-LGUs-Volume-1.pdf

Qian, Y. and G. Roland. (1996). The Soft Budget Constraint in China, Japan and the World *Economy 8, 207-223.*

Qian, Y. and G. Roland. (1998). Federalism and the Soft Budget Constraint. *American Economic Review 88, 1143-62.*

Rangan, S. et al. (2006). Constructive Partnerships: When Alliance Between Private Firms and Public Actors Can Enable Creative Strategies: *Academy Management Review, 31(3), 738-751.*

Rainey, Hal G., & Barry Bozeman. (2000). Comparing public and private organizations: Empirical research and the power of the a priori. *Journal of Public Administration Research and Theory 10(2): 447-470.*

Rahman, M. M., and Kumaraswamy, M. M. (2004a). *Contracting relationship trends and transitions.* J. Manage. Eng. Retrieved from 10.1061/(ASCE)0742- 597X(2004)20:4(147), 147–161

Reeves, E. (2003). *Public Private Partnerships in Ireland: Policy and Practice.* Public Money and Management, Vol. 23. No. 3, pp. 63-70.

Rivera, V. Jr. (2014). *TAP Secrets: The Manila Water Story*, Manila: Asian Development Bank and Manila Water Company.

Rossi, J. (2005). *The Scope of Regulatory Bargaining, Regulatory Bargaining and Public Law*, Cambridge University Press.

Saal, D. and D. Parker. (2000). The Impact of Privatization and Regulation on the Water and Sewerage Industry in England and Wales: A Translog Cost Function Model. *Managerial and Decision Economics, 21: 253-268.*

Saavedra, E. (1998). *Renegotiating Incomplete Contracts: Over and Underinvestment of Concessioned Public Infrastructure*. Retrieved from https://core.ac.uk/download/pdf/6542965.pdf.

Sappington, D.E.M. and Stiglitz, J.E. (1987). Privatization, information and incentives. *Journal of Policy Analysis and Management, 6(4), 567–582.*

Savas, E. S. (1982). *Privatizing fhe public sector*. Chatham, NJ: Chatham House.

Schlag, P. (2013). *Coase Minus the Coase Theorem: Some Problems with Chicago Transaction Cost Analysis*. University of Colorado Law School. Retrieved from http://scholar.law.colorado.edu/cgi/viewcontent.cgi?article=1288&context=articles

Schmidt, K.M. (1996a). The costs and benefits of privatization – an incomplete contracts approach. *Journal of Law, Economics and Organization, 12, 1–24.*

Schmidt, K.M. (1996b). Incomplete contracts and privatization. *European Economic Review 40: 569–579.*

Schmitz, P. (2015). Government versus Public Ownership: The Role of Bargaining Frictions. *Journal of Public Economics.*
Retrieved from https://www.sciencedirect.com/science/article/pii/S0047272715001668

Scott, R. (1987). *Conflict and Cooperation in Long-term Contracts.* Retrieved from http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1913&context=californialawreview

Shapiro, C. and R. Willig (1990). *On the Antitrust Treatment of Production Joint Ventures.* Retrieved from http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.4.3.113

Shleifer A. (1998). State versus Private Ownership. Journal of Economic Perspectives, Vol. 12, no. 4 (1998): 133-150. Retrieved from http://www.nber.org/papers/w6665.pdf

Shleifer, A. and R. Vishny. (1994). Politicians and Firms. *Quarterly Journal of Economics,* 109 (Apr., 1994), pp. 995-2015. Retrieved from http://scholar.harvard.edu/files/shleifer/files/politicians_firms.pdf.

Shapiro, C. and R. Willig (1990). *On the Antitrust Treatment of Production Joint Ventures.* Retrieved from http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.4.3.113

Shirley, M. (2006). *Urban water reform: what we know, what we need to know*. Prepared for the Annual Meeting for International Society for New Institutional Economics.

