

A comparative institutional analysis of public and private operations in the urban water sector

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Case for support submitted in partial fulfilment of the requirements of the University of Greenwich for the degree of Doctor of Philosophy by Published Work

Submitted on Tuesday 18th August 2015

Declaration of Originality

I certify that this work has not been accepted in substance for any degree and is not concurrently being submitted for any degree other than that of Doctor of Philosophy (PhD) by Published Work being studied at the University of Greenwich. I also declare that this work is the result of my own investigations except where otherwise indicated by references and that I have not plagiarised the work of others.

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Acknowledgments

Many colleagues and friends have accompanied me through this journey and I can only thank a few of them here. Particular thanks are due to my principal supervisor, Lesley Catchpole, for her invaluable guidance, continuous support and encouragement throughout the entire process of discovery leading up to the submission of this document. In addition, I owe thanks to my second supervisor, Sven Kuenzel, for his trustworthy advice. Sincere thanks go to Bruce Cronin for providing helpful comments and feedback on my prima facie submission in his capacity of assessor. Colleagues who offered helpful comments at various stages include Sue Corby, Ian Greer, Helen Mercer, Erik Swyngedouw, Paola Tubaro, and Mehmet Ugur.

Léo Heller has guided and encouraged my recent theoretical papers on the topic. I have also benefited from the reactions of audiences at: conferences of the WATERLAT-GOBACIT network; IBE Research Seminar Series at the University of Greenwich; guest lectures at the Development Planning Unit, University College London; guest lectures at the Department of Sanitary and Environmental Engineering, Federal University of Minas Gerais, Brazil; conferences of the Association for Heterodox Economics; and, conferences of the World Interdisciplinary Network for Institutional Research.

David Hall, who founded and directed PSIRU until 2013, has been a unique mentor. Since I joined PSIRU in 1998, he has challenged me intellectually and provided me with inspiration on a personal and professional level. Hence my gratitude. Finally, a mention for my parents Angela and Salvatore. This achievement is as much mine as it is theirs.

Abstract

This PhD by published work comprises nine papers published between 2000 and 2013 and a case for support. The research focuses upon the comparative institutional analysis of public and private operations of urban water supply and sanitation services in developed, transition and developing countries. This topic is of scholarly relevance because the debate on the relative efficiency of public and private water operations remains unresolved. The research objectives are to evaluate theoretical expectations of private sector efficiency and public sector inefficiency, and identify the fundamental causal mechanism of the relative efficiency of public and private operations in the urban water sector.

In the aim of contributing to a critical realist theory of the firm, the review of extant theory is situated within the metatheoretical debate between orthodox and heterodox economic theory. To support the investigation of the duality of agency and institutions, a composite analytical framework is devised by integrating the Williamsonian tradition of comparative institutional analysis with the policy networks tradition, and adapted to reflect the characteristics of transactions in the urban water sector. Evidence is derived from a unique body of qualitative case studies produced in 14 years of empirical research, and looking at the relative efficiency of public and private water operations in developed, transition and developing countries. Interpreting the evidence through the lens of the analytical framework allows for ascertaining the regularities produced by public and private operations in terms of aligned actors' attitudes, power and institutions.

The thesis makes three main contributions. First, mainstream expectations of superior private sector efficiency in the urban water sector do not hold. This is due to the alignment of the profit maximisation imperative inherent to the private sector, and the formal institutions that reproduce power asymmetries under private sector participation. This alignment results in private water operators appropriating net gains at the expense of the served communities. Second, mainstream expectations of intrinsic public sector inefficiency are unfounded. This is due to the alignment of public water operators' low-powered incentives to appropriate net gains – incentives resulting from the fact that the profit maximisation imperative does not apply to the public sector, and formal institutions reducing power asymmetries between governance participants. This alignment can and does lead to public sector efficiency. Third, consisting in the alignment of actors' motivation, actors' power, and institutions with sustainable development objectives, remediable institutional alignment is the fundamental causal mechanism behind relative efficiency in the urban water sector.

Remediable institutional alignment accounts for the necessity of private inefficiency and the possibility of public efficiency. It thus innovates in relation to extant theories of the firm that predict the necessity of private efficiency and public inefficiency (public choice and property right theory), the possibility of public and private efficiency (Williamson's comparative institutional analysis), and the necessity of public efficiency and private inefficiency (market failure). Remediable institutional alignment's predictions suggest that the public sector should be preferred over the private sector to enhance sustainable water development, and that in-house restructuring should be adopted to underpin and secure public sector efficiency.

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List of Acronyms

BOT	Build-Operate-Transfer contract
DMAE	Departamento Municipal de Água e Esgotos
IBE	International Business and Economics Department
NSVA	Nordvästra Skånes Vatten och Avlopp AB
OECD	Organisation for Economic Cooperation and Development
ONEA	Office national de l'eau et de l'assainissement
PPWSA	Phnom Penh Water Supply Authority
PSIRU	Public Services International Research Unit
PSP	Private Sector Participation
REG	Régie des Eaux de Grenoble
SABESP	Companhia de Saneamento Básico do Estado de São Paulo S.A.
SANAA	Servicio Nacional de Aguas y Alcantarillados
TAP	Transparency, Accountability and Participation
UFMG	Universidade Federal de Minas Gerais
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
WATERLAT- GOBACIT	Research network on Governance and Citizenship in Water Management and Environmental Health with a focus on Latin America and the Caribbean
WWAP	World Water Assessment Programme

Assessment of Multi-Authorship

The following list provides an assessment of the candidate's contribution to joint publications.

Paper 1. Hall, D. and Lobina, E. (2004) Private and public interests in water and energy, *Natural Resources Forum*, vol. 28, no. 4, 268-277.

Contribution by the candidate to Paper 1 (Hall and Lobina, 2004): 50%

Paper 2. Hall, D. and Lobina, E. 2007. Profitability and the poor: Corporate strategies, innovation and sustainability, *Geoforum*, vol. 38, no. 5, 772-785.

Contribution by the candidate to Paper 2 (Hall and Lobina, 2007): 50%

Paper 3. Hall, D. and Lobina, E. 2009A. Water Privatization, in Arestis, P. and Sawyer, M. (eds), *Critical Essays on the Privatization Experience*, International Papers in Political Economy Series, Basingstoke and New York: Palgrave Macmillan, 75-120.

Contribution by the candidate to Paper 3 (Hall and Lobina, 2009A): 50%

Paper 7. Lobina, E. and Hall, D. 2000. Public Sector Alternatives to Water Supply and Sewerage Privatization: Case Studies, *International Journal of Water Resources Development*, vol. 16, no. 1, 35-55.

Contribution by the candidate to Paper 7 (Lobina and Hall, 2000): 80%

Paper 8. Lobina, E. and Hall, D. 2007. Experience with private sector participation in Grenoble, France and lessons on strengthening public water operations, *Utilities Policy*, vol. 15, no. 2, 93-109.

Contribution by the candidate to Paper 8 (Lobina and Hall, 2007): 85%

Paper 9. Lobina, E. and Hall, D. 2008. The comparative advantage of the public sector in the development of urban water supply, *Progress in Development Studies*, vol. 8, no. 1, 85-101.

Contribution by the candidate to Paper 9 (Lobina and Hall, 2008): 75%

Declaration by the co-author

I declare that I co-authored the above papers with the candidate. I also agree with the above assessments on the contribution made by the candidate to the co-authored papers.

David Hall
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Date of signature:

Papers included in the portfolio of published work

For ease of distinguishing papers included in the portfolio of published work from other citations, papers included in the submission are cited throughout the thesis in bold (e.g. **Lobina, 2013**). The full text of the papers listed below is located in Appendix 3, in the order in which they appear in the portfolio.

Paper 1. Hall, D. and Lobina, E. (2004) Private and public interests in water and energy, *Natural Resources Forum*, vol. 28, no. 4, 268-277.

Paper 2. Hall, D. and Lobina, E. 2007. Profitability and the poor: Corporate strategies, innovation and sustainability, *Geoforum*, vol. 38, no. 5, 772-785.

Paper 3. Hall, D. and Lobina, E. 2009A. Water Privatization, in Arestis, P. and Sawyer, M. (eds), *Critical Essays on the Privatization Experience*, International Papers in Political Economy Series, Basingstoke and New York: Palgrave Macmillan, 75-120.

Paper 4. Lobina, E. 2005. Problems with Private Water Concessions: A Review of Experiences and Analysis of Dynamics, *International Journal of Water Resources Development*, vol. 21, no. 1, 55-87.

Paper 5. Lobina, E. 2012. Water Service Governance, Technological Change and Paradigm Shifts: A conceptual framework, *International Journal of Water*, vol. 6, no. 3/4, 155-175.

Paper 6. Lobina, E. 2013. Remediable institutional alignment and water service reform: Beyond rational choice, *International Journal of Water Governance*, vol. 1, no. 1-2, 109-132.

Paper 7. Lobina, E. and Hall, D. 2000. Public Sector Alternatives to Water Supply and Sewerage Privatization: Case Studies, *International Journal of Water Resources Development*, vol. 16, no. 1, 35-55.

Paper 8. Lobina, E. and Hall, D. 2007. Experience with private sector participation in Grenoble, France and lessons on strengthening public water operations, *Utilities Policy*, vol. 15, no. 2, 93-109.

Paper 9. Lobina, E. and Hall, D. 2008. The comparative advantage of the public sector in the development of urban water supply, *Progress in Development Studies*, vol. 8, no. 1, 85-101.

Other publications by the author

The author of this thesis has published a number of publications which are relevant to the thesis, as they provide additional information or complementary perspectives to the papers included in the portfolio. For ease of identification, these additional publications are cited throughout the thesis in bold and italics (e.g. *Lobina and Hall, 2009*).

