Public-Private Partnerships and Prices:
Evidence from Water Distribution in France *

Stéphane Saussier

ADIS GRJM– University of Paris XI Sceaux &
ATOM – University of Paris I Sorbonne

Corresponding address:
ATOM, University of Paris I Sorbonne,
112 bd. de l'Hôpital, 75013 Paris, France
ph: 33-6-77-19-72-16
fax: 33-1-44-07-83-20
saussier@univ-paris1.fr

Abstract:

In this paper we somewhat hope to partially bridge the gap that may exist between theoretical developments and empirical works concerning the efficiency of Public-Private Partnerships. Using an original database concerning 5000 choices made by French local public authorities, we explore the relationships between organizational choices and performances. Following a transaction cost economics approach (Williamson 1999), we make propositions and we test them econometrically. Such an investigation shed some light on two related questions namely 1/ how and why PPP are chosen by local public authorities and 2/ how PPP impact on performances. Results clearly show that contractual choices are not randomly chosen and that the involvement of private operators in the game may improve results, but not always. Furthermore, the capacity to organize competition for the market (ex ante transaction costs) appears to be a crucial element.

Key Words: public services, contractual choices, transaction costs, Public-Private Partnerships.
JEL Codes: H0, H7, K00, L33

0. Introduction

There has been a growing interest in economics with regard to alternative organizational arrangements in order to provide public interest services. More precisely, the optimal involvement of private operators in relation to market failures has been questioned. Following the UK privatization program in the 80's, one might look for a model to transfer ownership of infrastructure utilities from the public to the private sector. This transfer of ownership is based on the idea that market forces and private ownership can lead to better

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performances, for instance by insulating management by way of political interference (See Boyco-Shleifer 1996 for a specific model and Vickers-Yarrow 1991 and Vining-Boardman 1992 for a more general discussion on this issue). This increased control and incentives would favor reduction of costs (and prices if competition exists), improvement in quality and innovativeness of these activities. Solutions other than full privatization are also proposed, such as public-private partnerships (PPP).

The provision of public services may be provided by many organizational arrangements lying between the provision of the service by the government and the solution of complete privatization with a service provided by private operators. The involvement of a private operator may take several forms without turning to the solution of privatization such as contracting out, franchising or Private Finance Initiative strategies where the government may, for example, contract out the design, building, finance and operation of an infrastructure to a consortium of private firms. The boundary between several types of cooperation between the government and private operators such as Private Finance Initiative, Public Private Partnerships and Public Service Delegation is not always easy to draw (depending essentially on the way risks and investments are shared if we follow the French Legislation). In what follows, we will take an interest in PPP defined as a contractual agreement signed between the government (its representative) and a private operator in order to make investments and to procure a public service.

The way public services should be financed and managed is effectively illustrated by contract theories and the now old debate around "franchise bidding" as an organizational solution for local monopolies (Demsetz 1968, Goldberg 1976, Williamson 1976). Over the past decade, many developments have been made in the field of the theories of the firm (Garrouste-Saussier 2004). Such approaches and their recent developments may teach us many things on a related debate regarding how and why we should regulate the role of private operators in

providing public services. Identifying the (public) firm as a governance structure chosen when many others have failed (Williamson 1996, 1999) makes it necessary to carefully examine the alternative governance structures, contractual arrangements as well as their failures. Such approaches try to more broadly answer one general question: under what conditions may public goods be provided through competition (for the field and / or in the market) at price levels acceptable to consumers while maintaining a minimum level of quality.

On the theoretical level, several paths of analysis have been explored in an attempt to identify the essential parameters for understanding the efficiency/inefficiency of Public Private Partnerships.

Incentives appear to be crucial, and particularly low in a public arrangement (Laffont 2000). Nevertheless, public private partnerships are often characterized by frequent renegotiations that may limit their efficiency (Guash-Laffont-Straub 2002). Such possible costs of renegotiations are also noted by the incomplete contract theory, stressing the fact that contracts signed between government and private operators may be incomplete because needed investments may be non contractible (especially human investments). This framework points out that (1) even if a private operator has an advantage in terms of production costs and innovation capacities, there exists an adverse effect between cost and quality that may justify the service to stay within the scope of the government (Hart-Shleifer-Vishny 1997); (2) if the government decides to contract out the public service he may bundle, or not, the services of construction and management depending on the positive/negative externalities between the two stages of production (Hart 2003 and Bennett & Iossa 2004). This is a crucial issue for ex post performance.

A complementary approach is given by a transaction cost economics framework that focuses on contractual costs that may cancel the advantage in terms of production costs of a private

operator (Williamson 1976). Furthermore, the transaction cost theory points out that it is important to take into account the "potential" costs linked to contract breach since they may explain why specific public services stay within the scope of the government (Williamson 1999).

This paper is an empirical one. We somewhat hope to partially bridge the gap that may exist between theoretical developments and empirical tests. Using an original database concerning 5000 choices made by French local public authorities we explore the relationships between contractual choices, prices and quality of service using a transaction cost economics framework. We are interested in contracts signed between local public authorities and private operators for the production and distribution of water. Such contracts are incomplete, but problems with renegotiation do not appear to be the main issue (more on this later).

To understand why PPP differ in their performances from one local authority to another we focus on ex ante transaction costs that may arise in such relationships, showing that apart from these kinds of transaction costs, the French institutional environment is making contracts relatively safe for local public authorities.

Our study sheds light on this delicate problem by arguing that, advantages and drawbacks of PPP may change from one local authority to another depending especially on its ability to implement a competition for the market. Furthermore, our study is the first one to use such a sample of contracts between local authorities and private operators. This investigation clarifies two related questions: 1/ how and why PPP are chosen by local public authorities and 2/ how PPP impact performances. Results clearly show that contractual choices are not randomly chosen and the involvement of private operators in the game may improve results, but not always.

The paper is organized as follows. In a first section, we recall problems identified with the use of public-private partnerships for delivering public services. We specify how these problems may find solutions in public institutions or contractual arrangements, based on the French case. We develop propositions using a transaction cost economics framework. In a second section, we present the econometric results concerning the choice of public-private partnerships in the case of water distribution and the resulting efficiency observed. For this, we use a method that takes into account the fact that organizational choices made by local public authorities are endogenous. Conclusions follow.

1. The use of PPP for the distribution of water in France

1.1. The case of Water Supply in France: Overview

In France, as in most of the European countries, local public authorities[1] are in charge of the organization of local public services. More precisely, they are responsible for the existence and the operation of these services. The reason for this is that these activities have general interest attributes that prevent them from being provided through a private competitive market. As the organizer of the local public service, local public authorities must define the general principles governing the service (e.g. it has to monitor the prices, control the firms that enter the market, organize the competition, ensure that there is no durable interruption in the service provision etc…). In other words, there is no national regulator for these services.

