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Regulatory models for water and sanitation  
services in Europe

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# Water regulation in Europe

**Similar (initial) issues but many regulation models**

**Why such a diversity? A transaction cost perspective**

**Some kind of convergence?**

# Similar initial issues ...

## Regulation issues:

- Natural Monopoly
  - Specific investments
- Asymmetry of information.
  - Possible abuse by the monopolist operators (Laffont-Tirole 1993)
  - Mistrust amongst consumers with regard to the quality of services provided – price – transparency issue

# Similar initial issues ...

## Regulation issues also because:

- Widespread domestic consumption
- Essential and “sensitive” service.
  - Pricing is a political issue
  - (Spiller 2008): Two (additional) types of opportunism: **governmental** and **third-party** opportunism

# “Third-party opportunism” in a Nutshell

- Mainstream contract theories deals with incentives and frictions of the contracting parties
- But there may be third parties ...



Figure: Monster-in-Law

- ... not necessarily interested in the success of the relationship (political opponents, excluded bidders, and interest groups)

# Similar initial issues ...

## **By the end:**

- Regulation must balance a range of economic, social and environmental interests.
  - Regulation of water services is not only about tariff setting
  - Also the setting and monitoring of standards for access to and quality of services, efficiency incentives, collection of information and monitoring of performance, the organization of users' participation as well as transparency issues dealing with third parties.

# ...but many regulation models with their advantages and drawbacks

## **Three typical models**

- Regulation by government / public operators model
- Regulation by contracts / private operators model
- Regulation by an agency

# Regulation models in Europe

- **Regulation by government** (direct public management, in house)
  - The public sector is responsible for the management of the water services and owns the assets.
  - The provision of the WWS is delegated to public or semi-public water operators
  - Operator sets its own rules (QoS, price), within a given framework (national or wider)
  - The regulatory functions are carried out directly by the State at its different levels (central, regional, municipal).
  - Ex: Germany, Netherlands, ...
    - Germany: 6,560 water supply utilities and 6,700 waste water companies.

# Regulation models in Europe

- **Contractual regulation – “French Model”**
  - Contract between the delegating authority and the operator. This contract embeds its own regulation devices
  - Includes/excludes investments
  - Competitive award procedure
  - Ex: Spain // France and its 13 800 water services
    - Part of them are publicly directly managed
    - Most of them are contracted out (65%)
      - 600-900 call for tenders every year

# Regulation models in Europe

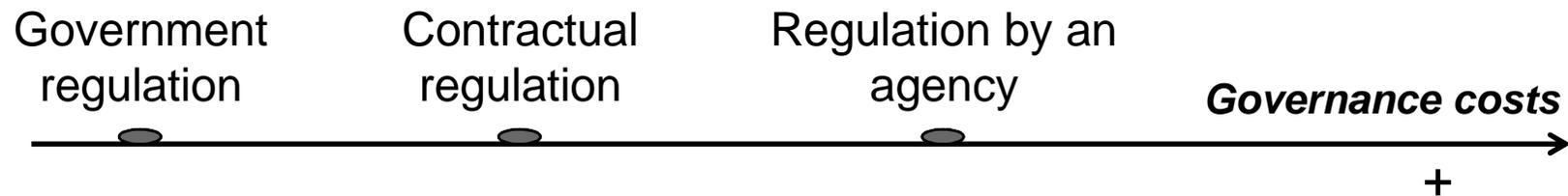
- **Regulation by an agency**
  - Independent regulating body setting conditions for the operator(s)
  - Usually associated with centralization and yardstick competition model.
  - Ex.: England and Wales, Scotland, ...
    - OFWAT and its 32 privately-owned companies in England and Wales

# In reality a continuum of models

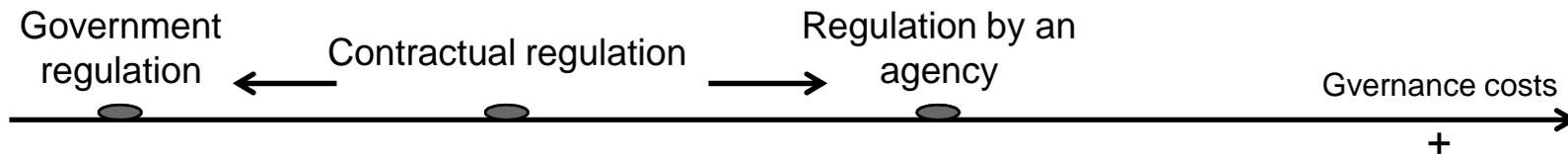
- **Regulatory models are not mutually exclusive**
  - Regulatory frameworks adopt features of the different models described above.
    - For example, countries with contract agreements have not been prevented to create dedicated WWS regulatory agencies to supervise the quality of service and to intervene in case of conflicts
      - E.g. ONEMA and France