1. Boda, Z., Scheiring, G., Lobina, E., Hall, D. (2008) Hungary, in Prasad, N. (ed.) *Social Policies and Private Sector Participation in Water Supply - Beyond Regulation*. New York: Palgrave Macmillan, pp. 178-202.
2. Finger, M., Lobina, E. (1999) Managing trade in a globalising world: trade in public services and transnational corporations - The case of the global water industry, in Taylor, A. & C. Thomas (eds.) *Global trade and global social issues*, London: Routledge, pp. 170-196.
3. Hall, D., Lobina, E. (2007) International actors and multinational water company strategies in Europe, 1990-2003, in *Utilities Policy*, 15, pp. 64-77.
4. Hall, D., Lobina, E. (2009B) Public policy options for financing sewerage systems, in Castro, J. E. and Heller, L. (eds.) *Water and Sanitation Services: Public Policy and Management*. London: Earthscan, pp. 88-105.
5. Hall, D., Lobina, E., de la Motte, R. (2005) Public resistance to privatisation in water and energy, in *Development in Practice*, Volume 15, Numbers 3 & 4, June 2005, pp. 286-301.
6. Hall, D., Lobina, E., Terhorst, P. (2013) Re-municipalisation in the early 21st century: water in France and energy in Germany, in *International Review of Applied Economics*, 27(2), pp. 193-214.
7. Hall, D., Katko, T., Sanz Mulas, A., Lobina, E., de La Motte, R. (2007) Decision-making and participation: the Watertime results, in *Utilities Policy*, 15, pp. 151-159.
8. Kishimoto, S., Lobina, E., Petitjean, O. (2015) *Our public water future: The global experience with remunicipalisation*. Amsterdam, London, Paris, Cape Town and Brussels: Transnational Institute, Public Services International Research Unit, Multinationals Observatory, Municipal Services Project and the European Federation of Public Service Unions (ISBN 978-90-70563-50-9).
9. Lobina, E. (2012) Hacia una teoría para la reforma del servicio de agua: más allá de la elección racional. In Pan-American Health Organization (ed.) *Agua y saneamiento: en la búsqueda de nuevos paradigmas para las Américas*. Washington, DC: Pan-American Health Organization, McGraw-Hill Interamericana, pp. 113-136.
10. Lobina, E. (forthcoming, 2016) A participação como um problema complexo e dependente da trajetória histórica (The Necessity of Wickedness and the Possibilities of Participation). In: Heller, L., Aguiar, M., Rezende, S. (eds.) *Participação e controle social em saneamento básico: conceitos, potencialidades e limites*. Belo Horizonte: UFMG Editora.
11. Lobina, E., Hall, D. (2008) Water, in Thomas, S. (ed.) *Poor Choices: The limits of competitive markets in the provision of essential services to low-income consumers*. London: energywatch, pp. 93-122.

12. Lobina, E., Hall, D. (2009) Thinking inside the box: the World Bank position on the private and public sector. *PSIRU Reports*, March 2009.
13. Lobina, E., Hall, D. (2010) Public Water Supplies, in Barney, W. (ed.) *Encyclopedia of Geography*. Thousand Oaks: SAGE Publications, pp. 2315-2319.
14. Lobina, E., Hall, D. (2014) Corporatization in the European Water Sector: Lessons for the Global South. In McDonald, D. (ed.) *Public Ambiguity: Corporatization and Public Services in the Global South*. London: Zed Press, pp. 185-206.
15. Lobina, E., Powell, J., Yurchenko, Y. (forthcoming, 2016) Water remunicipalisation: Between pendulum swings and ecology of paradigms. In Allen, A., Bell, S., Hofmann, P., Teh, T. H. (eds.) *Urban Water Trajectories*. London: Springer.
16. Lobina, E., Terhorst, P., Popov, V. (2011) Policy networks and social resistance to water privatisation in Latin America, *Elsevier Procedia Social and Behavioural Sciences*, 10, pp. 19-25.
17. Lobina, E., Terhorst, P., Popov, V. (2012) Civil society campaigns and social resistance to water privatisation in Latin America: A study of policy networks. In Jacobi, P. R., Sinisgalli, P. (eds.) *Water Governance in Latin America and Europe: social actors, conflicts and territoriality*. São Paulo: Annablume Editora, pp. 163-173.
18. Nissan, E., Hall, D., Lobina, E., de la Motte, R. (2004) A formalism for a case study in the Watertime project: the city water system in Grenoble, from privatization to remunicipalization, in *Applied Artificial Intelligence*, 18(3-4), pp. 305-366.
19. Oliveira, A. P. B. V., Heller, L., Nascimento, N., Lobina, E. (2012) Integrated Urban Water Governance in Belo Horizonte, Brazil: changes and inertias, in *International Journal of Water*, 6(3/4), pp. 232-249.

Introduction

This PhD by published work comprises nine papers published between 2000 and 2013 and a case for support. The research focuses upon the comparative institutional analysis of public and private operations of urban water supply and sanitation services in developed, transition and developing countries. This topic is of scholarly and policy relevance. In fact, it is germane to the provision of essential public services whose institutional reform affects the wellbeing of communities in the global North and South. Also, the debate on the relative efficiency of public and private operations of water services remains unresolved. Having participated in the so-called public vs. private debate in the urban water sector for the last 15 years, my motivation to undertake a PhD by published work is twofold: a) to take stock of my research on the subject; and, b) to lay the grounds for more theoretically informed research work in my future career.

The theoretical debate on the effects of ownership on the performance of water service providers remains unresolved. Influenced by orthodox or mainstream economic theory, rational choice theories of the firm such as public choice and property rights have dominated scholarly discourse and informed policy in the last few decades (Peters, 2005; Self, 1993). These strands of thought argue for the superior efficiency of the private sector in the provision of water supply and sanitation (Renzetti and Dupont, 2003; Boyne, 1998), and have inspired the Washington and Post-Washington Consensus insistence on private sector participation (PSP) in the water sector (Bayliss, 2006, 2001). The World Bank and like-minded bodies insist on promoting PSP despite the fact that mainstream theories of the firm fail to provide satisfactory predictions and socially acceptable prescriptions. This failure is demonstrated by the lack of evidence of superior private sector efficiency (Bel *et al.*, 2010), widespread social resistance against PSP (Hall *et al.*, 2005), the increasing termination and remunicipalisation of private contracts (Hall and Lobina, 2009A; Hall *et al.*, 2013; Kishimoto *et al.*, 2015), and a growing body of evidence on successful in-house restructuring (Lobina and Hall, 2009, 2008, 2007, 2000). In the absence of a credible alternative, the intellectual hegemony of rational choice remains unchallenged (Crouch, 2007; Fine, 2009). Our understanding of the process and outcome of water service reform thus remains inadequate and important social needs are left unattended.

The limitations of mainstream theories of the firm call for new theoretical accounts that better reflect economic reality to better guide policy on organisational change. This thesis aims to ascertain the regularities produced by different reform options so as to shed light on the real-world dynamics of relative efficiency in the urban water sector, and to contribute to a heterodox and critical realist theory of the firm alternative to rational choice theories of the firm. The research objectives are to: a) evaluate theoretical expectations of private sector efficiency in the urban water sector; b) evaluate theoretical expectations of public sector inefficiency in the urban water sector; and, c) identify the fundamental causal mechanism of the relative efficiency of public and private operations in the urban water sector. Attaining the first two research objectives allows for deconstructing a mainstream narrative premised on the assumption of inherent private sector efficiency, and oblivious of the possibility of public sector efficiency. Achieving the third objective is part of the reconstruction of a heterodox and critical realist narrative of relative efficiency alternative to public choice and property rights theory.

The published work submitted looks at the experience of water service reform in developed, transition and developing countries over the last 25 years. This work rests on the qualitative observation of real-life case studies and allows for generating in-depth and context-specific understandings, exploring issues of *how* and *why*, and generalising from these qualitative insights back to theory. Hence, my published work addresses the comparative institutional analysis of public and private water operations by using a methodological approach consistent with the set aims and research objectives. This case for support attempts to situate my inquiry within the wider context of my field of research, and illustrate its original contribution to the public versus private debate in the urban water sector and the theory of the firm.

This case for support is structured as follows. The section on Practical background outlines the fundamentals of urban water service reform, and offers an overview of the history of water service reform in the global North and South. The section on Theoretical background places a number of theoretical traditions relevant to the public versus private debate in the urban water sector within the context of the metatheoretical debate between orthodox and heterodox economic theory. These theoretical traditions include rational choice theories such as public choice and property rights, and transaction cost economics. Their limitations are explained in light of the orthodox assumptions that underpin their predictions. The section on Methodology develops an analytical framework by integrating the Williamsonian tradition of transaction cost economics and comparative institutional analysis with the policy networks tradition. A second sub-section is devoted to the methods used to gather and analyse the empirical evidence contained in the work submitted. The section on Empirical evidence reviews the empirical observations on the relative efficiency of public and private water operations derived from the submitted published work. In the Discussion of findings, the contribution of the work submitted is discussed through the lens of my analytical framework. Here, the results are shown to meet the research objectives set out. This section also sketches a research agenda for the creation of a heterodox theory of the firm alternative to public choice and property rights theory. The case for support ends with Conclusions. Finally, the appendices contain tables provide a synopsis of the evidence, and the full text of papers included in the submission.

Practical background: Urban water service reform

Urban water services include the provision of water supply, sewerage and wastewater treatment services to urban communities. These are essential public services which satisfy basic human needs and prevent public health hazards (Heller, 2009). Access to quality water services has a positive impact on economic and social development and on poverty reduction (UNESCO-WWAP, 2006). By reducing pollution, sanitation services play a fundamental role in enhancing environmental development (McGranahan *et al.*, 2001; McGranahan and Satterthwaite, 2002). Sustainable water development is a normative objective of water service provision, which consists in the development of water operations that contributes to social, environmental and economic development in the long term. It also implies the pursuit of equal and universal access to quality water services (**Lobina, 2012**). In practice, high income countries tend to accord higher priority to environmental development than low income countries where public health and social welfare objectives are emphasised (McGranahan *et al.*, 2001).