Nevertheless, if the organization of the activity is public, the management of the service can be either public (*direct management*), or private (for more details see Huet-Saussier (2003). Local public authorities may decide to cooperate with an external operator[2]. If the municipality retains this option, it will have a wide variety of contractual arrangements at its

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[1] Essentially municipalities or trade unions comprising several municipalities.
[2] This is generally, but not necessarily, a private firm.

disposal. These contractual arrangements differ according to the importance of the firm's involvement in the service and therefore, the proportion of the risk that the external operator bears. The "*gérance*" contract is the one that most closely relates to direct management. The operator manages the service and is paid a fixed amount by the public authority. The "*intermediary management*" contract (in French, régie intéressée) has almost the same contractual arrangement as the "gérance" contract, except that a part of the operator's revenues depends on its performances. The final two types of contractual arrangements are usually referred to as "delegated management contracts". They differ from the previous forms of contractual arrangements by the way in which the operator is paid and by the investments that they bear. The *lease contract* (in French, affermage) implies a sharing of the investments between the municipality and the operator. But usually, the most important investments remain public. In this type of contract, the operator is no longer paid by the municipality but rather by the customer's bills. The well-known *concession contract* implies a higher degree of risk for the operator to the extent that it is responsible for all the investments occurring during the contract. The investments made by the operator in a lease or concession contract are transferred to the public authority at the end of the relationship, generally without any financial compensation.

Figure 1. Contractual options for local public services in France

Involvement level of the operator					
High					Privatization
				Concession	
Medium			Lease		
		Gerance & intermediary management			
Low	Direct Management				
Property	Public	Public	Public	Public	Private
Duration of the operator property rights	-	Short term	Medium Term	Long term	Perpetual
Level of delegation	-	Limited	Medium	High	Complete
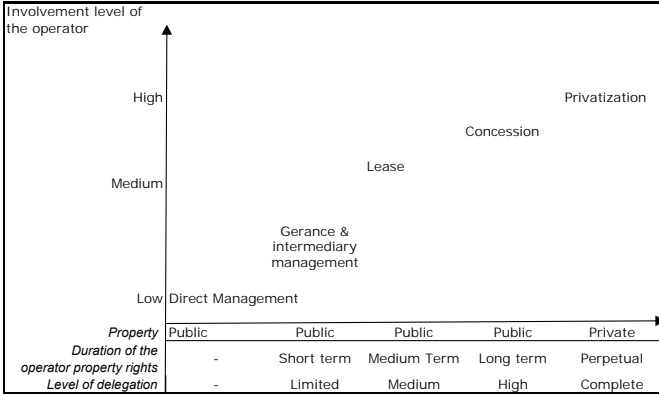
The originality of the French system of public services lies in the fact that for almost every local public service, local public authorities can choose to provide the local public service itself or to rely on a firm to produce and distribute the service. Furthermore, if the public authority chooses to let a firm produce and/or distribute the local public utility, there is a great variety of contractual options available. This great flexibility and freedom given to local public authorities in the organization of the management of local public services and in the contractual relationships with the private firm is characteristic of the "French system" of management of local public services[3].

The French system, due to the variety of contractual and governance arrangements, is therefore an exciting laboratory in analyzing the links between the methods of providing public services and the performances associated with organizational choices made by local public authorities.

1.2. Problems with the use of Public-Private Partnerships

Replacing "market failures" with "regulation failures" is not always justified or even necessary when competition within the market is impossible and could be replaced with competition for the market, involving a contractual arrangement between a public and a private agent. This idea, developed by Demsetz (1968), has since been challenged by many authors arguing that such a contractual arrangement is also characterized by many "failures" that may overcome those identified with public ownership, regulation or market.

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[3] This system is not unique in Europe, but the predominance of public management in most of the other European countries limits the number of options local public authorities have in organizing the management of local public services to the extent that, in these countries, private participation in the activity is often excluded (this is the case in Denmark, Sweden, Greece, Germany, Italy). However, in some of these countries (Germany, Italy, Benelux), even if public management still widely prevails, governments and local public authorities tend to be more and more interested in public/private partnerships, especially because of the financial and budget constraints. Finally, in England and Wales local public authorities compete with private firms for the management of local public utilities under the monitoring of the government that controls the anti competitive behaviors of the municipalities. In such a context, their freedom of decision is limited.

These problems have been accurately identified by transaction cost economics (Williamson (1976) and Goldberg (1976)). As noted by Littlechild (2002), "The Williamson-Goldberg view seems to have prevailed, at least in the economic literature" (page 4) even if subsequent empirical tests did not conclude in favour of such arguments (for example Zupan (1989), a,b).

Problems with the use of public-private partnerships come from the fact that transaction costs are not always inexistent or low enough depending on the kind of services that are studied. More precisely, a public-private partnership is characterized by three moments in time, each one potentially generating problems (See figure 2.).

Figure 2. The timing of a concession
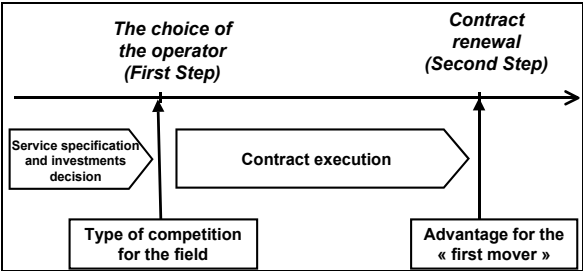
Source: Yvrande-Saussier 2004

At the beginning of the process, choosing the operator may be problematic since the initial award may often need to include not only one price, but a vector of prices to be determined depending on the type of clients or level of quality. Furthermore, if the criteria that is chosen to select an operator is based on the proposed price, then there is still a risk of "winner's curse" since the best offer may come from the most optimistic operator (endogenous duration contracts may give a partial solution to this problem (Engel-Fisher-Galetovic (1997)). This leaves open a question that has not been studied extensively regarding the type of competition for the field that may lead to the most efficient concession contract (See for example Bajari-McMillan-Tadelis (2003) on this issue, who show that, in many cases, negotiation is better than a bidding process to choose the operator). This also raises the question of investment

decisions and their repartition over the contract life. Many of the problems of concession contracts are associated with long term contracting and specific investments. Public authorities may decide to bear specific investments and then sign a short-term agreement for operating the service or they may decide to sign two contracts. One contract for investments in infrastructures and the other for operating the service (See Hart (2003)).

Once the operator is chosen, since "all complex contracts are unavoidably incomplete, the parties will be confronted with the need to adapt to unanticipated disturbances by reason of gaps, errors, and omissions in the original contract" (Williamson (2002)). This is especially true when the contracting parties are confronted with uncertain environments leaving room for opportunistic behaviors.

Lastly, at the contract renewal stage, there is an advantage for the winner of the original competition mainly because of the "fundamental transformation" that gives rise to specific human assets for the winner as compared to the other potential bidders. Furthermore, the winner is the party that is the more informed with regard to quality and the amount of investments made (e.g. amount of future investments needed to operate the service).