Siemiatycki, M. (n.d.). *The Theory and Practice of Infrastructure Public-Private Partnership Revisited: The Case of the Transportation Sector.* Retrieved from http://www.ub.edu/graap/Final%20Papers%20PDF/Siemiatycki%20Matti.pdf

Smythe, D. (2003). *Bounded Rationality, the Doctrine of Impracticability, and the Governance of Relational Contracts.* Retrieved from https://papers.ssrn.com/sol3/Data_Integrity_Notice.cfm?abid=799328

Soriano, C. (2013). *Monitoring, Regulating and Evaluating PPPs: The Philippine Experience*. Retrieved from
http://www.adbi.org/conf-seminar papers/2013/06/20/5768.monitoring.regulating.evaluating.ppp.ph/

Special Unit for South-South Cooperation. Manila: Water Improvements. Retrieved from http://www.esc-pau.fr/ppp/documents/featured_projects/philippines_manila.pdf

Stern, J. (2012). *Relationship between Regulation and Contract in Infrastructure Industries.* Retrieved from http://www.city.ac.uk/__data/assets/pdf_file/0014/81032/stern_relationship_between_regulation_and_contract.pdfStiglitz (n.d.) *Regulation and Failure*. Retrieved from

http://www.tobinproject.org/sites/tobinproject.org/files/assets/New_Perspectives_Ch1_Stiglitz.pdf

Tawing Multi-purpose Cooperative v. La Trinidad Water District (2011), Retrieved from http://www.lawphil.net/judjuris/juri2011/mar2011/gr_166471_2011.html

Taylor, M. (1996). *Peak Practice: How to Reform the UK's Regulatory System*. Centre for the Study of Financial Innovation, London, October.

Thanassoulis E. (2000). Use of Data Envelopment Analysis in the Regulation of UK Water Utilities: Water Distribution. *EJOR 126(2): 436-453.*

Thynne, I. (1994). The Incorporated Company as an Instrument of Government: A Quest for a Comparative Understanding. *Governance 7, 59–82.*

Tirole, J. (2009). Cognition and Incomplete Contracts. *American Economic Review,* 99(1), Retrieved from 265–294 http://www.aeaweb.org/articles.php?doi=10.1257/aer.99.1.265.

Tirole, J. (1999). Incomplete Contracts: Where do we stand? *Econometrica*, 67(4), 741-781.

Tirole, J. (1986). Hierarchies and Bureaucracies. *Journal of Law Economics and Organization, 2, 181-214.*

Trebilcock, M. and M. Rosenstock (2013*). Infrastructure PPPs in the Developing World*. University of Toronto Faculty of Law, Retrieved from http://www.iilj.org/wp-content/uploads/2017/02/Trebilcock-Infrastructure-public-private-partnerships-in-the-developing-world-2003.pdf

Trémolet, S. and D. Binder (2010). *The Regulation of Water and Sanitation in DCs: Literature Review, Insights, and Areas for Research*. À Savoir, 01, Agence Française de Développement (AFD), Paris (http://www.afd.fr/).

Tullock, G. (1965). *The Politics of Bureaucracy*. Washington, DC: Public Affairs Press.

Tullock, G. (1993). Public Choice – What I Hope for the Next Twenty-Five *Years. Public Choice* 22(1), 9-16.

Tynan, N., and B. Kingdom. (2002). *A water scorecard: setting performance targets for water utilities. Public Policy for the Private Sector*. The World Bank Group, April 2002.

U.S. Library of Congress, The Aquino Government, Retrieved from http://countrystudies.us/philippines/58.htm

US National Research Council. (2002). *Privatization of Water Services in the United States: An Assessment of Issues and Experience.*

Van den Bergh, C. and A. Danilenko. (___). *The IBNET Water Supply and Sanitation Performance Blue Book*. Washington D.C: World Bank.

Van den Bergh, R. and A. Pacces. (Eds.) (2012). *Regulation and Economics.* UK: Elward Elgar Publishing Limited.