The economics and organisation of urban water services are determined by technology. Water services are a typical natural monopoly so that only one operator is allowed to operate in a given operation area. The reform opportunity set ranges from the appointment without competition of a public undertaking, to the selection of a private operator through competition for the market and subject to a long term contract (**Lobina and Hall, 2010**). The organisational forms considered for this comparative institutional analysis include in-house provision and various forms of PSP: outright divestiture, concessions and lease contracts among others (**Lobina, 2005**). Regulation is seen as a substitute for or complement to competition, and it either takes the form of scrutiny by the conceding authorities or arms' length regulation by a specialised agency (**Lobina and Hall, 2010**).

Technology, market structure, and scope for competition have a number of implications for the sustainability of PSP in the urban water sector. First, the relationship between regulatory authorities and regulated private operators is characterized by asymmetry of information. Otherwise put, the regulated operator tends to know the quantity and quality of the service provided and the investments implemented better than regulatory authorities (Laffont, 1994; Joskow, 2007). Second, water service provision is a highly capital intensive industry. Transferring high capital costs to consumers in the form of full cost pricing can undermine affordability and service access for the poor and vulnerable consumers (Bakker, 2010).

For the purposes of this thesis, relative efficiency is defined as the capability of public and private water operators to produce the maximum amount of outputs from a given set of inputs. This definition corresponds to the definition of technical efficiency and not that of price efficiency, or the ability to maximise profit as a result of the chosen inputs (Farrell, 1957). The rationale for opting for the former definition lies in the recognition that efficiency is instrumental to the achievement of effectiveness in the delivery of water operations (Lobina, 2012). In addition, under natural monopoly price efficiency does not guarantee effectiveness as operators can appropriate profits and fail to reinvest (Lobina, 2013). Conversely, technical efficiency accounts for the effective provision of sustainable water services in terms of quality and quantity, equality and universality. Otherwise put, relative efficiency amounts to the comparative advantage of public and private water operators in the continued expansion of service coverage, enhancement of affordability, improvement of service quality, and optimisation of social, economic and environmental interventions (Lobina and Hall, 2008).

Theoretical background: Orthodox and heterodox economic theory

Metatheory is a system of thought or paradigm that defines the grand principles underlying the formulation of theory and informing assessments of the relevance of evidence. Metatheory thus offers a framework for theory development and the revisitation of extant theory (Lehman, 1988; Ritzer, 1990). It is important that social scientists make explicit the adopted metatheoretical frameworks, to reveal how their assumptions relate to those of other participants in inter-paradigmatic dialogues (Fuhrman and Snizek, 1990). Hence, the discussion of the submitted published work is situated within the context of the metatheoretical debate between orthodox and heterodox economic theory. These metatheoretical frameworks represent divergent approaches to dealing with social and institutional complexity: orthodox economics tends to reduce, while heterodox economics seeks to embrace complexity.

Orthodox economics embraces neoclassical notions of instrumental rationality and utility maximisation, equilibrium and mathematical formalism as its methodological foundations. This results in a closed-system ontology, the assumption of linear causality, deductivism, determinism and reductionism. The methodological foundations of heterodox economics are critical realism and institutionalism, non-equilibrium and historical modelling, and methodological pluralism (i.e. the rejection of mathematical formalism and deductivism as the only acceptable forms of reasoning). This implies an open-system ontology and the assumption of circular, cumulative, and ultimately path dependent causation (Dow, 2011; Lee, 2011; Lawson, 2006; Hodgson, 2000; Pluta, 2010).

Orthodox economics has influenced theories of the firm relevant to this inquiry. Moving from neoclassical premises (Langlois, 1994), Pigou (1932) offered the basis for the theory of market failure. This posits that government intervention in the production of goods and services is justified whenever the market cannot produce the expected results in terms of welfare distribution, as is the case in presence of natural monopoly. Market failure theory has been criticised for being based on deductivism, lacking an adequate empirical basis (Zerbe and McCurdy, 1999), and unrealistically assuming a costless, omniscient and benevolent state (Demsetz, 1996; Hummel, 1987). Orthodox economics has also influenced rational choice theories of the firm, such as public choice and property rights, whose prescriptions on the desirability of government delivery of public services are antithetic to those of market failure. In fact, public choice and property rights theory assume instrumental rationality (Peters, 2005; Self, 1993; Dietrich, 1994) and their development is, much like market failure, based on deductivism. A clear example of deductivist theorising in the tradition of property rights is represented by Demsetz's (1968) abstract argument that ex-ante competition unproblematically leads to ex-post efficiency. Another such example is Hart *et al.*'s (1997) model for the definition

of the proper scope of government. This leads to conclusions that “are generally extremely intuitive” (Hart *et al.*, 1997: 1130), and are extrapolated to the garbage collection sector without much empirical support.

The demise of the “old institutionalist economics”, which partly explains the absence of an established heterodox alternative to public choice and property right theory, has been attributed to its limited theoretical underpinnings (Coase, 2000). Lee (2011) asserts that heterodox microeconomics is an emergent discipline and that critical realism constitutes its ontological basis. This has a number of implications for the epistemological potential of the heterodox theory of the firm. First, critical realism advances that there is causal necessity in the world (Sayer, 1992, King, 1999) and is concerned with identifying the fundamental causal mechanisms of social phenomena (Bhaskar, 1989; Pratten, 1993). Second, the emancipatory nature of critical realism (Bhaskar, 1989) calls for critically evaluating the process and outcome of economic activity through the lens of social justice. Third, critical realism recognises the creative potential of agency and the ability of institutions to enable and constrain agency (Cleaver, 2012; Bhaskar, 1989; Pratten, 1997, 1993). Fourth, critical realism embraces epistemological relativism, or the belief that knowledge of economic events is historically contingent and concept-dependent (Lee, 2011; Sayer, 1992). A heterodox and critical realist approach bears promise of developing the theory of the firm with an attention to complexity that cannot be found in the mainstream tradition.

Public choice and property rights theory

Rational choice consists in the common assumptions informing a variety of theories of the firm, including public choice and property rights theory. These assumptions are that individuals are rational, are intrinsically self-interested, and take actions aimed at maximising their own utility (Self, 1993; Dietrich, 1994). These theories also share methods, predictions and prescriptions. More precisely, these theoretical perspectives are theories of non-market failure (Lowery, 1998) which predict government failure in the provision of water services and recommend the introduction of PSP in the urban water sector. For a more detailed review of rational choice theories of the firm, see **Lobina (2013)**, and **Lobina and Hall (2007)**.

Public choice theory contends that public service provision is intrinsically inefficient due to the self-interested behaviour of public managers who prioritise budget maximisation over the public interest (Renzetti and Dupont, 2003). This view stems from the following premises: individual voters cannot control the political process, nor keep politicians accountable; interest groups manipulate the political process to their advantage; elected politicians cannot effectively control bureaucracies; interest groups, politicians and bureaucrats mutually exchange favours to the detriment of voters and consumers (Self, 1993). Conversely, public choice theory expects contracting out to improve performance as a result of competitive pressures (Boyne, 1998). It is also argued that insulation from self-serving political interference results in the superior efficiency of regulated private enterprises over public undertakings. This insulation arises from the fact that the institutional framework supporting privatization guarantees profitability in order to attract private investment (Willig, 1994).

Property rights theory expects the incentives derived from specifying property rights to induce efficient resource allocation (Furubotn and Pejovich, 1972). In this view, the case for superior private sector efficiency rests on the “weak incentives of government employees with respect to both cost reduction and quality innovation” (Shleifer, 1998, p. 138). The plurality of objectives pursued by the public sector, including social justice, also goes to the detriment of productive efficiency (Lorrain, 1997). Premised on property rights, Demsetz (1968) argues in favour of competition for the market, via competitive bidding for a franchise, when competition in the market is unfeasible. Regulation and renegotiation might be necessary to avoid excessive windfalls if the durability of investments requires entering long term contracts (Demsetz, 1968),

as is typically the case of urban water services. So-called Demsetz competition is expected to promote the efficiency of monopolists by sanctioning poor performance through the threat of franchise termination, suspension, or non-renewal, and to mitigate the risk of regulatory capture by minimising agency discretion (Baldwin and Cave, 1999).

Studies that comparatively assess the operational performance of public and private water operators fail to find evidence of superior private sector efficiency (**Lobina, 2013; Hall and Lobina, 2009A**). Explanations provided in the quantitative literature for the absence of superior private sector efficiency include: the limited competitiveness of the water sector (Bel and Warner, 2008); the presence of substantial transaction costs (Ménard and Saussier, 2000; Chong *et al.*, 2006; Bel *et al.*, 2010); the fact that private operators reap all efficiency gains through profits (Gassner *et al.*, 2009); and, improved public performance due to public sector innovation (Estache and Rossi, 2002). While the debate on the determinants of relative efficiency remains open, rational choice expectations of superior private sector efficiency in the urban water sector appear unfounded. This demands a critical reappraisal of orthodox theories of the firm and filling the knowledge gaps left by these theories. More precisely, the determinants of private sector inefficiency and public sector efficiency remain to be identified.

Transaction cost economics

This case for support mobilises Oliver Williamson's tradition of transaction cost economics. As shown in **Lobina (2013)**, Williamson's heuristic framework represents a sound basis for the comparative institutional analysis of public and private water operations. The Williamsonian tradition of transaction cost economics presents similarities and differences with property right theory. Like property right theory, Williamson (1988) adopts bounded rationality as a behavioural assumption, mitigating the orthodox assumption of instrumental rationality under complete information and postulating that behaviour is intendedly rational but only limitedly so. Conversely, Williamson (2002) goes beyond property right theory's focus on the ex-ante alignment of incentives and is concerned with the governance of ongoing contractual relations.