1.3. Institutional and contractual solutions

Problems associated with franchise bidding, and more generally public-private partnerships, are unavoidable but are not necessarily important enough to disqualify this governance structure for public services. Institutional and contractual solutions exist that may reduce problems identified by transaction cost economics (See for example the case of LUL-SPL concession contract analyzed by Littlechild (2002) showing the type of contractual solutions that are implemented to answer every problem identified in section 1.2.).

As noted in section 1.1., the French case is characterized by a great freedom in possible organizational choices to organize local public services. Nevertheless, it should be noted that

the institutional framework, in which such freedom is embedded, amplifies the discretionary power of local public authorities through the "*intuitu personae*" principle. Furthermore, the fact that such contracts are considered to be "administrative contracts" gives great power to the public contracting party.

Negotiation and competition for the field: the "intuitu personae" principle

If the public authority chooses a lease or a concession contract (e.g. chooses to let a private operator enter the game with long term contracting), the mechanism of selection of its partner consists of a two-step procedure:

- In the first step, the public authority chooses a certain number of potential candidates using a classical competitive tendering process.

- In the second step, there is a phase of negotiation between the public authority and the potential entrants. At the end of the negotiation, the public authority chooses its final partner for the duration of the contract.

What is important here is that the municipality is not obliged to choose its partner by complying with the objective criteria defined by law, as would be the case in a strict competitive tendering process. The existence of this two-step procedure gives more freedom to the public authority; it can select its partner more freely, using objective and also subjective criteria not necessarily specified by law.

This manner of proceeding is not necessarily associated with less efficiency. It may overcome many of the problems identified in section 1.2. concerning the choice of the operator. This is a good example of what is already emphasized in Bajari-McMillan-Tadelis (2003). There is a trade-off to be made between less competition for the field and fewer ex post transaction costs.

Contracts signed between local authorities and private operators are considered to be "administrative contracts". Such contracts are characterized by an asymmetric position between the public and the private contracting party and by a structured ex post renegotiation.

Asymmetric position

The asymmetric position of the contracting parties is reflected by the fact that the local authority may unilaterally change the contract terms once signed. Of course, such changes are to be justified (for public safety for example) and the private operator may claim fair compensation. Nevertheless, in case of conflict, the private operator must conform first before bringing the conflict to court.

This particularity of administrative contracts should be nuanced, especially because formal and real authorities do not always belong to the same party (Aghion-Tirole 1997). Local authorities do not often use this type of power. Nevertheless, it restrains the private operator from opportunistic behavior, because of the fear of the contract being terminated or changed unilaterally.

Structured ex post renegotiation

Due to the accurate definitions of quality and investments in the contracts and the characteristics of administrative contracts, the ex post transaction costs are adequately limited (European norms exist to determine the quality of the water distributed and there are more than 60 verifiable parameters controlled carefully by public agencies). The possibility of behaving opportunistically once the contract is signed, for example by renegotiating prices, is constrained by the fact that all renegotiations that significantly change the value of the contract oblige local authorities to re-engage a procedure of selection for a (possible) new private operator.

In conclusion, when taking these institutional characteristics into account regarding the case of water distribution in France, we believe that many drawbacks of PPP are restrained.

Nevertheless, three main drawbacks of the system can still be identified leaving open the question of the efficiency of public private partnerships: 1/ there is no ex ante competition between public management and public private partnerships; 2/ there is a low level of ex ante competition for the field; 3/ there is a low level of ex post competition at the time of contract renewal[4]. All these elements stress the possible problem of collusion that may exist between private operators and between private and public parties.

In our opinion, the main drawback is that ex ante competition is not assured. Mainly because 1/the local authority chosen according to the *intuitu personae* principle may lead to bad contractual choices (corruption is possible) but not always (Bajari-McMillan-Tadelis 2003); 2/ there are only three main private operators on the market sharing more than 90 % of the total market; 3/ small local authorities are not as attractive as larger local authorities; 4/ asymmetric information exists for the complex method of water treatment before distribution.

1.4. Efficient organizational choices for water distribution in France: Propositions

The problem identified with PPP in France concerning the distribution of water is the ex ante possibility of putting private operators in competition. As we have seen, several institutional mechanisms exist to control and limit other possible transaction costs.

Furthermore, as we suggested, there is a real difference between small local authorities and larger local authorities. The latter are able to reflect extensively on the contract terms and

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[4] Re-franchising at the end of the contracts is possible. Data concerning the percentage of renegotiated contracts with a change of private operator in France shows that more than 10% of renegotiated contracts are going to new private operators (Guérin-Schneider, Breuil, Bonnet 2003).

may expect the reputation effect to work, ex ante and ex post. This is certainly not the case for small local authorities.

-Production costs

If we take into consideration production costs only, following transaction cost economics, we assume that private operators would always win as compared to the public solution[5]. This is especially true when you consider complex transactions, where a specialized operator is needed to be efficient (e.g. in the case of water distribution, when the water needs complex treatments to be drinkable or when the network is complex to manage). But this is also true when you consider simple transactions because of scale economies.

-Transaction costs

Public solutions may appear efficient only in those cases where production costs' advantages of PPP do not exceed transaction costs associated with the contractual arrangement needed for PPP to exist. This is more probably the case (i.e. transaction costs are more probably high) when the contract is not attractive, and internal capabilities of local authorities and reputation effects are low. When these elements are present, a local authority may be reluctant to sign an incomplete long-term contract with a private operator because ex ante (and also ex post) transaction costs are prohibitive and gains in terms of production costs are reduced[6]. Those elements are typically present when you consider small local authorities.

This leads us to the following general proposition:

Proposition: *We expect public solution (make solution) to be more efficient compared to the public-private solution as soon as*

[5] We do not take into consideration the problem of the costs of financing projects that may be to the advantage of the public party (Piron (2004)).

[6] Remember that whatever the contractual arrangement is, and whatever the complexity of the transaction, investments made in order to distribute water are specific (site specificity in the transaction cost terminology).

- *the differential of production costs (scale economies or specialization economies) between the make and buy solution is low*

- *transaction costs are expected to be too high for PPP to be implemented.*

And to more precise propositions concerning efficient organizational choices resumed in figure 3:

Figure 3. The choice to make or buy for local public authorities.
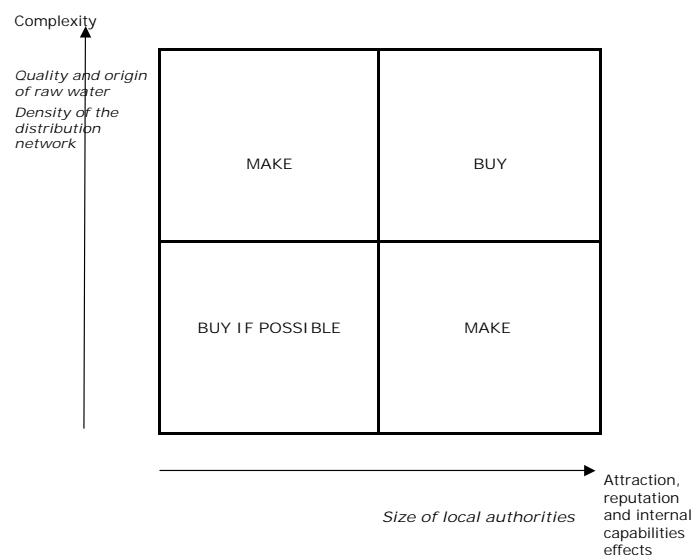
Small local authorities should not externalize the transaction when it is a complex one, because even if PPP benefit from specialized economies, ex ante and ex post transaction costs are prohibitive (complexity increase transaction costs) and the advantage of PPP concerning scale economies is reduced.