Verkul, P.(1988). The Purposes and Limits of Independent Agenices. Retrieved from https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=3032&context=dlj

Vickers, J. and G. Yarrow. (1988). *Privatization: an economic analysis*. Cambridge (MA), MIT Press.

Vincent-Jones, P. (2007). *The New Public Contracting. Public v. Private Ordering*. Retrieved from http://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=1352&context=ijgls

Vining, A. and A. Boardman. (1992). Ownership versus Competition: Efficiency in Public Enterprise. *Public Choice, 73 (3), 205-39.*

Walker, P. (16 January 2012). *When is a contract incomplete* [Web log post]? Retrieved from http://antidismal.blogspot.nl/2012/01/when-is-contract-incomplete.html.

Walter, P. (2012). Commercial Impracticability in Contracts. *St. John's Law Review*, 61(2). Retrieved from http://scholarship.law.stjohns.edu/lawreview/vol61/iss2/2

Water Sanitation Program. (2009). *An Analysis of 35 Water Districts.* Retrieved from http://documents.worldbank.org/curated/en/320351468298445609/pdf/715230BRI0Box30rated0WS0Philippines.pdf

Wiener, J. (2013). *The Diffusion of Regulatory Oversight.* Harvard Univerisity. Retrieved from

http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5372&context=faculty_scholarship
Willner, J. and D. Parker. (2002*). Relative Performance of Public and Private Enterprise Under Conditions Of Active And Passive Ownership*. Centre on Regulation and Competition, Paper No. 22. October.
Wilson, Woodrow. (1887). *The Study of Administration*. Political Science Quarterly 2 (June), 197–222.
Williamson, O. (1999). Public and Private Bureacracies: A Transaction Cost Economics Perspective. *Journal of Law and Economics*, 15(1), pp. 306-341. Retreived from http://www.ie.ufrj.br/intranet/ie/userintranet/hpp/arquivos/williamson_public_beaureaucracies.pdf
Williamson, O. (1999). *Governance and Competence Perspectives*. S*trategic Management Journal, 20(12), pp. 1087-1108*. Retrieved from https://business.illinois.edu/josephm/BA549_Fall%202010/Session%206/Williamson%20(1999).pdf
Williamson, O. (1985). *The Economic Institutions of Capitalism*. New York: Free Press
Williamson, O. (1979). Transaction Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics*, 22(2), pp. 233-261. Retrieved from https://www.business.illinois.edu/josephm/BA549_Fall%202010/Session%203/Williamson%20%281979%29.pdf
https://www.business.illinois.edu/josephm/BA549_Fall%202010/Session%203/Williamson%20%281979%29.pdf
Williamson, O. (1975). *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.
World Bank. (2015). Water Supply and Sanitation in the Philippines. Retrieved from http://documents.worldbank.org/curated/en/469111467986375600/pdf/100894-WSP-P131116-AUTHOR-Susanna-Smets-Box393244B-PUBLIC-WSP-SERIES-WSP-Philippines-WSS-Turning-Finance-into-Service-for-the-Future.pdf
World Bank/WSP. (2008). *Small Utility Access to Market Credit: Lessons and Options, Small Water Utilities Improvement and Financing Project*. Water and Sanitation Program, Available from http://www.ppiaf.org/sites/ppiaf.org/files/publication/SWIF_Completion_Assessment_Report_Final
World Bank. (2006). *Philippines Small Towns Water Utilities Databook*. Retrieved from http://wwwwds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/09/14/00009034
1_20060914145927/Rendered/PDF/372840PH00Smal120book0200601PUBLIC1.pdf
World Bank/WSP. (2003). *Management Models for Small Towns Water Supply*. Retrieved from https://www.wsp.org/sites/wsp.org/files/publications/329200711101_East_asia_small_town_water_supply.pdf
World Bank PPP IRC. *Water Regulation: Separate Regulatory Body with Licensing Regime.* Retrieved from http://ppp.worldbank.org/public-private-partnership/water-regulation-separate-regulatory-body-licensing-regime
Xun, W. and N. Malaluan. (2008). A Tale of Two Concessionaires: A Natural Experimentation of Water Privatization in Metro Manila. *Urban Studies,* 45(1), 207-229.
Zschille, M. and M. Walter. (2011). *The Performance of German Water Utilities*: A (Semi) Parametric Analysis. Retrieved from http://www.diw.de/documents/publikationen/73/diw_01.c.371639.de/dp1118.pdf