Williamson (1997, 1981) argues that comparative institutional analysis is required to recognise the economic institutions mitigating bounded rationality, safeguarding transactions from the threat of opportunism, and economising on transaction costs. According to the remediableness criterion, all feasible organisational modes - market, hybrid, private bureau, public bureau - are flawed. Therefore, comparing an extant organisational mode with an ideal and perfect organisational mode is meaningless (Williamson, 2009). Also, the transaction costs associated with the attributes of different modes have to be comparatively assessed in light of the nature of the transaction to be performed. Among such attributes is asset specificity which, if high, can cause a transaction to move from a large-numbers exchange relation in the ex-ante phase to a small-number transaction during contract execution. Another key attribute of the considered transaction is the intensity of incentives to appropriate net gains, distinguished between high- and low-powered incentives. Comparative institutional analysis thus consists in the discriminating alignment of the attributes of the transaction considered and the attributes of the compared organisational modes (Williamson, 2002, 1999, 1988, 1981).

Williamson's comparative institutional analysis allows for the possibility of private sector inefficiency and public sector efficiency. The possibility of private sector inefficiency is implicit in Williamson's (1976) critique of Demsetz' (1968) assumption of efficiency achieved through "unassisted" competition for the market. The possibility of public sector efficiency is assumed in Williamson's (1999) discussion of the US Department of State and sovereign transactions. Williamson's original contribution to the theory of the firm thus consists in laying the grounds for the rejection of the necessary benevolence of government, held by the proponents of market failure, and the necessary malevolence of government, predicated by public choice and property rights theory. Williamson's non-deterministic approach to

comparative institutional analysis offers fertile ground for the development of a theory of the firm consistent with heterodox microeconomics and critical realism.

The development of a heterodox and critical realist theory of the firm would have to confront a remarkable fact. For all the importance attached by Williamson to operationalising arguments (Pratten, 1997), Williamson (2010) acknowledges that the full formalisation of transaction cost economics remains work in progress. The intuition of the possibility of private inefficiency under natural monopoly (Williamson, 1976) and public efficiency in performing sovereign transactions (Williamson, 1999) is not accompanied by a complete account of relative efficiency in executing public sector transactions. Instead, reference is made to “suggestive at best” rudiments of the theoretical formalisation of transaction cost economics (Williamson, 1999, p. 338).

A critique that is particularly relevant for this case for support is Granovetter’s (1985) assertion that Williamson (1975) provides an undersocialised account of economic action which neglects the role of social relations in conditioning behaviour. Granovetter (1985) argues that Williamson (1975) conceives of agents as atomized individuals thus failing to recognise the embeddedness of economic action in structures of social relations and institutions. This critique points to a number of tensions in Williamson’s tradition of transaction cost economics. First, the retention of bounded rationality as a rational choice behavioural assumption conflicts with Williamson’s interest in the complexity of human behaviour and, together with his deductivist view of explanation, results in reductionism (Pratten, 1997). Second, despite power being central to the explanation of agency (Wrenn, 2006), Williamson dismisses power as an explanatory variable only to replace it with the equally tautological notion of transaction costs (Williamson, 1997). Third, Williamson’s conception of institutions is confined to formal rules and in particular to organisational structure and contract law, thus failing to account for the influence of informal institutions on behaviour (Williamson, 2000). Developing the theory of the firm from a heterodox and critical realist vantage point lends itself to resolving these tensions, which relate to an essential preoccupation of heterodox economics and critical realism: the interdependence of agency and structure (Bhaskar, 1989; Pratten, 1997).

Methodology: Analytical framework and methods

By contributing to the public versus private debate in the urban water sector, the candidate has engaged in an exercise of comparative institutional analysis (**Lobina, 2005; Lobina and Hall, 2008, 2007, 2000; Hall and Lobina, 2007, 2004**), albeit in the absence of an explicit theoretical starting point. It is only **Lobina (2013)** that formally integrates Williamson’s comparative institutional analysis apparatus taking inspiration from heterodox microeconomics and critical realism. This section of the case for support links the submitted published work with the methods and philosophy of critical realism.

Pratten (1993) identifies transcendental realism as the philosophy of science incorporated into critical realism and illustrates Bhaskar’s (1986) distinction between the real, the actual and the empirical, as a distinction between, respectively: causal mechanisms; social phenomena; and, the experience of social phenomena. Transcendental realism’s three phases of scientific discovery are: 1) identification and description of the effect which is the object of analysis; 2) postulation of a hypothetical causal mechanism (drawing on extant theory and models) explaining the effect; and, 3) demonstration of the existence and operation of the postulated causal mechanism - both positively, through the direct observation of the causal mechanism, and negatively, by the elimination of alternative explanations (Pratten, 1993; Bhaskar, 1989). The consideration of these three phases from a heterodox and critical realist perspective reveals important methodological implications.

First, methodological pluralism implies that qualitative methods hold claims to scientific validity to the same extent that quantitative methods do. The use of qualitative case studies to derive inference is well established as a method of theorising in social science, not only in critical realism (Sayer, 1992), but also in the tradition of New Institutional Economics (Williamson, 1999, 1976). This methodological strategy, based on an intensive approach to the generation of insights, promises to be a fruitful approach to explore issues of *how* and *why* in an emerging field.

Second, critical realism requires that the extant theories and models selected for the postulation of hypothetical causal mechanisms embrace complexity. In this sense, the combination of paradox and theoretical bricolage is a promising methodological strategy. Paradox is predicated upon oppositional thinking (Lado *et al.*, 2006), thus allowing for the separation of the wheat from the chaff in a theoretical account. Theoretical bricolage (Kincheloe, 2005, 2001) is apt to establish synergies between multiple perspectives and devise a composite framework recognising the complexity of the analysed social phenomena. The combination of paradox and bricolage as an epistemic strategy of splitting and integration of knowledge (Smith and Lewis, 2011), can thus contribute to the explanatory power of theory.

Third, Lee (2011) proposes the following criteria for the selection of central causal mechanisms among a number of possible causal mechanisms: 1) the frequency with which the data shows that a mechanism is a cause of the effect analysed; 2) the fact that the mechanism clearly contributes to the explanatory power of a theory and is central to its narrative; 3) the fact that the mechanism allows for complexity.

Analytical framework

The analytical framework developed for this case for support aims to strengthen Williamson's method of comparative institutional analysis through its integration with complementary perspectives. First, this framework retains parts of Williamson's approach to comparative institutional analysis, to reflect the characteristics of transactions in the urban water sector. These include: 1) the remediableness criterion as the rationale for comparative institutional analysis; 2) asset specificity as the determinant of natural monopoly market structure; 3) maximising outputs to enhance sustainable water development as the normative attribute of the transactions performed; and, 4) safeguarding transactions from the threat of opportunism as the purpose of comparative institutional analysis. Second, this framework integrates the retained aspects of the Williamsonian tradition of comparative institutional analysis with a view to addressing Granovetter's (1985) critique of Williamson's research programme. It does so by drawing on **Lobina (2013, 2012)** and **Lobina and Hall (2007)**, and articulating the components of a socialised account of the agency of water service governance. This account operationalises the interdependency of agency and structure, in recognition that institutions enable and constrain agency without determining it (Granovetter, 1985; Pratten, 1997).

To support the investigation of the duality of agency and institutions, the analytical framework uses policy networks – defined as “more or less stable patterns of social relations between interdependent actors, which take shape around policy problems and/or policy programmes” (Klijn, 1997, p. 14) - as a heuristic representation of water service governance. According to the policy networks metaphor, actors in a policy network strategically interact in response to their goals, and such interaction is informed by resource dependency (Klijn, 1997). Policy networks are used by **Lobina and Hall (2007)** to shed light on the dynamic interest-seeking of private operators and test the cogency of public choice and property rights theory. **Lobina (2013)** develops the policy networks metaphor further by elaborating on its components: a) actors' attitudes as the motivation for agency; b) actors' power as the means of agency; c) institutions as social structures enabling and constraining agency; and, d) institutions as social structures shaped by agency in return.

Actors' attitudes provide the motivation for agency and derive from the actors' own beliefs, interests and calculation (**Lobina, 2013**). The mental model implied in this definition subsumes and goes beyond the behavioural assumptions of bounded and instrumental rationality. While allowing for utilitarian behaviour, the consideration of beliefs in decision making contemplates the possibility that the agent's values might interfere with self-interest. **Lobina's (2013)** definition of actors' attitudes can be improved by incorporating notions of multiple rationalities, such as emotional, social, moral, political, economic, and professional rationality (Cleaver, 2012). Allowing for the multiplicity of rationalities represents an antidote against the risk of reducing human rationality to instrumental or functional rationality. In addition to multiple rationalities and the exposure of the agent's rationality to social relations, external incentive structures of expected positive and negative sanctions determine attitude formation and intensity (**Lobina, 2013**).

Power can be defined as the ability to induce and resist change and is better understood as an asymmetric relationship (Simon, 1953), resulting from resource mobilisation in a relational context (**Lobina, 2013, 2012**). Power produces resource-based dependence between actors (Giddens, 1979; Green and Anton, 2010). Therefore, power cannot be confined to the outcome of mere resource allocation (Dietrich, 1994) and presupposes the use, actual or expected, of resources in a social relationship (Klijn *et al.*, 1995). Relations are characterised by the principles of mutuality, conflict and order. **Lobina's (2013)** conceptualisation of power thus encompasses the mobilisation of a variety of resources through a multiplicity of social relations.