# Why such a diversity?

- **Transaction costs of regulatory models differ**
  - Regulatory body can be seen as an expensive governance structure that is needed (justified) as soon as contractual problems are too important
  - Similar to make or buy issues (Williamson 1985) but governmental and third party opportunism is added (Spiller 2008)



# Limits of regulation by contracts leads to agency or gvt regulation



**Competition for the market instead of market competition (Chadwick 1859, Demsetz 1964, Williamson 1976) but:**

- Limits of call for tenders
  - Athias, L. et Nunez, A., (2008), Bajari, P., McMillan, R. et Tadelis, S., (2009), Decarolis, F., (2013), ...
- Limits of contract execution
  - Guasch (2015), Estache & Saussier (2014), Spiller (2008) ...
- Need for more transparency
  - Saussier & Tirole (2015),...
- Need for more benchmarking
  - Shleifer (1985),...

# Are those limits important in the water sector?

Chong-Saussier and Silverman 2015 – Forthcoming in the *Journal of Law, Economics and Organization*

Collaboration with the French water regulator (Onema) that came to see us with several questions:

- 1. What are the driving factors of water prices?**
- 2. Is the governance choice a driving factor?*
- 3. Are local authorities rational? Do they use the renewal times of public private contracts in order to penalize inefficient private partners by not renewing them?*

# Our Data Set: Panel data concerning 5 000 municipalities observed in 1998, 2001, 2004 and 2008 representing 75% of the French consumers

## ■ Price:

■ *Price for a consumption of 120m<sup>3</sup> without any tax*

## Data concerning:

- Technical differences:
  - Network Size,
  - Consumption,
  - Population Growth,
  - Network Renewals,
  - Rate of Leakages,
  - The complexity of the water treatments performed by the operator prior to distribution of the water
  - The origin of the water (Surface / underground),
  - Water imports,
  - Touristic area.
- Contractual choices
  - Contract duration
  - Date of signature
  - Identity of the contracting partners

# Methodology

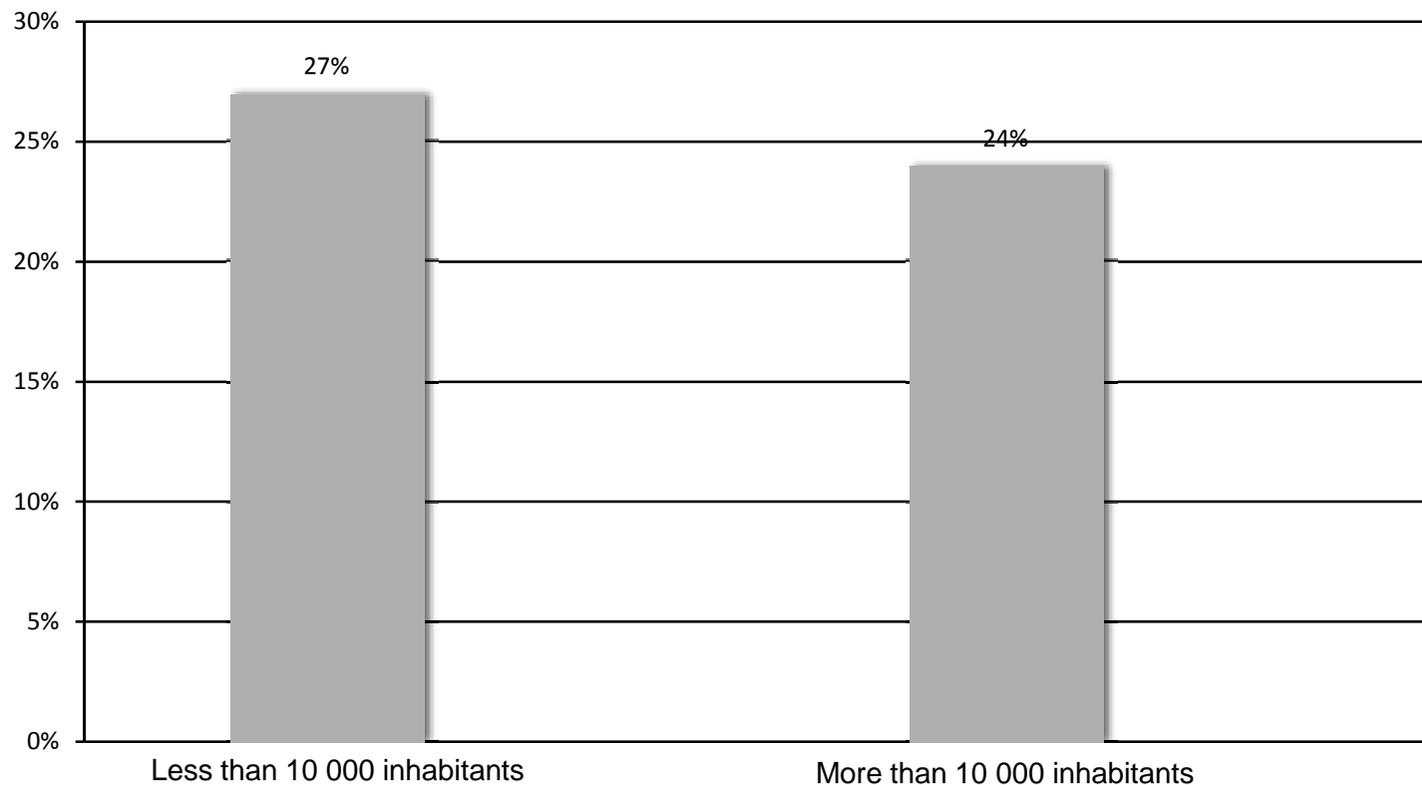
- **An analysis on the impact of contractualization on water price**