SUMMARY

After three decades of privatization and anti-state rhetoric, government ownership and public management appear to be back in vogue in water supply sector.[1] The movement away from full private ownership or sufficient private ownership (e.g. concession) and towards corporatization and other hybrid ownership structures under public ownership is said to be motivated by the "inadequate" quality and scant cost savings of privatization.[2] Notwithstanding, the shift in ownership patterns does not provide a credible policy guide on what is a suitable ownership arrangement for a particular country, city, or municipality. Both theories and empirics do not provide conclusive findings on the optimal choice of ownership in water service provision. This can be attributed to the fact that water supply sector is traditionally controlled by the state, creating a well-entrenched political and institutional bias against privatization. Approximately 90 per cent of (urban) water services in the world are delivered by public water utilities, a vast majority of which are corporatized utilities. In France, most water undertakings had been privately operated, but both ownership and responsibility of water remained within the public sector. Aggressive privatization efforts by international financing institutions in developing countries in the 1990s, had to contend with various institutional, economic and political hurdles which may have affected the design of PPP schemes and, consequently, impaired the efficient functioning of the arrangement.

In view of this, I bring sharply into focus the differences in the bargaining dynamics between public management and a concession arrangement to establish the relative advantages of a concession-based privatization to corporatization. I argue that a concession may be preferred in a transactional setting where a high level of efficiency and investment is required but cannot be

[1] D. Cardwell. 2013."Cities weigh taking over from private utilities", New York Times, 13 March.
[2] D. McDonald, 2014, ed., Rethinking Corporatization and Public Services in the Global South. New York: Zed Books Ltd.

met under public management due to inefficient political interference, such as the case with a large, complex water supply system in urban areas in developing countries. The reasons are as follows: *(i) The high level of investment and efficiency requirement of large, complex water supply systems would demand substantial rents that cannot be accorded adequate protection and incentive under public ownership as benefits under administrative hierarchies are extensively shared; (ii) The allocation of virtually all control rights to the private operator makes accountability less costly to enforce as the cost of any decision or choice is largely thrust on the private operator whose sizeable investment makes him internalize the cost of his inefficient actions; (iii) The delineation of service provision and regulation makes the bargaining process transparent and open to exploration of potential remedies to contractual hazards; and (iv) The high demand for investment and efficiency of the system reduces the political benefit of low-cost pricing and increases the political cost of poor service quality and other bureaucratic inefficiencies making the decision of politicians to shift from public management to concession a credible commitment device (not to interfere in the operation of the utility).*

To maximize the gains from a concession-based privatization and privately-run utilities and, in effect, forestall ownership irrelevance, I explore two strategies: *(i) adopting a partnership approach to contracting; and (ii) establishing a two-tiered unified regulatory framework where all ownership types and their regulators are subject to a common regulatory oversight.* The partnership approach derives its rationale from the legal doctrine of impracticability which allows contract adjustment and burden-sharing in the emergence of an event of which impact on the financial value of the transaction is beyond the reasonable expectations of the parties. Taking into account specific bargaining conditions *(e.g. size of investment, and the level of regulatory and market risks)* a partnership contracting explores a proper mix of relational and formal elements in the choice of incentive devices (e.g., *risk allocation*) and ex-post governance mechanisms (*e.g., regulatory agency and arbitration*) to facilitate a value-preserving bargaining process. Specifically, the approach seeks to overcome double-sided opportunism in administrative contracts (i.*e. government imposes highly redistributive regulatory policies and the private operator maximizes rents*) via double-sided threat of punishment and reward. The government is contractually obligated to accommodate risk-sharing and grant a generous rent that is proportional to the information and bargaining advantage of the private operator in order to reduce the value of outside option of the private operator relative to the concession agreement and to lower the threat of public opportunism, which is high in a traditionally publicly-managed water supply sector provided it does not frustrate the efficiency