Institutions can be defined as a habit of thought (Veblen, 1898; Hodgson, 1998). They constitute the social structure which supports agency and are "implicated in the reproduction of social systems" (Giddens, 1979, p. 64). Williamson considers organisations and associated formal rules, to be institutions (Scott, 2005). **Lobina (2013)** integrates Williamson's view of organisations as institutions, and the broad sociological conception of institutions as formal and informal rules, norms, and customs (Bakker, 2005). In addition, **Lobina (2013)** accepts Scott's (2005) distinction between the separated but interconnected elements of institutions: a) the regulative pillar of institutions characterised by the logic of instrumentality; b) the normative pillar associated to the logic of appropriateness; and, c) the cognitive-cultural pillar with its intrinsic logic of orthodoxy. **Lobina's (2013)** framework thus recognises institutions as social structures enabling and constraining agency, and shaped by agency in return.

The interaction of actors within a policy network is informed by the interaction between different sets of incentives and motivations, power and resources, and abilities to use underlying institutions to realise aims. This interaction represents a mechanism through which the distribution of power within a network is reproduced and altered (**Lobina, 2013**). The combined analytical framework supports historical and critical realist accounts of agency beyond instrumental and bounded rationality, the role of power beyond static resource allocation, the role of institutions beyond organisations and rules, and the mutual dependence of incentives, resources and institutions. It is suitable to investigate path dependent causation in complex open systems and is therefore part of a quintessentially heterodox project.

Devised by deploying theoretical bricolage, the analytical framework is apt to address epistemological issues raised by transcendental realism. First, by incorporating Williamson's comparative institutional analysis apparatus, the framework is adequate to identify and describe the effect of ownership on the performance of urban water operators. Second, the framework allows for complexity. It does so by revisiting and equipping Williamson's comparative institutional analysis to produce a socialised account of water service reform, in light of the duality of agency and institutions, and the role played by relations and resources in the interdependency between agency and institutions. Third, the framework is suitable to guide the identification of central causal mechanisms because - constructed around the integration of comparative institutional analysis and the analytical dimensions of the motivation for agency,

the means of agency and the socially constructed landscape for agency - it allows for a high degree of generalisation in accounting for causation.

Methods

Evidence is derived from qualitative case studies produced in 14 years of empirical research. These case studies investigate the relative efficiency of public and private water operations in developed, transition and developing countries over the last 25 years, by adopting a multi-method approach. Secondary data in the form of documentary material – including policy publications and regulatory reports, public audits and court rulings, company accounts and consultants' reports, and civil society publications – media coverage, and academic literature is examined. This is complemented by semi-structured interviews of company managers and policy practitioners. The methods chosen are consistent with the critical realist and heterodox preoccupation with analysing the social provisioning process as it really is rather than as it is in an ideal world (Lee, 2011).

Empirical evidence was mainly gathered through the Public Services International Research Unit's (PSIRU) global database on water service reform. Empirical observations were first presented in several PSIRU Reports, which provide the basis for the empirical generalisations (Wallace, 1969) arrived at by inference and presented in the published work submitted. The PSIRU Reports constitute a unique body of material as the frequent citations by international organisations, policy practitioners and scholars demonstrate. PSIRU Reports authored and co-authored by the candidate are often cited and referenced in World Bank literature (Estache and Goicoechea, 2005) and documents produced by other international bodies such as the OECD (2010), UNCTAD (2000, 2008) and the European Parliament (Tucker *et al.*, 2010).

The collected empirical evidence covers a geographical breadth and a variety of institutional arrangements which are adequate to support the generalisation of findings. For example, Tables 1 and 2 in Appendix 1 list 30 private contracts reviewed by the submitted published work, 12 of which in 7 high-income countries and the remaining 18 in 11 middle- and low-income countries. Also, Tables 3 and 4 in Appendix 2 list 18 public water operations reviewed by the submitted published work, 9 of which in 6 high-income countries and the remaining 9 in 8 middle- and low-income countries. The collected evidence also covers private contracts awarded in the absence and presence of competition for the market, private contracts subject to formal and independent economic regulation and private contracts that are not, public operators that are in-house departments of local governments and public operators characterised by different arms-length relationships with their public owners.

Empirical evidence: Results of the submitted published work

In view to achieve the three research objectives, this section reviews the empirical observations of international experiences with public and private water operations derived from the submitted published work. These observations relate to evidence on the relative efficiency of public and private operations in high-income and middle and low-income countries.

Evaluating theoretical expectations of private sector efficiency

The evidence reviewed by the submitted published work shows that mainstream expectations of inherently superior private sector efficiency in the urban water sector do not hold. In fact, both in the global North and South, private water operators engage in monopolistic behaviour as they maximise profits to the benefit of shareholders and detriment of the served communities. Illustrated in Tables 1 and 2 in Appendix 1, this pattern is explained by the profit maximisation

imperative of private operators under conditions of natural monopoly (**Lobina, 2013, 2005; Lobina and Hall, 2007**).

Tables 1 and 2 provide a synopsis of the evidence of monopolistic behaviour by private operators, respectively in high-income countries and middle- and low-income countries, as evidenced in the submitted published work. Both tables list cases of water privatisation and PSP and, for each case, indicate: the location where private operations are performed; the owner of the local private operator; the effects of private sector inefficiency, distinguished between inflated pricing, reduced or deferred investment, and poor service quality; the factors of private sector inefficiency, or the tactics deployed by the private sector to extract net gains from local operations. These factors and tactics include: corruption; financial inducements to conceding authorities; tariff manipulation; transfer pricing; contract renegotiation; guaranteed profits; commercial confidentiality; anti-competitive behaviour; political risk management; and, extra-legal pressure. Finally, the tables indicate the submitted published work providing the evidence for these observations.

The two tables suggest that the pattern of monopolistic behaviour by private water operators is extensive. More precisely, the two tables identify 12 cases in high-income countries and 18 cases in middle- and low-income countries where opportunistic behaviour, in the form of a variety of tactics aimed at profit maximisation, results in private sector inefficiency. This finding is reinforced by **Lobina and Hall's (2008)** estimate that, between 1992 and 2006, 44% of privatised water contracts in the world's cities of more than one million inhabitants were affected by termination, disputes on possible termination, or other problems. The upshot is that rational choice expectations of the necessity of private sector efficiency in the urban water sector, as held by public choice and property right theory, are unfounded.

Evaluating theoretical expectations of public sector inefficiency

The evidence reviewed by the submitted published work shows that mainstream expectations of intrinsic public sector inefficiency in the urban water sector do not hold. In fact, both in the global North and South, public water operators can be efficient when compared to private operations or against industry standards. Illustrated in Tables 3 and 4 in Appendix 2, this finding is explained by the fact that the public sector is not subject to the profit maximisation imperative that is the characteristic attribute of private operators (**Lobina, 2013; Lobina and Hall, 2000, 2007, 2008**).

Tables 3 and 4 provide a synopsis of the evidence of efficiency by public operators, respectively in high-income countries and middle- and low-income countries, as evidenced in the submitted published work. Both tables list cases of public water operations and, for each case, indicate: the location where public operations are performed; whether the public operator is owned by municipal, provincial or national governments; the evidence of public sector efficiency, distinguished between satisfactory performance, improved performance, comparison with a private bid, horizontal benchmarking, and vertical benchmarking; the factors of public sector efficiency, or the institutional and organisational attributes explaining the observed efficiency. These factors include: democratic governance; policy learning; threat of privatisation; not-for-profit partnerships for capacity development; national law; regulation; transparency, accountability and participation (TAP); the absence of or limitations to profit motive; corporatisation; and, change in organisational scale. Finally, the tables indicate the submitted published work providing the evidence for these observations.

The two tables show that public sector efficiency is possible in high-income as well as middle- and low-income countries. More precisely, the two tables identify 9 cases in high-income countries and 9 cases in middle- and low-income countries where the performance of public operators compares positively with industry standards, has improved as a result of in-house

restructuring, or exceeds private sector performance. The observed public efficiency results from a combination of attributes of the organisational mode, such as the absence of profit motive, and the operators' ability to respond to societal demands, learn from other actors, and adapt organisational structure. The upshot is that rational choice expectations of the necessity of public sector inefficiency in the urban water sector are unfounded.

Discussion of findings: Causal mechanisms and relative efficiency

This section discusses how the findings from the submitted published work contribute to achieving the research objectives set out and filling the knowledge gaps left by mainstream theories of the firm. This discussion bears on the causal mechanisms of private sector inefficiency, public sector efficiency, and relative efficiency in the urban water sector. Here, the reviewed empirical evidence is commented upon with the help of the composite and realist analytical framework developed in this case for support.

Causality of private sector inefficiency

Tables 1 and 2 in Appendix 1 show that private inefficiency is observed in different socioeconomic contexts, under contracts operated by different multinationals, and in association to different contractual arrangements. Also, some of the private contracts reviewed have been awarded through competition for the market (e.g. Buenos Aires, Argentina); others in the absence of such competition (e.g. England and Wales, UK). Some contracts have been subject to independent economic regulation (e.g. Manila, Philippines); others to regulation by conceding authorities (e.g. Grenoble, France). Therefore, the occurrence of inefficiency cannot be attributed to location, corporate strategy, contractual typology, or regulatory regime. Instead, private sector inefficiency is the product of systematic interest-seeking behaviour (**Lobina, 2013, 2005**). Because all private firms pursue profit maximisation as their *raison d'être* (Friedman, 1953; Vickers, 1985), all private water operators are motivated by high-powered incentives to appropriate net gains. They can thus be expected to engage in opportunistic behaviour of the kind displayed in the 30 cases of PSP reviewed here.

Not only can private water operators take advantage of asymmetry of information to appropriate net gains. The relationship between private operators and conceding authorities is better described as one of asymmetric power where knowledge plays a central role in the ability of actors to achieve their strategic objectives. Superior expertise in drafting and negotiating contracts allows private operators to avert performance risk (**Lobina, 2005**). Private concessionaires may control knowledge flows with other actors to their advantage, for example by bartering limited technical assistance in exchange for contributions in kind to preserving the commercial viability of operations (**Lobina and Hall, 2008; Hall and Lobina, 2007**). Compounded by asymmetric information and limited competitiveness, superior professional expertise allows private operators to deploy a broad range of tactics to maximise profits, as illustrated by Tables 1 and 2. If relationships with contracting authorities become confrontational, private multinationals do not hesitate to exert legal or extra-legal pressure to guarantee the expected levels of profitability (**Lobina, 2013**). Asymmetric power means that private operators have the means to appropriate net gains.