When the transaction is not complex (e.g. scale economies are important), the local authority should try to externalize the undertaking of contractual arrangements if possible (in many cases, small local authorities try to externalize but are unable to find an operator to answer their proposition. In such a case, the local authorities would group together).

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Larger local authorities should not externalize when the transaction is not complex, because they can profit from scale economies the same as an external operator could, without supporting any transaction costs. Nevertheless, when the transaction becomes complex, such local authorities should externalize toward more specialized, external, operators. This is at the expense of transaction costs, which can be moderated by the attraction, internal capabilities of the local authorities and reputation effects[7].

2. The efficiency of PPP for water distribution in France: an empirical analysis

2.1. Data

In France, for the case of water distribution, numerous empirical – non academic – studies exist comparing only the means associated with one organizational arrangement over another (price means, quality means…) and pointing out drawbacks associated with the public or the public-private organizational choices (Cour des comptes 1997, 2003). Few studies, whatever the field of investigation, try to econometrically assess performances of PPP, taking into account the endogenous nature of organizational choices (See Masten 2002 on this).

We combined data coming from the French Environment Institute (IFEN) and the French Wealth Ministry (DGS), concerning <u>5,000 local public authorities in 1998</u>[8]. This is a sample representative of the total population of French local authorities (e.g. all sizes of local

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[7] This is not to say that the complexity of the transaction and the reduction of the size of local authorities have only drawbacks. There is a trade off between variations of transaction costs, economies of scale and economies of specialization generated by more complex transactions or smaller local authorities. Driving clear propositions necessitate making further assumptions on the magnitude of those effects.

[8] All data comes from the French Institute of Environment (IFEN) and SCEES, with the exception of data concerning the type of treatment used for water before it is distributed that comes from the DGS (Direction Générale de la Santé). All data concern the year 1998.

authorities are proportionally represented in the sample, with the exception of large local authorities that are all included in the sample).

Governance choices

The database provides indications for each local authority with their organizational choices (see table 4. for precise definitions of variables).

Since local authorities may decide on different strategies concerning water production and distribution, we restricted our data to observations where water production and distribution are organized in the same way. This gives us a sample of 4443 observations. Furthermore, our sample accounts for 3613 observations used for the econometric studies (observations for which we have all the relevant information).

We know specifically what kind of contract the local authorities signed if they decided to externalize the provision of water to a private operator (Variables LEASE, CONCESSION, GERANCE, INTERMEDIARY MANAGEMENT – in all regressions, direct public management is our reference and therefore does not appear in regression results).

Table 1. The management of water distribution in France

Management of water distribution	Number of Observations	%
Direct Public Management	1303	36,1
Intermediary Management	140	3.9
Gérance	159	4,4
Lease contract	1919	53,1
Concession contracts	92	2,5
Total	3 613	100

Performances

*To asse*ss performances of PPP compared to direct public management, we use the price paid by the consumer for a yearly consumption of 120 cubic meters. We incorporate in this price a

fixed fee but no local or national taxes (Variable PRICE). We postulate that local authorities are looking for efficiency of local public services. Achieving this goal is obtained through a maximization of the social surplus connected with the search for a minimum price[9].

Performances could also be approximated with indicators concerning quality of the services or of the distributed water (See Ménard-Saussier (2002) and (2003) for an econometric study with these indicators based on another data base).

Explanatory variables

To assess the complexity of the service, we measure the density of the distribution network (Variables LOG VOLUME PER INHABITANT; LOG LINE PER INHABITANT). We also use variables measuring the complexity of the water treatments performed to by the operator before the water is distributed (Variables TREATWO, TREATA1, TREATA2, TREATMIXA3, TREATA3). These variables also correctly reflect the level of (specific) investments needed to operate the service. We expect the price to increase with the complexity of water treatments and with the complexity of the water network.

We also used Variable UNDERGROUND representing the fact that raw water comes from underground or from the surface. When the water comes from underground, the quality of the water is generally more stable over time reducing uncertainty about the evolution of the kind of treatment over the life of the contracts. We expect price to be lower when water comes from underground.

We add variables representing characteristics of the distribution network. The NUMBER OF STATIONS variable represents the fact that many stations are necessary for the distribution of water – e.g. topology of the geographic area is complex). The INTERCONNECTION variable

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[9] Other problems concern the way the surplus is shared between the local authority and the private operator that manages the service. Related to this problem is the fact that it is hard to believe that local authorities are looking only for efficiency when considering organizational choices for local public services. We take this into consideration in the empirical part of the paper.

represents the fact that the local authority in question is connected to another distribution network belonging to another local authority –e.g. the distribution is complex enough to necessitate cooperation between local authorities. The INTERAUTHORITY variable represents the fact that the service is organized at the level of several local authorities. We expect all these variables to increase the price of the distribution of water. The INDEPENDENCE RATIO variable, that captures the need for the local authority to import water in order to supply the demand, is supposed to reduce the price.

We also add another set of variables such as TOURISTIC AREA to account for the fact that the infrastructure may be over dimensioned because of seasonal variations of the population during the year; LEAK RATIO to control the quality of the network infrastructures; INVST PROGRAM, EXTENSION and REPLACEMENT variables to take into account the efforts made by the operator to extend and operate the service.

Lastly, we added control variables to capture the geographical zone (French Departments) in which the service is provide.

All variables used in the econometric studies are presented in Table 4 – control variables are briefly presented below this table).