and investment motive of shifting from public management to a concession arrangement. By disallowing the termination of the contract unless objectives of both parties have been frustrated, the parties are made to internalize the cost of deviating from their contractual obligations and are induced to mutually cooperate.

Another way of maximizing the gains from a concession arrangement is to establish a unified regulatory framework. A sound regulatory framework may help facilitate efficient functioning of all ownership types. A favorable performance of public utilities could increase the outside option of the government, perching the state in a better position to bargain for highly favorable contract terms and outcomes under a concession arrangement. At the same time, enhanced performance of publicly-owned utilities may attract private capital paving the way for increased private sector participation in the water supply sector.

To motivate the analysis of the relevance of ownership structure and explore the empirical validity of the propositions made or alluded to in the study, I conducted regression analysis and case studies on the performance of publicly-owned and private utilities in the Philippines. The empirical results generally lend support to the superiority of a concession arrangement and private utilities to public management or corporatized utilities. In fact, the demerits of corporatization have shown to be magnified in the case of the Philippines where there are serious flaws in the corporatization strategy. The key findings of the study are as follows: *(i) Privately-owned and run water utilities register a highly favorable trade-off between affordability and level of service (e.g. service coverage) on account of efficient staffing and spending patterns, where salaries are strongly tied to staff productivity improvement, and performance-based profit orientation; and (ii) Corporatization has shown to be most effective in modifying the pricing behavior and profit orientation of water utilities – it makes water utilities adversely commercially-oriented. Water tariffs of water districts are vastly driven by operational inefficiencies and profit motive almost without regard for the ability of consumers to pay. Water districts register high water rates even in low-income areas. Large spending in non-personnel expenses has not been accompanied by an improvement in service quality. The most profitable water districts can be the worst-performing water districts.*

With accumulated experience with contracting, adoption of a partnership contracting and establishment of a unified regulatory framework, the study predicts a gradual increase in private

sector participation in developing economies. Through the prism of a partnership contracting and as illustrated by privatization experience of the Philippines, the gains from a concession arrangement may be maximized if the investment and efficiency requirements are high enough to fully exploit the financial and technical resources of the private operator and make profit a significant welfare component. In such case, an increase in the rent of the private operator would offer similar benefits to the consumers, enhancing the incentive for mutual cooperation. Also, political commitment to a concession-based privatization as a reform strategy is critical for the success of a concession-based privatization. With limited political commitment, the government may refuse to respect bargaining and informational constraints, which is crucial for establishing a stable pattern of mutual cooperation in a sector where there is substantial regulatory risks.