Institutions constraining and regularising agency under PSP are biased in favour of private operators, who can thus take further advantage of asymmetric power. Superior expertise in renegotiating contracts induces private operators to proactively exert pressure on contracting authorities. This aims at revising contractual terms in favour of the operator and relies on the fact that contract law safeguards contractually agreed profit levels against change in circumstances. For private operators, this mechanism has the potential to turn an adventurous

bid into an economically advantageous deal. Renegotiation is thus systematic and sought shortly after the award (**Lobina, 2013, 2005**). The bias of contract law in favour of private operators also explains the resilience of private sector interests under adverse circumstances. Even in cases where contracts have been demonstrably found to be vitiated by corruption, private operators' strategic flexibility has been rewarded through payment of compensation settlements or the award of additional contracts (**Lobina and Hall, 2007; Lobina, 2013**). Favourable institutions encourage private water operators to test the limits of Williamson's (1976) prediction that only in extreme circumstances will private operations be terminated. Even when this eventuality occurs, compensation claims for damages and lost profits represent a last resort for seeking corporate interests (**Lobina, 2013, 2005**).

PSP is prone to what Williamson (1999) defines as maladaptation hazards, as institutional adaptability facilitates the attainment of private operators' objectives in conflict with the intended objectives of contracting authorities. Under PSP, institutional adaptability provides the conditions for private operators to deploy asymmetric power and appropriate net gains. In turn, contract law allows for the reproduction of power asymmetries in favour of private operators. The combination of asymmetric power and institutions favouring private interests is lowly remediable, as contracting authorities face high costs to steer private agents away from an undesired course of action. Under PSP, institutional alignment causes Willig's paradox: "it is the institutional framework expected to promote efficiency by shielding private operators from non-commercial demands (Willig, 1994) that allows private operators to abuse of their monopoly power" (**Lobina, 2013: p. 123**). The causal mechanism of private sector inefficiency in the urban water sector is the alignment of private operators' high-powered incentives to appropriate net gains with asymmetric power and favourable institutions.

Causality of public sector efficiency

Tables 3 and 4 in Appendix 2 show that public sector efficiency is possible in high-income as well as middle- and low-income countries. Since the public sector cannot be construed as representing an organisational monolith (Hall, 2007), this observation prompts a discussion of the attributes of public water operators that affect relative efficiency. It further requires an explanation of the possibility of public sector efficiency and inefficiency, and public water operators' ability to move from a condition of inefficiency to one of efficiency. More precisely, identifying feasible and successful operational strategies for public sector efficiency and organisational strategies for public sector reform is of interest here. Also salient in this discussion are the relationships between public managers and workers, public owners, and other actors external to the public enterprise that affect the relative efficiency of public water operators (**Lobina, 2013**).

Public water operators may adopt organisational modes ranging from administrative departments to corporatized agencies. Contrary to received wisdom (Baietti *et al.*, 2006), and as shown in Tables 3 and 4, non-corporatized public operators can perform well. The factors of efficiency shared by administrative departments and corporatized agencies include the absence of or limitation to profit making, and national law. The absence of the profit maximisation imperative means that the conduct of public operators can be informed by low-powered incentives to appropriate net gains. These incentives are reinforced by national legislation providing for cost recovery and ring-fenced accounts. As a result, public operators acquire the financial means and are institutionally constrained to reinvest profits in developing the local water system. In these cases, the alignment of the motivation for agency, means of agency, and influence of institutions results in relative efficiency (**Lobina, 2013**).

As illustrated by the cases of Phnom Penh, Cambodia and Tegucigalpa, Honduras, the high-powered incentives of public managers and workers can result in inefficiency. However, wrongdoing and inefficiency in the public sector are not inevitable. Institutional change can in

fact reduce power asymmetries between principals and agents, re-establishing hierarchy in principal-agent relationships between voters, governments, public managers and workers, and allowing a public operator to move from a condition of inefficiency to one of efficiency. In-house restructuring, or the institutional and organisational reform of public enterprise which excludes ownership change, can in fact align the incentives of politicians, public managers and workers with public service objectives and the interests of the served communities. This is exemplified by the cases of Phnom Penh after 1993 and Tegucigalpa after 1994. As illustrated by the case of Kaunas, Lithuania, the alignment of the low-powered incentives of public managers and workers, limited power to achieve collective goals, and poorly designed institutions for the achievement of collective goals may also result in inefficiency. However, this situation is remediable with capacity development, for example by engaging in public-public partnerships, and in-house restructuring (**Lobina and Hall, 2008, 2000; Lobina, 2013**).

A number of institutional factors can induce public sector efficiency, including democratic governance (**Lobina and Hall, 2000; Lobina, 2013**), public participation and coercion to adopt cost recovery and ring-fenced accounts via lending conditionality (**Lobina and Hall, 2008**). This broad range of strategies for public sector reform can change actors' attitudes and induce efficiency because the public sector is not subject to the profit maximisation imperative. Public participation is a case in point. While public enterprises can adopt advanced forms of participatory decision making, private operators do not go beyond consulting civil society to avoid undermining the profitability of operations (**Lobina and Hall, 2008, 2007, 2000**). The institutional factors of efficiency that impact on operational capacity also derive their effectiveness from the absence of profit motive. For example, public-public partnerships exclude profit-seeking and are premised on the mobilisation of knowledge as a public, not a private good (**Lobina and Hall, 2008; Lobina, 2013**).

Not only does the absence of profit motive make the alignment of attitudes, power and institutions more remediable and adaptable under the public than the private sector. It also is the ultimate cause of the relative efficiency of public water operations, which view efficiency gains as inputs for the production of outputs rather than outputs to appropriate. In other words, the reinvestment of cost savings in developing the local water system is conducive to the maximisation of outputs under public operations. In addition, injecting social considerations in the decision making process of public operators allows for enhancing allocative efficiency in two ways. First, by incentivising public operators to transfer net gains to the served communities and maximise output. Second, democratic governance and public participation may influence public enterprises to achieve the social, economic and environmental objectives that are a higher priority for the served communities. In what **Lobina (2013)** calls Lorrain's (1997) paradox and contrary to rational choice expectations, multiple agency and low-powered incentives are not the cause of public inefficiency, but the determinants of public superiority in promoting sustainable water service development.

A fundamental causal mechanism of relative efficiency

The alignment of high-powered incentives to appropriate net gains, the power to appropriate net gains, and institutions underpinning gain appropriation explains private and public inefficiency. The alignment of low-powered incentives to appropriate gains, limited power to achieve collective goals, and institutions poorly designed institutions for the achievement of collective goals may also explain public inefficiency. The alignment of low-powered incentives to appropriate gains, the power to achieve collective goals, and institutions designed to support the achievement of collective goals accounts for public efficiency. None of these alignments can be regarded as a fundamental causal mechanism of relative efficiency in the urban water sector, because all lack the generality to explain the occurrence of both efficiency and inefficiency. **Lobina's (2013)** remediable institutional alignment is a fundamental causal mechanism of relative efficiency because it is sufficiently general to reveal the cause of public

and private inefficiency, and public efficiency. In fact, it consists in the alignment of: a) actors' attitudes, including both high- and low-powered incentives to appropriate net gains; b) actors' power; and, c) institutions. Remediable institutional alignment's explanatory ability derives from the ability to account for all feasible alignments of attitudes, power, and institutions. Other causal mechanisms, for example the interplay of agency and institutions, might allow for a higher level of generality. However, the advantage of remediable institutional alignment is that it operationalises the duality of agency and structure contributing to a more accurate understanding of its implications for social causation.

Remediable institutional alignment is concerned with the comparative institutional analysis of organisational modes in the urban water sector. This requires the discriminating alignment of the attributes of public and private operations with the normative goals of water service provision. Hence, the criterion for the evaluation of the comparative advantage of public and private operations is twofold. On the one hand, the attributes of the two organisational modes are evaluated in light of their ability to achieve relative efficiency. On the other hand, the pursuit of sustainable water development requires an attention to adaptive performance, or the ability to achieve relative efficiency in a changing environment. Therefore, remediable institutional alignment goes beyond property right theory's unrealistic assumption that ex-ante incentives unproblematically lead to efficiency in the ex-post phase. Instead, it considers the organisational comparative advantage in maximising outputs from a given set of inputs in the short as well as in the long term. Remediable institutional alignment is concerned with both the operational flexibility to attain a variety of social, economic, and environmental objectives, and organisational adaptability to changes in circumstances.

Remediable institutional alignment predicts the necessity of private sector inefficiency and possibility of public sector efficiency. Private operators prioritise maximising profits over outputs because they are predisposed to and capable of doing so, and contract law enables them to do so. This alignment is lowly-remediable because it means that private operators afford resilience to sustainability-oriented change, as they are capable of resisting demands to pursue output over profit maximisation. Public operators are predisposed to achieving a multiplicity of public interest objectives and are not subject to the profit maximisation imperative. Their operational flexibility and institutional adaptability allow for relative efficiency but cannot prevent inefficiency. However, institutional change might enable a public operator to move from a condition of inefficiency to one of efficiency. In fact, institutions supporting public operations are designed to re-establish the intended hierarchy of principal-agent relationships in public enterprise governance. This alignment is highly-remediable because public operators are less resilient to sustainability-oriented change, as they are amenable to pursuing output maximisation. The upshot is that the public sector has a comparative advantage over the private sector in achieving relative efficiency, enhancing adaptive performance, and pursuing sustainable development objectives.