Table 2. Definition of variables used

VARIABLES	DEFINITION	MEAN	MIN	MAX	Observations
PRICE	Price in euros, for production and distribution of water, taking into account fixed fee but not taxes	139,67	0,16	391,58	3613
DIRECT MANAGEMENT	Takes value 1 if the local authority operates the service itself	0,36	0	1	3613
GERANCE	Takes value 1 if the local authority signed a gerance contract	0,044	0	1	3613
INTERMEDIARY MANAGEMENT	Takes value 1 if the local authority chose the intermediary management solution	0,038	0	1	3613
LEASE	Takes value 1 if the local authority signed a lease contract	0,53	0	1	3613
CONCESSION	Takes value 1 if the local authority signed a concession contract	0,025	0	1	3613
TREATWO	Takes value 1 when raw water does not require desinfection treatment	0,017	0	1	3613
TREATA1	Takes value 1 when raw water needs a soft desinfection treatment	0,53	0	1	3613
TREATA2	Takes value 1 when raw water needs a desinfection treatment	0,18	0	1	3613
TREATMIXA3	Takes value 1 when raw water needs a heavy desinfection treatment & other kinds of treatment (A1 or A2 because water comes from different sites)	0,028	0	1	3613
TREATA3	Takes value 1 when raw water needs a heavy desinfection treatment	0,14	0	1	3613
UNDERGROUND WATER	Takes value 1 when water origin is underground		0	1	3613
TOURISTIC AREA	Takes value 1 when the area where water is distributed is a touristic area	0,13	0	1	3613
INHABITANTS	Number of inhabitants concerned by the contract	7795,75	12	800 550	3613
INVST PROGRAM	Takes value 1 when the contract specifies an investment program	0,53	0	1	3613
EXTENSION	Number of Km of network developed to extend the network	2,79	0	323	3613
REPLACEMENT	Number of Km of network developed to replace the network	4,01	0	516	3613
LEAKRATIO	Volume of lost water / size of the network	0,07	0	11,5	3613
NUMBER OF STATIONS	Number of stations needed to distribute water	0,84	0	112	3613
INTERCONNECTION	Takes value 1 if the local authority is interconnected with another one	0,57	0	1	3613
LIMITATION OF WATER VOLUME	Takes value 1 if consumed volume of water is constrained by reglementation	0,05	0	1	3613
LOG VOLUME PER INHAB.	Ln (Volume of water consumed per inhabitant)	-0,43	-2,26	2,64	3613
LOG LINE-INHAB	Ln (Number of Km of network/number of inhabitants)	-2,11	-9,42	1,62	3613
INDEPENDENCE RATIO	Total volume distributed / (total volume distributed + imported volume)	0,89	0	1	3613
THEORETICAL MISFIT (for lease contracts)	Takes value 1 for a local authority with (INHABITANTS <50 000) and ((TREATA3 = 1) or (LOG LINE-INHAB > Average)) decides to provide the service through a lease contract, 0 otherwise	0,11	0	1	1865
THEORETICAL MISFIT (for direct public Managt)	Takes value 1 for a local authority with (INHABITANTS > 50 000) and ((TREATA3 = 1) or (LOG LINE-INHAB > Average) decides to provide the service through direct public management, 0 otherwise	0,02	0	1	1099

Other control variables used in the econometric study: the area (France is divided in 100 "departments"); the technology used in measuring and controlling links on the network; the organizational choice made concerning the cleaning of used water.

2.2. Methodology

Unobserved attributes and price

We propose to account for the endogenous nature of the organizational choices that may bias results by coming up with econometric tests to directly link performances and organizational choices. As noted by Leiblen & al (2002), "While existing anecdotal and some large scale empirical evidence is suggestive of a direct relationship between vertical integration decisions and performance, this direct comparison is appropriate only if firms' governance choices are not influenced by other firm or transactional-level characteristics" (p. 820). We have the

same problem with the performance of public private partnerships. This point has already been emphasized in Masten (1993), Masten–Saussier (2002), Masten (2002) and Yvrande-Saussier (2004). Comparing simple means between organizational choices is one example of this naïve approach (as in table 5); it does not account for the possibility that each organizational choice is "specialized" based on simple or difficult transactions – for example the simple or complex treatment of water. Regressing organizational choices on performances is another example (the same as the first estimation in table 6).

Table 3. The management of water distribution in France and their specialization

Organizational choices	Mean (PRICE)	TREATMENT A1	TREATMENT A2	TREATMENT A3	Observations	%
DIRECT MANAGEMENT	116,81	58,00%	15,80%	7,50%	1303	36,06%
LEASE	148,8	56,00%	18,00%	11,50%	1919	53,11%
CONCESSION	141,61	41,00%	9,00%	35,80%	92	2,55%
INTERMEDIARY MANAGEMENT	156,12	5,00%	1,40%	84,23%	140	3,87%
GERANCE	201,23	19,00%	44,00%	22,00%	159	4,40%

The issue is the following. Let us suppose we observe (G_1, π_1) and (G_2, π_2). We would like to estimate what their performance π_i might have been if another strategy G_i had been chosen, and what would be the impact of a set of exogenous variables Z.

Therefore, one wants to estimate the following equations:

$$\pi_{1i} = \alpha Z_i + \varepsilon_{1i} \qquad\qquad (1)$$

$$\pi_{2i} = \beta Z_i + \varepsilon_{2i} \qquad\qquad (2)$$

Equations *1* and *2* may be estimated by the ordinary least square, using the sub-samples of firms choosing G_1 and G_2 only to the extent that all exogenous relevant variables are well known by the econometrician and that the set of internally (externally) sourced observations is a random sample of all observations.

Nevertheless, it is common to suppose the existence of unobservable variables that affect the performance outcome and that are also correlated with the organizational choice. It is also

natural to believe that a firm that chooses organizational choice G_2 may differ from a randomly selected firm in the population of firms. As explained by Hamilton and Nickerson (2003), the estimation approach depends on whether such unobservable variables exist and whether organizational choices are endogenous or not. If all variables that affect both performance and organizational choices are not known or organizational choices are not exogenous, then using the OLS procedure when estimating equations *(1)* and *(2)* could lead to a potential endogeneity problem[10]. This obliges the researcher to use methods to control for such endogeneity. This procedure accounts for the characteristics of the transaction on performance (on the market or in the firm) while simultaneously correcting the sample bias in the estimates.

The more rigorous way to assess the importance of governance choices for performance is to control for the selection bias of organizational choices using the econometric tools available for this.

The Heckman Method (Heckman (1979)) can be particularly successful in this regard. In a first step, we perform a regression concerning the organizational choices (Probit/Logit regression). In a second step, using the results from the first step through the estimates of the Mills ratio, we estimate equations *(1)* and *(2)* corrected from the selection bias. It can be done by estimating *(1')* and *(2')* using inverse Mills ratios (ϕ):

$$\pi_{1i} = \alpha X_i - \sigma_{u1}\phi + e_{1i} \qquad\qquad (1')$$

$$\pi_{2i} = \beta X_i + \sigma_{u2}\phi + e_{2i} \qquad\qquad (2')$$

The more important issue in the estimation is identification. Correcting for selection bias and endogeneity of organizational choices suggests that the researcher has one or more

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[10] $E\ (\pi_2\ /G_2,\ X) = E(X_i\beta + \varepsilon_{2i}|G_2) = X_i\beta + E(\varepsilon_{2i}|G_2)$. If *cov ($G_i$, ε_{2i}) ≠ 0,* as would be the case if there were unobserved factors that affect both the choice of strategy and performance, then $E(\varepsilon_{2i}|G_2) \neq 0$.

instrumental variables that affect strategic choices but do not directly impact performance[11].