Samenvatting

Na drie decennia van privatiseringen en anti-overheidsretoriek lijken overheidseigendom en openbaar beheer weer in zwang te zijn in de drinkwatervoorziening.[1] De verschuiving van volledig of toereikend particulier eigendom (bijvoorbeeld in de vorm van concessies) naar verzelfstandiging en andere hybride beheervormen met publiek eigendom zou een gevolg zijn van de "ontoereikende" kwaliteit en de geringe kostenbesparingen die privatiseringen hebben opgeleverd.[2] Toch bieden de veranderende eigendomsvormen onvoldoende aanknopingspunten voor beleid ten aanzien van de meest geschikte eigendomsvorm voor een bepaald land of een bepaalde stad of gemeente. In de theorie noch in empirisch onderzoek zijn overtuigende argumenten te vinden voor wat de beste keuze zou zijn voor het eigendom van waterbedrijven. Dat is mogelijk te verklaren uit het feit dat de zeggenschap over de watervoorziening van oudsher bij overheden heeft berust, waardoor in politiek en instituties een hardnekkige weerzin tegen privatisering is ontstaan. Circa 90% van de (stedelijke) watervoorziening in de wereld wordt verzorgd door openbare waterbedrijven. Veruit de meeste daarvan zijn verzelfstandigde nutsbedrijven. In Frankrijk waren de meeste waterbedrijven in particuliere handen maar bleven eigendom en verantwoordelijkheid voor water een zaak van de overheid. In de jaren negentig stuitten de agressieve privatiseringsinspanningen van internationale financiële instellingen in ontwikkelingslanden op uiteenlopende institutionele, economische en politieke obstakels, die wellicht van invloed zijn geweest op de ontwikkeling van publiek-private samenwerkingen en dus afbreuk deden aan de efficiënte werking van stelsels.

In dat verband geef ik een uitvoerige beschrijving van de verschillen die er ten aanzien van onderhandelingsdynamiek bestaan tussen openbaar beheer en een concessiestelsel. Dit om vast te stellen wat in vergelijking met verzelfstandiging de relatieve voordelen zijn van een op concessies gebaseerde privatisering. Ik stel daarbij dat een concessie de voorkeur zou kunnen krijgen in het geval van transacties waarbij veel efficiency en omvangrijke investeringen nodig, maar onder overheidsbeheer onmogelijk zijn door inefficiënt optreden van de politiek. Dat is bijvoorbeeld het geval bij complexe watervoorzieningsystemen in stedelijke gebieden in ontwikkelingslanden. Dit heeft de volgende redenen: (i) Door de omvangrijke investeringen en grote efficiency die nodig zijn bij grote complexe waterleidingstelsels zouden hoge opbrengsten nodig zijn, die bij publiek eigendom onvoldoende kunnen worden gewaarborgd omdat in de bestuurlijke hiërarchie vele lagen een graantje meepikken. (ii) Als de zeggenschap nagenoeg volledig bij een private exploitant berust, wordt het afleggen van verantwoording veel minder duur omdat de kosten van besluiten of keuzes voor het grootste deel voor rekening van de private

[1] D. Cardwell. 2013."Cities weigh taking over from private utilities", New York Times, 13 March.
[2] D. McDonald, 2014, ed., Rethinking Corporatization and Public Services in the Global South. New York: Zed Books Ltd.

exploitant komen; dat is immers degene die grote investeringen heeft gedaan en de kosten van inefficiënt beleid internaliseert; (iii) De grens tussen dienstverlening en regelgeving maakt het onderhandelingsproces transparant en open voor onderzoek naar mogelijke oplossingen voor contractuele risico's; (iv) De vereiste grote investeringen en efficiency van stelsels verkleinen de politieke winst van lage tarieven en vergroten de politieke kosten van slechte dienstverlening en andere bureaucratische inefficiency, waardoor het voor politici een geloofwaardige stap wordt om van openbaar beheer over te stappen op een concessiestelsel (en zij zich dus niet mengen in de exploitatie van het nutsbedrijf).