By predicting the necessity of private sector inefficiency and possibility of public sector efficiency, remediable institutional alignment innovates in relation to the extant theory of the firm. It does so in relation to the rational choice theory of the firm, as public choice and property right theory predict the necessity of private efficiency and public inefficiency. It does so in relation to the Williamsonian tradition of comparative institutional analysis which, in the absence of a complete operationalisation, predicts the possibility of public and private efficiency. It does so in relation to market failure, which predicts the necessity of public efficiency and private inefficiency. Remediable institutional alignment's predictions represent the rationale for the following prescriptions. First, policy makers should avoid privatising and introducing PSP in the water sector to avoid causing long-term extra costs for the served communities and undermining attempts to enhance sustainable water development. Second, policy makers should develop institutions designed to support the comparative advantage of the public sector in pursuing sustainable development objectives. Remediable institutional

alignment thus predicts market failure without assuming a benevolent government, and prescribes institutional change to underpin and secure public sector efficiency.

A heterodox and critical realist project

As a fundamental causal mechanism of relative efficiency, remediable institutional alignment is a core component of a prospective heterodox and critical realist theory of the firm. The notion of remediable institutional alignment has been developed through transcendental realism's three phases of scientific discovery. First, by describing the process and outcome of public and private water operations through years of empirical research. Second, by drawing on extant theory to develop a composite framework that is postulated to be a causal mechanism of relative efficiency in the urban water sector. Third, by demonstrating the existence and operation of the postulated fundamental causal mechanism of relative efficiency through the direct observation of remediable institutional alignment. Hence, remediable institutional alignment addresses the critical realist concern for identifying the fundamental causal mechanisms of social phenomena.

Remediable institutional alignment accounts for circular, cumulative and path dependent causation. Similarly to Liebowitz and Margolis (1995), remediable institutional alignment incorporates three degrees of path dependency albeit in function of the historical alignment of actors' attitudes, power and institutions. First, the alignment of high-powered incentives to appropriate net gains, asymmetric power and favourable institutions locks-in private sector inefficiency due to high resilience to sustainability-oriented change. Second, high-powered incentives do not necessarily lock-in public sector inefficiency as institutions designed to facilitate the achievement of collective goals may realign incentives from high- to low-powered. Third, low-powered incentives aligned to institutions underpinning the achievement of collective goals corresponds to positive path dependency under efficient public operations due to low resilience to sustainability-oriented change and adaptive performance. This non-linear account of causality in complex open systems contrasts with the deterministic linearity of rational choice narratives that neglect the behavioural flexibility of the public sector.

Consistently with critical realist emancipatory aspirations, remediable institutional alignment is more amenable to addressing issues of social justice than the extant theory of the firm. If depoliticising governance makes invisible the power relationships that reproduce social injustice (Swyngedouw, 2005; Cleaver, 2005), remediable institutional alignment's contribution to social justice is multifold. Inductively constructed and reflecting the duality of agency and institutions, remediable institutional alignment is concerned with the process and outcome of service delivery. It thus goes beyond a focus on ex-ante incentive alignment to reveal the ex-post consequences of institutional alignment for the intended beneficiaries of water services. It also avoids caricaturising government as inherently malevolent or benevolent to allow for the emancipatory possibility of democratic governance. Crucially, remediable institutional alignment mobilises the concept of networked power to operationalise the duality of agency and institutions. Together with its emphasis on allocative efficiency and adaptive performance, this attention to power contributes to credibly addressing social injustice.

Lobina (2013) identifies the main themes of a future research agenda for a heterodox and critical realist theory of the firm. First, elaborating on sustainable development as a social welfare function and defining attribute of transactions in the urban water sector. Second, formulating a behavioural assumption accounting for multiple rationalities and interdependent relations to offer a non-reductionist representation of agents' mental models. Third, identifying the attributes of diverse public organisational modes, from traditional public administration to corporatised enterprises, that enable sustainable water operations. Some progress in this direction has been made by **Lobina and Hall's (2014)** comparative institutional analysis of weak and strong forms of corporatisation. Fourth, investigating the role of informal institutions in remediable institutional alignment. In this sense, building on **Lobina (forthcoming, 2016)**,

the candidate has started work on wicked problems as institutional dilemmas that can be solved by understanding norms and customs. This bodes well for the development of the remediable institutional alignment project.

Finally, the remediable institutional alignment project promises insights relevant to the metatheoretical debates underpinning this case for support. Although this cannot be discussed in detail here, the differentiation between orthodox and heterodox economics remains highly controversial (Hodgson, 2006; Lawson, 2005; Colander *et al.*, 2007) and could benefit from greater conceptual clarity. The observation that Williamson (2002) distances himself from orthodoxy in light of the object of analysis, while Pratten (1997) regards Williamson as orthodox in view of the method of explanation, is a case in point. This suggests that the dichotomous distinction between outright orthodoxy and pure heterodoxy is inadequate to comprehend the diverse richness of economic positions. Developing the remediable institutional alignment project within the metatheoretical framework of orthodox and heterodox economics offers the possibility of future contributions to the debate on the nature of institutional economics.

Conclusions

This PhD by published work carries out a comparative institutional analysis of public and private operations of urban water supply and sanitation services in developed, transition and developing countries. The analysis of a unique body of qualitative empirical evidence has benefitted from an epistemic strategy combining theoretical bricolage and paradox, offering a socialised account of the agency of water service governance and identifying incongruities in rational choice narratives of relative efficiency. The thesis makes three main contributions.

First, mainstream expectations of superior private sector efficiency in the urban water sector do not hold. Second, mainstream expectations of intrinsic public sector inefficiency are unfounded. In fact, the alignment of actors' attitudes, power and institutions results in private water operators appropriating net gains at the expense of the served communities. Also, this alignment can and does lead to public sector efficiency. The profit maximisation imperative, which is inherent to the private sector and does not necessarily informs public operations, is the discriminant variable explaining these findings. Third, consisting in the alignment of actors' motivation, power, and institutions with sustainable development objectives, remediable institutional alignment is the fundamental causal mechanism behind relative efficiency in the urban water sector.

Remediable institutional alignment accounts for the necessity of private inefficiency and possibility of public efficiency. It thus innovates in relation to extant theories of the firm predicting the necessity of private efficiency and public inefficiency (public choice and property right theory), the possibility of public and private efficiency (Williamson's comparative institutional analysis), and the necessity of public efficiency and private inefficiency (market failure). Remediable institutional alignment's predictions support the prescriptions that the public sector should be preferred over the private sector to enhance sustainable water development and pursue social justice, and that in-house restructuring should be adopted to underpin and secure public sector efficiency and adaptive performance.

As such, remediable institutional alignment is a core component of a prospective heterodox and critical realist theory of the firm. These prospective heterodox and critical realist theory promises to operationalise comparative institutional analysis beyond Oliver Williamson's important contribution. Achieving this ambitious goal requires more precisely defining other components of a heterodox narrative of relative efficiency in the urban water sector, including the social welfare function of water services and a realist behavioural assumption. Crucially, this future research agenda involves explaining institutions in all their complexity and shedding

light on the interrelationship between the regulative, normative and cognitive elements of institutions implicated in water service governance. The body of published work submitted contains few observations on the role of norms in enabling and constraining agency in the water sector (**Lobina, 2013**). A critical realist agenda is apt to address this limitation, as critical realism's attention to interpretive frames as determinants of historical contingency promises to elicit relevant insights. Finally, this research agenda must include the extensive testing of the remediable institutional alignment proposition, for example by examining the microanalytics of hybrid organisational modes such as corporatisation. This analysis is deferred to future work.

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Appendix 1 – Cases of monopolistic behaviour by private operators

Tables 1 and 2 below provide a synopsis of the evidence of monopolistic behaviour by private operators, respectively in high-income countries and middle- and low-income countries, as evidenced in the submitted published work. Both tables list cases of water privatisation and PSP and, for each case, indicate: the city or region, and country where private operations are performed; the owner of the local private operator; the effects of private sector inefficiency, distinguished between inflated pricing, reduced or deferred investment, and poor service quality; the factors of private sector inefficiency, or the tactics deployed by the private sector to extract net gains from local operations.

The factors of private sector inefficiency and tactics deployed include: corruption (e.g. bribery of public officials); financial inducements to conceding authorities (e.g. payment of concession fees to local governments); tariff manipulation (e.g. provision of incorrect data to regulatory authorities, incorrect indexation of tariff formulas, overestimated demand in the form of overestimated consumption or population growth); transfer pricing (e.g. transfer pricing via subcontracting of works and service contracts to subsidiaries of the mother company); contract renegotiation (e.g. amendment of concession agreements or governmental licenses); guaranteed profits (e.g. fixed rate of return guaranteed in concession agreement); commercial confidentiality (e.g. secret tariff formulas, financial data, or contractual agreements); anti-competitive behaviour (e.g. unlimited duration of concession, or uncompetitive renewal of lease); political risk management (e.g. use or threat to use international arbitration in dispute); and, extra-legal pressure (e.g. unilateral suspension of concession fee payment or unilateral suspension of service delivery used as dispute solution mechanisms). Finally, the endnotes to the tables indicate the submitted published work that constitute the sources of the evidence.