- Estimated model:

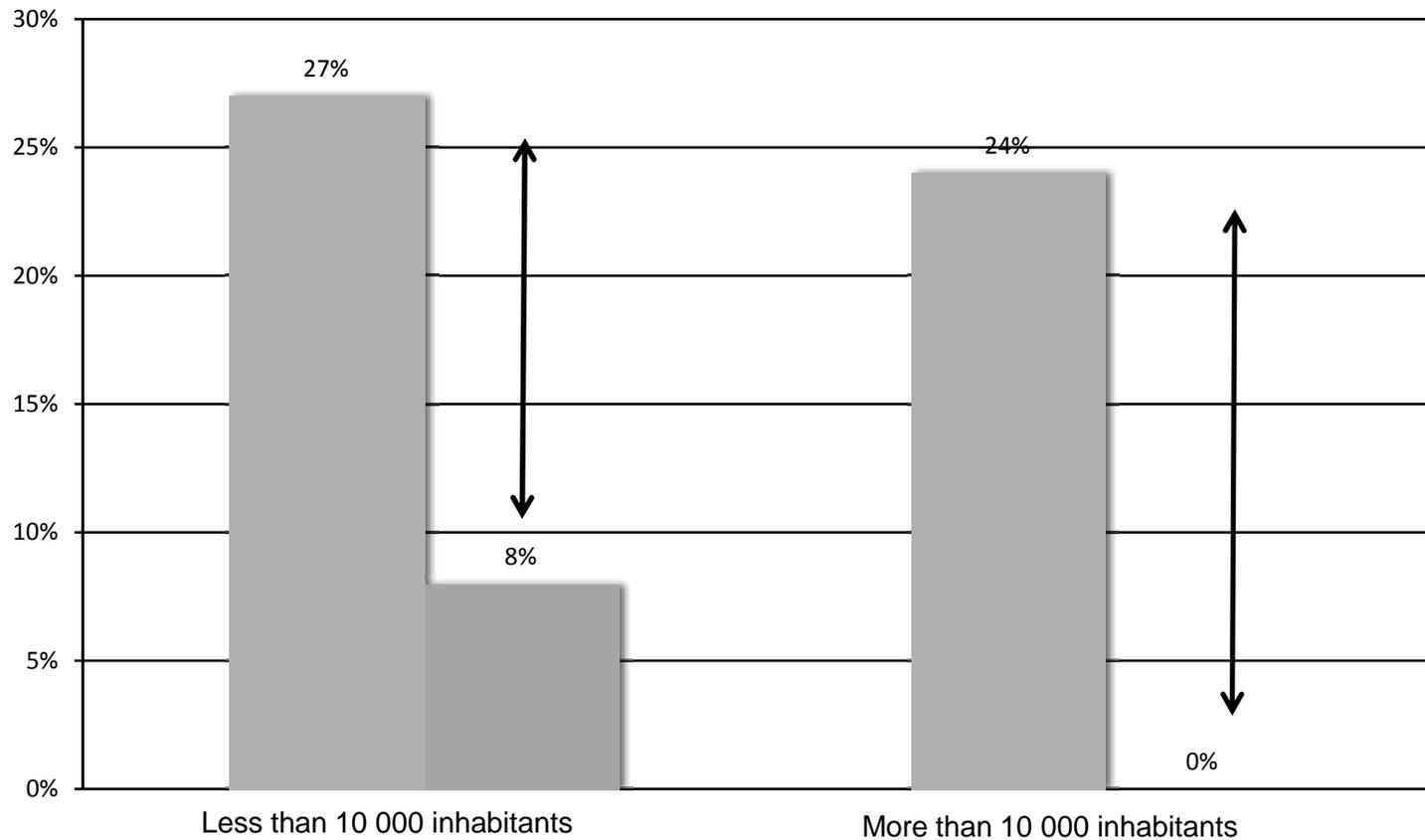
$$Price_{it}^{observed} = \mathbf{x}'_{it} \beta + \pi Private_{it} + u_{it}$$