Unfortunately, it is difficult to find instrumental variables that affect strategy choice but not performance.

Governance misalignment and price

Our propositions point out that governance misalignments should reduce efficiency. This misalignment may be appreciated through two methods.

Empirical misalignment

Firstly, we must consider the results of the estimates for the governance choice made by local authorities (See Leiblein & al. (2002)). When estimating, using a probit model for governance choice with $Y_i=1$ for direct management choice, the empirical misalignment is then defined as $1-P(Y_i=1)$. Thus, the governance misfit measures the probability that there is too much governance employed for transactions that are internally governed and the probability that there is too little governance employed for transactions that are organized through public-private partnerships. We create a MISFIT variable with this methodology.

Theoretical misalignment

Since we cannot assume that transactions we are studying are organized efficiently[12], we created the THEORETICALMISFIT variable that represents the fact that transactions are not organized in the manner predicted by our propositions. To create the variable, we consider a Misfit governance structure when direct management is observed in the case of more than 50,000 inhabitants, complex treatment of water (A3 treatment) or / and a number of kilometers of network per inhabitant that is more than the observed average for the sample (e.g. the situations in which transaction cost economics tell us that PPP are performing

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[11] If not, the inverse Mills ratio terms used in the second step of the Heckman method are simply non linear functions of Z_i so that parameters σ_{u1} and σ_{u2} measuring selection effects for each organizational choice are only identified by the normality functional form assumption. This often leads to very unstable and unreliable estimates of the parameters (Hamilton and Nickerson, 2003).

[12] As noted earlier, the way distribution of water is organized may be driven by efficiency considerations but also for political reasons.

efficiently). We used the same parameters to create this variable concerning lease contracts specifying that the choice of PPP is misaligned in an observed case of less than 50,000 inhabitants and complex treatment of water or / and a number of kilometers of network per inhabitants that is more than the observed average for the sample (e.g. situation in which PPP could perform efficiently but may also use private information to reduce ex ante competition). As our two propositions focused on the number of inhabitants on the one side and the complexity of the transaction on the other, we believe this way of defining theoretical misfit captures the impact on price for prescriptions that do not follow transaction cost economics.

2.3. Results

Following the Heckman method, we first tried to explain how local authorities made their choices concerning the decision to provide the service themselves or to cooperate with a private operator. Such a decision may be driven by efficiency considerations (Ménard-Saussier 2002 already showed, using another data base, that it is certainly the case concerning distribution in France). Therefore, variables affecting prices should also affect the organizational choice. Nevertheless, we might expect this choice to also be driven by political considerations.

That is why we regressed the organizational choices on variables used to explain the price of the distribution of water and added variables reflecting the fact that the operator is working in a particular Region since political interferences in France may come from the Regional level. Results concerning the organizational choices are presented in Table 6. We focus on the Lease vs. Direct Management choice (Independent variable takes value 1 for direct management) because other organizational choices represent only a small part of our data. That is the best we can do to avoid the lack of instrumental variables already discussed (See Nbp.7).

Table 4. The choice of local public authorities

	Robust Probit estimate	
	Coeff.	Std. Error
TREATWO	0,79***	0,23
TREATA1	-0,18*	0,09
TREATA2	-0,36***	0,11
TREATMIXA3	-0,37*	0,19
TREATA3	-0,60***	0,14
UNDERGROUND WATER	-0,13	0,11
TOURISTIC AREA	0,026	0,09
INHABITANTS	9,59e-06***	3,33E-06
INHABITANTS^2	-6,80E-12**	3,33E-12
INVST PROGRAM	0,16***	0,05
EXTENSION	0,0015	0,0021
REPLACEMENT	0,0031	0,0024
LEAKRATIO	-0,42*	0,24
NUMBER OF STATIONS	-0,08***	0,02
INTERCONNECTION	-0,28***	0,06
INTERAUTHORITY	0,32***	0,06
LIMITATION OF WATER VOLUME	0,47***	0,14
LOG VOLUME PER UNHAB.	0,08	0,07
LOG LIN-UNHAB	0,008	0,032
INDEPENDANCE RATIO	0,14	0,13
CONSTANT	0,09	0,52
Control Variables	Yes	
Pseudo R2 / % of correct predictions	0,25 / 75,6%	
Observations	2964	

Other control variables used in the econometric study: the area (France is divided in 98 "departments"); the technology used in measuring and controlling leaks on the network; the organizational choice made concerning the cleaning of used water, the Regional area in which the service provider operates.
Robust specifies that a Huber-White sandwich estimator be used, which corrects for heteroscedasticity.

Results clearly show that public authorities do not randomly choose organizational choices. This simple model accurately predicted more than 75% of the observed organizational choices, clearly an improvement as compared to a blind estimation that concludes that each observation is a lease contract (63% of the sample consists of lease contracts).

Direct management is most often chosen when the kind of treatment for raw water is simple. We can also note the non-linear effect of the size of the population concerned by the public service. These results support our main proposition.

Using these results, we computed the associated Mills ratios in order to correct for potential selection bias in our price regressions. Results appear in table 5.