Table 1. Cases of monopolistic behaviour by private operators (high-income countries)

No.	Country	City or region	Contractual arrangement	Private company	Effects of inefficiency			Factors of inefficiency									Source	
					Inflated pricing	Reduced investment	Poor service quality	Corruption	Financial inducements	Tariff manipulation	Transfer pricing	Contract renegotiation	Guaranteed profits	Commercial confidentiality	Anti-competitive behaviour	Political risk management		Extra-legal pressure
1	Belgium	Brussels	BOT (wastewater)	Veolia			x					x					x	Lobina (2013: 118)
2	Chile	Santiago	Concession	Suez	x							x		x				Lobina (2005: 60-61, 65)
3	Czech Republic	Ceske Budejovice	Divestiture	Anglian Water	x									x				Lobina and Hall (2000: 38)
4	France	Avignon	Lease	Veolia	x					x								Lobina (2013: 116)
5	France	Bandol-Savary	Lease	Veolia	x					x								Lobina (2013: 116)
6	France	Grenoble	Lease	Suez	x			x	x	x	x					x		Lobina and Hall (2007: 96-100)
7	France	Nice	Lease	Veolia	x					x				x				Lobina (2013: 116; 2005: 59); Hall and Lobina (2004: 270)
8	Germany	Potsdam	Lease	Suez	x									x				Lobina (2005: 65)
9	Germany	Rostock	Concession	Suez	x					x		x						Lobina (2005: 61)
10	Italy	Arezzo	Concession	Suez	x	x			x	x	x					x	x	Lobina (2013: 117)
11	Italy	Milan	BOT (wastewater)	Veolia	x			x										Lobina (2013: 119)
12	UK	England and Wales	Divestiture	Various	x	x	x			x		x		x	x			Lobina (2013: 117, 122); Lobina and Hall (2000: 38)

Table 2. Cases of monopolistic behaviour by private operators (middle and low-income countries)

No.	Country	City or region	Contractual arrangement	Private company	Effects of inefficiency			Factors of inefficiency									Source	
					Inflated pricing	Reduced investment	Poor service quality	Corruption	Financial inducements	Tariff manipulation	Transfer pricing	Contract renegotiation	Guaranteed profits	Commercial confidentiality	Anti-competitive behaviour	Political risk management		Extra-legal pressure
1	Argentina	Buenos Aires	Concession	Suez	x	x				x		x				x		Lobina (2005: 62, 64-65, 74); Hall and Lobina (2004: 271-272)
2	Argentina	Buenos Aires Province	Concession	Azurix			x									x		Lobina (2005: 65)
3	Argentina	Cordoba	Concession	Suez		x												Lobina (2005: 62)
4	Argentina	Santa Fe Province	Concession	Suez	x	x						x				x		Lobina (2005: 60, 62, 64, 68)
5	Argentina	Tucuman	Concession	Veolia	x	x	x									x		Lobina (2005: 65); Lobina and Hall (2000: 38)
6	Belize	National	Divestiture	Cascal	x	x												Lobina (2005: 62)
7	Bolivia	Cochabamba	Concession	International Water Ltd	x								x	x	x			Lobina (2005: 59; 66, 74-75)
8	Brazil	Campo Grande	Concession	Suez		x												Lobina (2005: 62)
9	Brazil	Paraná State	Concession	Veolia	x		x								x			Lobina (2005: 78)
10	China	Chengdu	BOT (bulk water supply)	Veolia; Marubeni	x					x								Lobina (2005: 61)

No.	Country	City or region	Contractual arrangement	Private company	Effects of inefficiency			Factors of inefficiency									Source			
					Inflated pricing	Reduced investment	Poor service quality	Corruption	Financial inducements	Tariff manipulation	Transfer pricing	Contract renegotiation	Guaranteed profits	Commercial confidentiality	Anti-competitive behaviour	Political risk management		Extra-legal pressure		
11	Guinea	Conakry	Lease	SAUR; Veolia	x					x					x					Lobina (2005: 67)
12	Hungary	Budapest	Concession	Suez	x															Lobina and Hall (2000: 37, 39)
13	Hungary	Szeged	Lease	Veolia	x						x						x			Lobina (2005: 65-66); Lobina and Hall (2000: 44)
14	Lesotho	Lesotho Highlands	Concession (bulk water supply)	Suez; Bouygues; RWE	x			x												Hall and Lobina (2004: 270)
15	Philippines	Manila I	Concession	Suez	x	x	x		x	x	x	x					x	x		Lobina (2005: 62, 64, 68, 71-72, 74, 76)
16	Philippines	Manila II	Concession	International Water Ltd			x			x							x			Lobina (2005: 62, 64, 76)
17	South Africa	KwaDukuza	Concession	SAUR	x	x			x	x		x								Lobina (2005: 61, 64); Hall and Lobina (2004: 270-271)
18	Turkey	Izmit	BOT (bulk water supply)	Thames Water	x					x		x								Lobina (2005: 61); Hall and Lobina (2004: 273-274)

Appendix 2 – Cases of public sector efficiency

Tables 3 and 4 below provide a synopsis of the evidence of efficiency by public operators, respectively in high-income countries and middle- and low-income countries, as evidenced in the submitted published work. Both tables list cases of public water operations and, for each case, indicate: the location where public operations are performed (at city, regional or national level); whether the public operator is owned by municipal, provincial or national governments; the evidence of public sector efficiency, distinguished between satisfactory performance (as per industry standards), improved performance (as a result of in-house restructuring), comparison with a private bid (e.g. an unsolicited bid to take over operations), horizontal benchmarking (e.g. the comparison with the performance of private operations in other cities), and vertical benchmarking (i.e. the comparison with the performance of private operations in the same city or operating area); the factors of public sector efficiency, or the institutional and organisational attributes explaining the observed efficiency.

The factors of public sector efficiency and institutional and organisational attributes include: democratic governance (e.g. political leadership, social mobilisation); policy learning (e.g. emulation of organisational and operational practice, coercion to corporate governance reform); threat of privatisation (i.e. governmental decision to introduce PSP); not-for-profit partnerships for capacity development (e.g. public-public partnerships, public-community partnerships, labour-management partnerships); national law (e.g. regulatory regime, contract law); regulation (e.g. regulation by public owners or a public agency); TAP (formal decision making mechanisms of transparency, accountability and participation); the absence of or limitation to profit motive (e.g. prohibition of or restrictions to the payment of dividends to public owners); corporatisation (e.g. in-house restructuring, managerial autonomy, cost recovery); and, change in organisational scale (e.g. inter-municipal mergers, extension of service area to adjacent municipalities, decentralisation). Finally, the tables indicate the submitted published work providing the evidence for these observations.

Table 3. Cases of public sector efficiency (high-income countries)

No.	Country	City or region	Ownership	Public enterprise	Evidence of efficiency					Factors of efficiency									Source	
					Satisfactory performance	Improved performance	Comparison with private bid	Horizontal benchmarking	Vertical benchmarking	Democratic governance	Policy learning	Threat of privatisation	Not-for-profit partnerships	National law	Regulation	TAP	No or limited profits	Corporatisation		Change in operational scale
1	France	Grenoble	Municipal	REG	x				x	x				x	x	x	x	x		Lobina and Hall (2007: 96, 98-107)
2	France	various	Municipal	various				x						x	x		x			Lobina (2013: 118); Lobina and Hall (2007: 102, 107)
3	Germany	various	Municipal	various	x			x										x	x	Lobina and Hall (2000: 42)
4	Lithuania	Kaunas	Municipal	Kauno Vandenys		x					x						x	x		Lobina and Hall (2008: 97-98); Lobina (2013: 119)
5	Netherlands	various	Municipal; Provincial	various	x								x	x	x	x	x	x		Lobina and Hall (2000: 41-42)
6	Poland	Łodz	Municipal	Łodz Water Company			x	x			x	x						x		Lobina and Hall (2000: 44-45, 47)
7	Sweden	Gothenburg	Municipal	Förvaltningen kretslopp och vatten				x					x				x			Lobina and Hall (2000: 40)
8	Sweden	Helsingborg	Municipal	NSVA				x					x				x	x		Lobina and Hall (2000: 40)
9	Sweden	Stockholm	Municipal	Stockholm Vatten	x	x		x					x				x	x		Lobina and Hall (2000: 40-41)

Table 4. Cases of public sector efficiency (middle and low-income countries)

No.	Country	City or region	Ownership	Public enterprise	Evidence of efficiency					Factors of efficiency										Source
					Satisfactory performance	Improved performance	Comparison with private bid	Horizontal benchmarking	Vertical benchmarking	Democratic governance	Policy learning	Threat of privatisation	Not-for-profit partnerships	National law	Regulation	TAP	No or limited profits	Corporatisation	Change in operational scale	
1	Brazil	Porto Alegre	Municipal	DMAE		x				x	x				x	x	x	x		Lobina and Hall (2008: 96-97); Lobina (2013: 119)
2	Brazil	São Paulo	State	SABESP	x	x				x	x							x	x	Lobina and Hall (2008: 97); Lobina and Hall (2000: 49-50)
3	Burkina Faso	National	State	ONEA		x			x											Lobina (2013: 120)
4	Cambodia	Phnom Penh	State	PPWSA	x	x												x		Lobina and Hall (2008: 93); Lobina (2013: 119-120)
5	Honduras	Tegucigalpa	State	SANAA		x						x	x					x	x	Lobina and Hall (2000: 47-48)
6	Hungary	Debrecen	Municipal	Debreceni Vizmu			x	x				x	x					x		Lobina and Hall (2000: 42-46)
7	India	Ahmedabad	Municipal	Ahmedabad Municipal Corporation		x							x							Lobina (2013: 119)
8	Philippines	various	Municipal	Water Districts	x			x					x		x	x		x		Lobina and Hall (2000: 51-52)

No.	Country	City or region	Ownership	Public enterprise	Evidence of efficiency					Factors of efficiency									Source				
					Satisfactory performance	Improved performance	Comparison with private bid	Horizontal benchmarking	Vertical benchmarking	Democratic governance	Policy learning	Threat of privatisation	Not-for-profit partnerships	National law	Regulation	TAP	No or limited profits	Corporatisation		Change in operational scale			
9	South Africa	Cape Town	Municipal	Water and Sanitation Department		x						x	x										Lobina and Hall (2000: 51)

Appendix 3 – Full text of papers included in the submission

This appendix contains the full text of papers included in the submission. These papers are listed at page 1 of this case for support.