Om te kijken hoe privatisering met concessies en privaat geëxploiteerde nutsbedrijven maximale winst kunnen opleveren en het vraagstuk van het eigendom op termijn in feite irrelevant kan worden, onderzoek ik twee strategieën: (i) kiezen voor een benadering van samenwerking bij het afsluiten van contracten; (ii) tot stand brengen van een geharmoniseerd duaal regelgevingskader waarin alle eigendomsvormen en hun toezichthouders onderworpen zijn aan dezelfde wettelijke supervisie. De rationale achter de samenwerkingsbenadering is gelegen in de rechtsleer van de onuitvoerbaarheid, die inhoudt dat contracten mogen worden aangepast en lasten mogen worden gedeeld indien zich gebeurtenissen voordoen die grotere effecten op de financiële waarde van de transactie hebben dan de partijen redelijkerwijs hadden kunnen verwachten. Rekening houdend met de specifieke omstandigheden van de onderhandelingen (bijvoorbeeld de hoogte van investeringen en de omvang van regelgevings- en marktrisico's) wordt bij het aangaan van een samenwerking gezocht naar een goede mix van relationele en formele elementen bij de keuze van prikkels (bijvoorbeeld risicoverdeling) en controlemechanismen achteraf (bijvoorbeeld toezichthoudende instantie en arbitrage) om te bevorderen dat in het onderhandelingsproces waarde behouden blijft. Meer in het bijzonder wordt bij deze benadering getracht in bestuurlijke contracten opportunisme van beide zijden te voorkomen (dus de overheid schrijft sterk redistributief regelgevingsbeleid voor en de private exploitant maximaliseert de opbrengsten) door beloningen en straffen voor beide zijden. De overheid is contractueel verplicht om risicodeling te faciliteren en billijke opbrengsten toe te staan die evenredig zijn met het informatie- en onderhandelingsvoordeel van de private exploitant, om de waarde van de externe optie van de private exploitant voor de concessieovereenkomst te verkleinen en om het gevaar van opportunisme van de kant van de overheid te beperken. Dat gevaar is groot in de van oudsher door de overheid beheerde watervoorziening en mag geen afbreuk doen aan de gewenste effectiviteit en investeringen als wordt overgestapt van overheidsbeheer naar een concessieregeling. Wanneer beëindiging van het contract alleen wordt toegestaan als beide partijen hun doelstellingen niet hebben kunnen bereiken, moeten de partijen de kosten voor het niet nakomen van hun contractuele verplichtingen internaliseren en zijn ze gedwongen om met elkaar samen te werken.

Een andere manier om de winst van een concessiestelsel te maximaliseren is het ontwikkelen van een geharmoniseerd regelgevingskader. Een gezond regelgevingskader

kan ertoe bijdragen dat alle eigendomstypen efficiënt functioneren. Goed presterende openbare nutsbedrijven kunnen de externe optie van de overheid doen toenemen en de staat in het geval van een concessiestelsel in een betere positie brengen om te onderhandelen over zeer gunstige contractvoorwaarden en -resultaten. Tegelijkertijd kan door betere prestaties van openbare nutsbedrijven privaat kapitaal worden aangetrokken en de weg worden geplaveid voor een grotere rol van de private sector in de watervoorziening.

Om de analyse van de relevantie van de eigendomsstructuur te onderbouwen en de empirische geldigheid van de voorstellen die in dit onderzoek worden gedaan of waarnaar wordt verwezen te onderzoeken, heb ik een regressieanalyse verricht en casestudies uitgevoerd naar de prestaties van publieke en private nutsbedrijven in de Filipijnen. In algemene zin bevestigen de empirische uitkomsten dat concessiestelsels en private nutsbedrijven te verkiezen zijn boven overheidsbeheer of verzelfstandigde nutsbedrijven. Op de Filipijnen, waar sprake is van ernstige tekortkomingen in de verzelfstandigingsstrategie, blijken de nadelen van verzelfstandiging zelfs nog groter uit te vallen. De belangrijkste bevindingen van het onderzoek luiden als volgt: (i) Private (en privaat geëxploiteerde) waterbedrijven kennen een goede balans tussen betaalbaarheid en dienstverlening (de service die zij verlenen) door een efficiënte personeelsbezetting en een goede beheersing van de uitgaven, waarbij salarissen sterk gekoppeld zijn aan een hogere productiviteit van het personeel en prestatiegebaseerde winstgerichtheid. (ii) Verzelfstandiging is zeer effectief gebleken voor het veranderen van het beprijzingsgedrag en de winstgerichtheid van waterbedrijven - het maakt waterbedrijven juist minder commercieel gericht. Watertarieven van waterdistricten worden in hoge mate bepaald door inefficiency in de exploitatie en winstgerichtheid, en er is vrijwel geen oog voor het vermogen van klanten om te betalen. Ook in gebieden met lage inkomens hanteren waterdistricten hoge watertarieven. Grote andere uitgaven die naast de personeelslasten werden gedaan, leidden niet tot verbetering van de dienstverlening. De meest winstgevende waterdistricten kunnen ook de slechtst presterende zijn.