Table 5. Price and organizational choices

	Robust OLS regression (1)		Robust OLS regression (sample restricted on direct management choice) (2)		Robust OLS regression (sample restricted on lease contracts) (3)		Robust OLS regression (sample restricted on direct management choice) (4)		Robust OLS regression (sample restricted on lease contracts) (5)	
	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
TREATWO	-13,70**	5,7	-12,01*	6,45	-16,60	17,54	-6,73	8,18	-22,83	17,69
TREATA1	-4,91**	2,29	-4,57	3,77	-3,89	3,15	-7,19	4,58	-3,33	3,25
TREATA2	6,07**	2,7	-0,70	4,05	6,58*	3,88	-4,01	5,77	7,47*	4,08
TREATMIXA3	9,52**	4,59	9,07	7,08	11,63	7,2	5,01	8,22	13,30*	7,67
TREATA3	7,84**	3,19	6,16	6,01	10,69**	4,61	-0,43	8,77	12,91**	4,99
UNDERGROUND WATER	-13,31***	2,56	-10,02**	4,93	-15,09***	3,83	-10,94**	5,1	-15,20***	3,84
TOURISTIC AREA	5,12**	2,08	5,97*	3,43	5,88**	3,07	5,49	3,51	5,96*	3,09
INHABITANTS	-0,000078	6,12E-05	-0,000087	0,00011	-0,00032***	0,0001	-0,00002	0,00019	-0,00033***	1,10E-04
INHABITANTS^2	1,05E-10	5,58E-11	4,50E-10	6,00E-10	2,91E-10***	1,09E-10	3,48E-10	7,06E-10	2,95e-10***	1,12E-10
INVST PROGRAM	-0,37	1,35	0,088	2,25	-0,50	1,83	2,12	2,9	-1,66	1,96
EXTENSION	-0,057	0,039	-0,12*	0,065	0,025	0,05	-0,11*	0,065	0,015	0,053
REPLACEMENT	0,067*	0,037	0,12***	0,046	0,20***	0,079	0,16***	0,05	0,18*	0,09
LEAKRATIO	1,54	1,66	-5,34	6,07	2,38	1,9	-10,99	7,06	2,96	1,98
NUMBER OF STATIONS	0,16	0,2	1,47	1,63	0,064	0,2	0,57	2,19	0,13	0,17
INTERCONNECTION	4,85***	1,43	-0,098	2,17	7,51***	2,13	-2,84	3,73	8,55***	2,47
INTERAUTHORITY	19,01***	1,57	17,79***	2,63	21,41***	2,15	13,24***	4,18	22,12***	2,56
LIMITATION OF WATER VOLUME	-0,27	3,16	-6,43	5,49	6,6	4,32	-1,52	7,06	4,62	4,86
LOG VOLUME PER UNHAB.	-14,64***	1,8	-15,60***	3,29	-13,12***	2,48	-15,44***	3,85	-13,05***	2,52
LOG LIN-UNHAB	8,01***	0,98	7,57***	1,26	7,22***	1,68	7,70***	1,43	7,46***	1,7
INDEPENDANCE RATIO	-11,54***	3,01	-25,36***	6,51	-9,49***	4,14	-22,73***	6,73	-10,73***	4,29
LEASE	26,70***	2,33	-	-	-	-	-	-	-	-
CONCESSION	23,78***	4,26	-	-	-	-	-	-	-	-
GERANCE	23,67***	4,84	-	-	-	-	-	-	-	-
INTERMEDIARY MANAGEMENT	29,01***	5,29	-	-	-	-	-	-	-	-
ρ	-	-	-	-	-	-	-19,93	15,79	7,6	9,48
CONSTANT	160,29***	10,02	166,52***	19,89	180,21***	11,13	146,69***	28,24	176,30***	12,8
Control Variables	Yes		Yes		Yes		Yes		Yes	
R2	0,50		0,35		0,48		0,34		0,48	
Observations	3613		1303		1919		1099		1865	

*** denotes significance at 1% level; **denotes significance at 5 % leve ; * denotes significance at 10% level; coefficients without stars are not significant.
Robust specifies that a Huber-White sandwich estimator be used, which corrects for heteroscedasticity.

The first column presents a simple regression of performance (e.g. price) over an already presented set of variables and organizational choices. In this naïve estimate, we clearly see that direct management appears to be the best way to organize the service, as long as price is the best performance indicator. Choosing another organizational arrangement increases the total bill for a customer – from 23 € to 29 € as compared to the mean bill of customers in the database that is 137 €.

Nevertheless, going a step further, we estimate equations (1) and (2) – corresponding to regressions 2 and 3 in table 5. We therefore permit the strategy effect to vary for different values of other explanatory variables – more precisely, estimated coefficients are no longer restricted to being equivalent across the direct management and lease choices. Clearly all variables still have the expected sign. Nevertheless, we can note that the constant term is different from one organizational choice to another. Furthermore, the size of the population

plays a direct role when the local public authority decides to distribute water through a lease contract. This effect is not present in direct public management cases. This could be explained by the fact that the size of the population is a good proxy of the negotiation power and capabilities of local authorities to put private operators in competition for the market.

Another matter of interest for us would be to know what price gain the local authorities, that chose to provide the service by themselves (no longer a local authority chosen at random), achieved by following this strategy instead of the lease strategy, and vice versa. Taking into account the selection bias of the organizational choices made by public authorities, results are presented in regressions 4 and 5. Let us say that S_1 is the strategy of a local public authority to internalize the provision of the public service, results show that $\sigma_{u1} = \sigma_{u2} = 0$. Then we have to conclude that local authorities that decided to provide the service in direct public management have no advantage or disadvantage over those that did not and thus selection bias is not a concern[13]. The fact that our selection terms are not significant also suggests that other factors, for example, the preexisting strength and weaknesses of the local authority, do not play a role on price performance.

Using these results, we can calculate, on average, what the effect on price is when choosing the direct public management solution instead of a leasing contract. Results are given in table 6.

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[13] This result may be due to colinearity problems of the Mills ratios. The Vif (variance inflation factors) tests confirmed this problem. If we estimate prices without our control variables (e.g. without departments concerned by the distribution of water), then we obtain a ρ that is negative and highly significant in equation (5). This means that there is negative selection in the strategy that requires local authority choose the lease contract for distributing their water. In this case, if the local authorities who decided to manage this service directly decided instead to sign a lease contract with an external operator, their performance would have been better than that of local authorities actually choosing lease contracts.

Table 6. Estimated average prices for each governance choice

	Direct Management observations (n=1099)	Lease Contracts observations (n=1865)
Estimated prices		
Mean price if all services are provided through Direct Management	114,99	124,11
Mean price if all services are provided through Lease Contracts	136,61	148,8

Local authorities who decided to provide the service through direct management do better than if they had decided to provide it through a lease contract. On the other hand, local authorities who decided to provide the service through lease contracts would have done better if they had decided to provide it through direct management. These results seem to indicate that the drawbacks of public private partnerships may cancel, in many cases, the advantages in terms of production costs associated with such organizational choices. Nevertheless, the observed differences, in terms of price, are not so important when compared to a case where endogeneity problems are not taken into account.

Another question concerns the manner in which organizational choices are decided. Table 4 shows that such choices may be partly explained. Nevertheless, the theory tells us, in a normative way, when local authorities should decide to sign lease contracts (See our propositions). In order to test how organizational choices, that do not fit with the theory's propositions, perform compared to the choices that conform to the theory's predictions, we created the variables MISALIGN and THEORETICALMISALIGN. Taking it a step further, we regressed the price using the Misalign variables. The results are given in table 7.