- Explaining variables in  $x$  vector:
  - *Inhabitants, origin of the water, treatment of the water, inter-municipality, quality of distributed water, touristic area, independence ratio, investment program, restrictions during summer, year fixed effect, municipality fixed effects.*
- Possible endogeneity  $u_{it} = v_i + \varepsilon_{it}$
- LSDV models (and/or switching regressions)

# RESULT 1: Price Difference Between Private and Public Management (on average)



# RESULT 1: Price Difference Between Private and Public Management (all things being equal)



**Transaction costs are lower for big cities**

# The impact of the size of water services



- More concentration leads to more effective market competition
  - Chong, Saussier and Silverman 2015: small vs. big services and contractual regulation
- But also less units to monitor in case of regulation by agency
  - UK and Italy vs. France
  - OFWAT (32 units)
  - Before 1994 more than 12 000 units. → Galli Law leading to less than 100 ATO (AEEG).
- And less asymmetries of competencies

# Operator's incentives



- **Operator's incentive**

- Cost-of-service vs. Price cap regulation
- Often linked with certain type of regulation
  - Gvt-regulation  $\Leftrightarrow$  cost-of-service / cost-plus
  - Contract / Agency regulation  $\Leftrightarrow$  price cap
- Price-cap might leads to high profit – Political costs
  - Third party opportunism issues (Spiller 2008)

# Operator's incentives

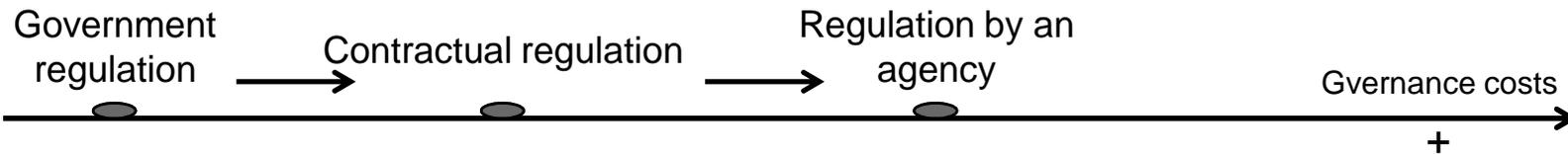
## Consumers 'paying price for water profit'

Consumers are paying 6pc too much for their water bills because utilities are being allowed to make “excess profits”, according to an analysis of the sector.



Average water bills have risen by 3.5pc this year to £388, implying customers could be paying £24 a year too much. Photo: ALAMY

# To conclude: dynamics and perspective



- **Diverse models but converging models:**

- Corporatization (transparency and flexibility purpose)
- Contractualization (in case of direct management)
- Centralization (deriving from EU pressure)
- Integration of transversal managerial tools (PI and performance assessments (benchmarking))
- More regulatory agencies
  - Way to reduce governmental and third parties opportunism
  - Way to reduce classical opportunism
  - But a need to look at European data and to share experiences (e.g. WAREG) as well as taking a look at more “mature” sectors



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