Als meer ervaring met het afsluiten van contracten wordt opgedaan, samenwerkingsverbanden worden aangegaan en een geharmoniseerd regelgevingskader wordt ontwikkeld, zal volgens dit onderzoek de rol van de private sector in ontwikkelende economieën geleidelijk groter worden. Met name wanneer samenwerkingsverbanden worden aangegaan kan, zoals ook blijkt uit de privatisering op de Filipijnen, de winst van een concessiestelsel worden gemaximaliseerd als de noodzaak van investeringen en efficiency groot genoeg is om de financiële en technische middelen van de private exploitant ten volle te benutten en winst tot een significant onderdeel van de welvaart te maken. In dergelijke gevallen kan een hogere opbrengst voor de private exploitant de consument vergelijkbare voordelen bieden en de prikkel voor wederzijdse samenwerking versterken. Ook is de politieke wil om te komen tot privatisering in de vorm van concessies als hervormingsstrategie van cruciaal belang voor het welslagen van een dergelijke

privatisering. Als die politieke wil niet zo groot is, kan de regering weigeren om voorwaarden te stellen aan onderhandelingen en informatieverstrekking, hetgeen cruciaal is voor een stabiel stelsel van wederzijdse samenwerking in een sector waar sprake is van aanzienlijke regelgevingsrisico's.

European Doctorate in Law & Economics

Curriculum vitae

Ritchelle J. Alburo
ritchelle.alburo@edle-phd.eu

Short bio	
A Filipino economist who focuses on areas of regulatory law and economics and trade, investment and development.	
Education	
Masters in International and Development Economics, University of Namur and Université Catholique de Louvain	2013
Masters of Economics of International Trade and European Integration	2008
Masters in Applied Economics, De La Salle University	2005
Work experience	
Consultant, Philippine Exporters Confederation	2010-2012
Researcher, International Trade and Economics Unit, Foreign Service Institute	2003-2009
Prizes and awards	
Publications	
Others	

European Doctorate in Law & Economics

EDLE PhD Portfolio

Name PhD student : Ritchelle J. Alburo
PhD-period : 2013-2018
Promoters : Prof. Roger Van den Bergh and Prof. Raimondello Orsini

PhD training

Bologna courses	*year*
Introduction to the Italian Legal System	2013
Statistics	2013
Economic Analysis of the Law	2013
Game Theory and the Law	2013
Experimental Law and Economics	2014
Behavioral Law and Economics I – Game Theory	2013
Behavioral Law and Economics II – Enforcement Mechanism	2014
Specific courses	*year*
Seminar 'How to write a PhD'	2014
Academic Writing Skills for PhD students (Rotterdam)	2014
Seminar Series 'Empirical Legal Studies'	2014
.....	
Seminars and workshops	*year*
Bologna November seminar (attendance)	2013
BACT seminar series (attendance)	2013
EGSL lunch seminars (attendance)	2013
Joint Seminar 'The Future of Law and Economics' (attendance)	2014
Rotterdam Fall seminar series (peer feedback)	2015
Rotterdam Winter seminar series (peer feedback)	2016
.....	
Presentations	*year*
Bologna March seminar	2014
Hamburg June seminar	2014
Rotterdam Fall seminar series	2014
Rotterdam Winter seminar series	2014
Bologna November seminar	2015

……	
Attendance (international) conferences	*year*
Russian Summer Conference	2016
Teaching	*year*
….	
Others	*year*
….	