Table 7. Price and organizational choices

	Robust OLS regression (sample restricted on direct management choice) (6)		Robust OLS regression (sample restricted on lease contracts) (7)		Robust OLS regression (sample restricted on direct management choice) (8)		Robust OLS regression (sample restricted on lease contracts) (9)	
	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
TREATWO	-6,47	8,6	-22,92	17,58	-6,24	8,22	-22,66	17,74
TREATA1	-7,26	4,64	-3,33	3,25	-6,99	4,58	-3,27	3,24
TREATA2	-4,13	5,89	7,45*	4,09	-3,75	5,77	7,49*	4,07
TREATMIXA3	4,88	8,35	13,27*	7,67	4,88	8,13	13,18*	7,69
TREATA3	-0,65	8,3	12,87**	5,03	-0,74	8,75	-4,48	9,83
UNDERGROUND WATER	-11,01**	5,06	-15,21***	3,84	-10,94**	5,08	-15,13***	3,84
TOURISTIC AREA	5,5	3,53	5,94*	3,09	5,34	3,52	5,97*	3,09
INHABITANTS	-0,00003	0,0002	-0,00033***	1,10E-04	-0,00014	0,0002	-0,00030***	1,30E-04
INHABITANTS^2	3,50E-10	7,06E-10	2,94E-10***	1,13E-10	6,69E-10	6,72E-10	2,62E-10***	1,22E-10
INVST PROGRAM	2,17	2,97	-1,65	1,96	2,39	2,9	-1,70	1,96
EXTENSION	-0,11*	0,06	0,015	0,053	-0,11	0,072	0,012	0,053
REPLACEMENT	0,16***	0,05	0,18*	0,09	0,17***	0,056	0,18*	0,09
LEAKRATIO	-11,08	7,12	2,96	1,98	-11,30	7,1	2,99	1,97
NUMBER OF STATIONS	0,55	2,2	0,13	0,17	0,47	2,19	0,13	0,18
INTERCONNECTION	-2,93	3,92	8,53***	2,49	-2,61	3,71	8,55***	2,46
INTERAUTHORITY	13,13***	4,38	22,09***	2,58	12,67***	4,23	22,22***	2,55
LIMITATION OF WATER VOLUME	-1,39	7,18	4,66	4,82	-1,76	7,06	4,58	4,81
LOG VOLUME PER UNHAB.	-15,41***	3,86	-13,05***	2,52	-15,16***	3,87	-13,10***	2,51
LOG LIN-UNHAB	7,70***	1,43	7,46***	1,7	7,44***	1,42	7,54***	1,71
INDEPENDANCE RATIO	-22,66***	6,7	-10,71***	4,29	-22,42***	6,73	-10,77***	4,29
LEASE	-	-			-	-		-
CONCESSION	-	-	-	-	-	-	-	-
GERANCE	-	-	-	-	-	-	-	-
INTERMEDIARY MANAGEMENT	-	-	-	-	-	-	-	-
ρ	-18,30	21,5	10,47	26,71	-20,71	15,82	7,71	9,48
MISFIT	3,99	41,84	4,99	46,58				
THEORETICAL MISFIT					18,84*	10,61	17,69*	9,18
CONSTANT	145,98***	29,55	176,36***	12,8	145,61***	28,28	176,31***	12,8
Control Variables	Yes		Yes		Yes		Yes	
R2	0,34		0,48		0,34		0,48	
Observations	1099		1865		1099		1865	

*** denotes significance at 1% level; **denotes significance at 5 % level; * denotes significance at 10% level; coefficients without stars are not significant. Robust specifies that a Huber-White sandwich estimator be used, which corrects for heteroscedasticity.

Results indicate that local authorities who decided to provide the service through direct management, in cases where transaction cost economics would recognize the superiority of public private partnerships, are doing worse than local authorities who decided on such organizational choices supported by transaction cost economics (regression 8). We observe the same negative effect for local authorities who decided to provide the service through PPP in cases where transaction cost economics would recognize the superiority of direct public management.

What about contractual choices?

One possible limit for such a result is that the efficiency of organizational choices is connected to contractual choices. Every public service governed by a lease contract for

example, may not contain the same contractual provisions. Some contracts may be more incentive than others, anticipate investments differently, and share risk differently... This is a problem because we only have data concerning the organizational choice, and no data concerning duration, price provisions, penalties, controls as well as many other relevant contractual provisions that may affect performances between lease contracts and between lease contracts and direct management. Although this problem is a serious one, it may be less serious in the case of French distribution contracts, because, until 1982, all water contracts were signed following an obligatory contract model specifying duration, price provisions and so on. Furthermore, in a previous study, we collected 150 French Water contracts (Ménard-Saussier 2003) and we observed that even after 1982, price provisions were mostly identical from one contract to another. It was only the durations and the level of completeness of the contracts (especially control levels and penalties) that evolved toward more control coming from local authorities. Therefore, there is no trade off between price cap and cost plus contracts depending, for example, on the complexity of the transaction (See Bajari-Tadelis 2001[14]). Signed contracts are essentially price-cap contracts because it is difficult for local authorities to raise funds during a contract, which would have to be previously voted on and discussed, rendering cost-plus contracts difficult to implement. That is why we are confident that the main trade-off is between public solution (low incentives but few transaction costs) and PPP (price cap contract with a private operator – high incentives but possible ex ante and ex post transaction costs) in an environment that is uncertain.

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[14] In their paper, the authors make the proposition that simple projects will be procured under fixed-priced contracts and will be accompanied by high levels of design completeness (low probability of renegociation) (page 388). On the other hand more complex projects will be procured using cost plus contracts and will be accompanied by low levels of design completeness (high probability of renegotiation). We ignore such trade-off because we think it is irrelevant in our case.

In an attempt to go a step further, we add data concerning the duration of contracts and the date they were signed into our data[15]. It appears that the mean duration of new distribution contracts signed between 1997 and 2001, corresponding to 347 observations in our database is 11.4 years with a maximum of 21 years. If we now look at the duration of the other distribution contracts of our sample (e.g. signed before 1997), the mean duration is 19.5 years, with a maximum of 71 years (corresponding to 1,062 observations). This indicates that contract terms, at least duration, evolve through time and looking at the performances of lease contracts as a whole, may hide the many disparities between contracts[16].

Conclusion

This study examines the relationship between governance choice made by local public authorities in France for the distribution of water to citizens and the performance measured in this case by prices. The underlying theoretical question is whether organizational choices matter.

Two main findings are presented. Firstly, in contrast to popular arguments suggesting that public provision of water will lead to superior performance in terms of price, this study shows that governance decisions per se do not influence price directly. Rather, observed differences in the price of transactions governed by different organizational choices are driven in part by factors underlying governance choice (e.g. public vs. private provision of the public service). The relationship between governance choice and price is dependent on the ability of local authorities to put private operators in competition "for the market" and the ability of the private operators to really use their capabilities in order to reduce prices. We therefore

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[15] Data comes from a new base constructed by the French Institute of Environment, concerning the same local authorities that we are studying, but the contractual arrangements in force are from 2001 instead of 1998.

[16] If we incorporate in equation (9) the duration of the contract as an explanatory variable, the duration has a significant and positive impact on observed prices. But of course, duration is an endogenous variable. The date of signature of the contracts does not appear to have an impact on observed prices or the end date of the contract.

caution against drawing universalistic normative implications on the way public services, and especially the distribution of water should be organized. Without any change in technology used or institutional environment, public private partnerships may well continue and will not completely displace the direct public provision of water.

Secondly, based on transaction cost economics, we found that deviation from the optimal form of governance may have a detrimental effect on price. This effect also suggests that other dimensions of performances (e.g. quality, investment levels…) may be affected and should be studied.

This paper also offers some interesting implications for future research. An attractive opportunity for research would be to extend this framework by analyzing whether and how other dimensions of performances are affected by governance choices or by analyzing whether and how other dimensions of governance structures influence performances (like for example the incentive levels, penalties, duration of lease contracts that may differ from one contract to another). Furthermore, collusion strategies and multi contact markets may be useful to analyze the way prices are negotiated between external operators and local public authorities.

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