

Public vs. Private Management in Water Services: Taking stock, looking ahead

Simon Porcher & Stéphane Saussier
EUI, FSR

Outline of the paper

- The paper is a literature review of public vs. private management in water industries
- The paper first reviews the pros and cons of private sector participation (PSP), particularly PPPs
- The paper then review the empirical literature on public vs. private management in water industries
 - Performance: price, technical efficiency, quality
 - Social indicators: coverage, water conservation, mortality
- The paper then comes with some policy recommandations to improve the use of private management

Motivation

- Global investments needed in water - 22.6 trillion by 2050 (OECD, 2015) - & Governments' financial constraints
- Private sector participation (PSP) might be a way to deal with these constraints:
 - Privatization
 - PPPs
- This paper focuses on PPPs

Different forms of PSP

Form	Ownership	Financing	Operations	Examples
"light" concession	Public	Public	Private	Côte d'Ivoire, France
Concession	Public	Private	Private	Used in Buenos Aires-Argentina, Jakarta.
Service contract	Public	Public	Public then private	Mexico City, Santiago-Chile, Madras
Management contract	Public	Public	Private	Cartagena-Colombia, Johannesburg, Mali
Build-operate-transfer	Private then public	Private	Private	Izmit-Turkey, Mendoza-Argentina
Sale of full divestiture	Private	Private	Private	England and Wales

Advantages of PPPs (1)

- Economies of scale
 - High fixed costs
 - Firms operating at a more global level than municipalities
- Economies of experience
 - Routines
- Economies of scope
 - Synergies
- Incentives
 - Competition for the market
 - Bonus and penalties
 - Risk sharing (production, operating costs and demand-related)

Advantages of PPPs (2)

- Difficulties in controlling public organizations
 - Various controllers with conflicting objectives (Laffont, 2000)
 - Outsourcing can be useful to implement controls
- Avoid political interference
 - Bureaucrats can divert from the economic objectives (Boycko et al. 1996)
- Global contract
 - « Package deal »: transparent costs / less political interference (Maskin and Tirole, 2008)
 - Investment in infrastructure to decrease op. / maint. costs (Bennett and lossa, 2006; Hart, 2003)
 - Scope & scale economies

Inconvenients of PPPs

- Incomplete contracts and opportunistic behaviors (Williamson, 1985; Klein et al. 1978)
 - Guash (2004): in Latin America, 92% of contracts in water were renegotiated, on average after 1.3 years
- Contestability by third parties and contract rigidity (Spiller, 2008; Moszoro and Spiller, 2012)
 - Rigid contracts increase transaction costs
- Importance of the institutional environment (Guash, 2004)
 - Presence of regulation authority
 - Macroeconomic environment, e.g. risk of devaluation

PPPs in water

- PPP and price

Work	Area	Period	Sample	Results
Martínez-Espiñeira et al. (2009)	Spain	2006	53 municipalities (over 100,000 inhabitants; 33.5% of the national population)	The private management of water services leads to higher prices.
Rüster and Zschille (2010)	Germany	2003	765 water utilities	Retail prices increase with private sector participation.
Desrieux et al. (2013)	France	2001-2008	~ 1,700 privately managed municipalities	The use of the same operator for both the distribution and the sanitation of water leads to a significant price reduction for consumers.
Barbosa and Brusca (2015)	Brazil	2005-2012	103 utilities	No significant tariff differences between public and private corporations.
Bel et al. (2015)	Andalusia	2009	715 municipalities (93% of the municipalities in the region)	Private firms with a larger market share make their dominant position effective by setting higher water prices.
Chong et al. (2015)	France	1998-2008	5,000 municipalities (75% of the population)	Users who live in small municipalities that provide water services through private management pay higher prices for water (~8%); there is no price difference between public and private management for larger municipalities.

PPPs in water

- PPP and efficiency

Work	Area	Period	Sample	Results
Bhattacharyya et al. (1995)	USA	1992	221	No significant differences in cost-efficiency between public and private production. Private is more efficient at small scales of operation, whereas public is more efficient at large scales.
Saal and Parker (2000)	England and Wales	1985-1999	10	Privatization does not induce cost reduction. Strict regulation induces cost reduction.
Estache and Rossi (2002)	Asia and Pacific	1995	50	Cost efficiency is not significantly different in private companies than in public companies.
Garcia-Sanchez (2006)	Spain	2006		No evidence of a difference in technical efficiency between public and private.
Kirkpatrick et al. (2006)	Africa	2000	76	Production form does not impact costs.
Le Lannier and Porcher (2014)	France	2009	172	Public management is more cost efficient than private management. Note that costs are proxied by revenues.
Stiel (2017)	Germany	2003-2012	2,325	No evidence of ownership on productivity.

PPPs in water

- PPP and water quality

Work	Area	Year	Sample	Results
Ménard and Saussier (2000)	France	1993 and 1995	2,109 French municipalities	No significant differences between public and private management.
Wallsten and Kosec (2008)	USA	1997-2003	53,245 water systems	Privately owned systems report fewer contaminant violations than locally owned systems but have somewhat more monitoring and violation reporting.
Porcher (2012)	France	1998, 2001, 2004, 2008	2,200 French municipalities	Significant positive impact of private management on water quality, measured as the percentage of successful compliance tests.
Lyon et al. (2017)	USA	2007-2014	179,927 water systems	Municipalization leads to significant and persistent improvements in performance. These improvements are particularly notable for large systems, systems located in areas with low educational attainment, systems with low poverty levels, and communities with a smaller number of systems.

PPPs in water

- PPP and coverage for the poor

Work	Area	Year	Sample	Results
Mckenzie and Mookherjee (2002)	Bolivia	1992-1999	La Paz, Alto, Cochabamba, Santa Cruz	Coverage increased for the top 4 quintiles but decreased by 0.6 points in the first quintile. Overall positive effects of price changes and coverage on consumers' welfare, except for Cochabamba.
Clarke, Kosec, and Wallsten (2009)	Argentina, Bolivia, Brazil,	1993-2003	158 cities	No impact on coverage when including control groups, i.e., coverage is linked to a trend rather than private sector participation.
Galiani et al. (2005)	Argentina	1990-1999	494 municipalities	Increased coverage by 4.2 points in privatized municipalities. Reduction of child mortality by 26.5%.
Lee (2011)	Malaysia	1993-1994; 1998-1999	14,631 and 9,198 households	Negative impact on access; negative impact on water affordability for the poor (but strong governmental tariff regulation).

Improving PPPs

- Contract management
 - Tender design
 - Evidence that negotiations, rather than auctions, can be positive in terms of procurement outcomes (Bajari et al. 2009; Coviello et al. 2017; Chever et al. 2017)
 - Contract design
 - Efficient risk allocation (Iossa et al. 2017): transfer risk to the private sector so that they chose the « best practice »
 - Standardizing contracts (↓ bribes & transaction costs) with motivated changes
- Regulation and institutions
 - Macro-stability, courts, efficient regulator or PPP units, transparency

Conclusions

- Results are non definitive on public vs. private management
- Improving regulation, contract and tender design might lead to some win-win consensus

Thank you !

simon.porcher@univ-paris1.fr