

**RESEARCH ARTICLE**

# Corporate governance and sustainability in water utilities. The effects of decorporatisation in the city of Naples, Italy

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**Abstract**

The recent economic literature has largely investigated sustainability in the provision of public utilities, highlighting the role of governance models in the determination of economic results. Little attention however has been devoted to the social and environmental dimensions of sustainability. In Italy, a long-lasting debate on governance structures in the water sector has been fuelled by scholars and policymakers for more than 30 years, whereas the first (and unique) experiment involving the return of full public management in water provision is taking place in the city of Naples. The present work analyses this peculiar case study, aiming to assess the effects of a major governance shift that occurred in the early 2010s—that is, decorporatisation—in terms of economic, social and environmental sustainability. We resort to a bundle of qualitative and quantitative techniques to address the research question and our exploratory results suggest that decorporatisation was overall beneficial: Although little changed in terms of economic sustainability, the social and environmental dimensions benefitted from the shift in governance.

**KEYWORDS**

corporate governance, decorporatisation, environmental sustainability, social sustainability, water management, water utilities

## 1 | INTRODUCTION

Public utilities constitute a popular field of study in the economic literature, because they play a key role in the life of a community, providing essential goods and services that may not be obtained from other sources (Calabrò, Torchia, & Ranalli, 2013). Due to their centrality in the determination of the economic outcomes, public utilities were traditionally owned by the state (Pera, 2016). State ownership was often justified on the grounds of the market failures that arise in the forms of natural monopolies and underprovision of public goods (Clifton, Lanthier, & Schröter, 2011). However, state failures have historically proved to be at least as concerning, leading to inefficiencies, distortions and financial unbalances in the long run (Furlong & Bakker, 2010; Nepal & Jamasb, 2015). As a result of the negative historical experiences

of the 30 years that followed the end of the second world war, a season of privatisations hit the OECD countries, beginning at the very end of the 1970s.

Thus, in many sectors, the traditional dual role of the state—previously both provider and regulator of public services—gave way to a neat separation, involving private players in service provision in various capacities and the state acting as an arbiter. The water sector was no exception in this process, as it went through a wave of liberalisations and privatisations that replaced monolithic state-owned water providers with private subjects, often smaller, more agile and more numerous (Araral, 2010). Unlike other utilities however, water is not only a strategic resource that determines economic outcomes but also a biologically indispensable good that constitutes a necessary condition for human life. For this reason, water has often been described and treated as a human right rather than just a consumption good,

and it received much attention from both scholars and policymakers (Winkler, 2014).

An intense debate on governance models followed the privatisation initiatives (Beecher, 2013; Hartley, 2005; Huesker & Moss, 2015; Lieberherr, Klinke, & Finger, 2012). Although the economic conditions often improved, several experiences around the world pointed to the negative effects of privatisation attempts on sustainability (Gradus & Budding, 2020; Hefetz & Warner, 2004; Mayne & Vigoda-Gadot, 2018). In response to the so-called failures of privatisation, new proposals emerged in the early 2000s, at the twilight of the New Public Management season. In particular, some contributions proposed decorporatisation as the reverse of privatisation (Cullmann, Nieswand, Seifert, & Stiel, 2016; Warner, Ballard, & Hefetz, 2003). Decorporatisation was then introduced in the form of remunicipalisation or contracting back in (Coronel, Stoessel, Guanche, & Cadahia, 2019; Gradus & Budding, 2020; Warner & Aldag, 2019). Despite receiving wide criticism, it seems not to have produced adverse effects on economic sustainability in the water sector (Hall, Lobina, & Terhorst, 2013; Landriani, Lepore, D'Amore, Pozzoli, & Alvino, 2019). Moreover, the environmental and social effects of decorporatisation are to our knowledge still unexplored.

The aim of this work is to provide a first assessment of the effects of the decorporatisation in the water sector, along the economic, environmental and social dimensions of sustainability (see Sharma & Ruud, 2003). Because utilities are hardly comparable due to substantial differences in the economic and legal frameworks that surrounds them, we resort to a case study, represented by the shift in governance that occurred following the decorporatisation process that affected the water provider of the city of Naples, in Southern Italy. Thus, we combine qualitative (interviews) and quantitative (regression) techniques to assess the effect of decorporatisation on sustainability. The Italian case is particularly interesting, as the country lags behind the EU average in terms of investments in the water sector. Moreover, the area of Naples in Southern Italy is characterised by an even more severe lack of investments and infrastructures with the respect to the rest of the country. In this context, efficiency losses in the water sector may result into significant societal problems.

The rest of the paper is organised as follows: Section 2 briefly reviews the literature, proposes a theoretical framework to analyse governance models and outlines the main definitions of sustainability. Section 3 introduces the case study and offers a historical perspective on water management in Italy. Section 4 presents the methodologies we resort to in this work, combining qualitative and quantitative instruments. Section 5 illustrates and discusses the results along the three dimensions of sustainability. Section 6 offers our concluding remarks, highlights the study's limitations and provides suggestions for future research.

## 2 | LITERATURE REVIEW

In Europe, water sector reforms began in the early 1980s, building on an ongoing debate over the political, cultural and economic

consequences of water management (Allouche, Finger, & Luis-Manso, 2008). Although major changes affected most European countries in terms of governance models, the reform process is far from complete (Lieverink, Wiering, & Uitenboogaart, 2011; Styles, Schoenberger, & Galvez-Martos, 2015). Reforms often took discontinuous directions in response to contingent demands, with little consideration to firm performance, prices and quality of the services offered to local communities. The main areas of intervention (and of debate) mostly concerned selection procedures—for example, whether contracts should be awarded on the basis of public competitive biddings, in-house evaluations or negotiation by local governments—and ownership structures, whether public, private or mixed.

Previous research on the water sector reforms tried to address policy concerns, focusing on the effects of regulation (Bel & Fageda, 2007; Guerrini & Romano, 2013), the impact of privatisations (Casarin, Delfino, & Delfino, 2007; Marques, 2008), the role of ownership, size and diversification strategies (i.e., Abbott & Cohen, 2009; Berg & Marques, 2011; Guerrini, Romano, & Campedelli, 2011), the assessment of the quality of local governance (Ferreira da Cruz & Marques, 2014) and the influence of the technical, political and financial characteristics of various types of water utility services (Schoute, Budding, & Gradus, 2018). Little consideration, however, has been devoted to democracy, stakeholder satisfaction, equity and to the broader concept of sustainability (Griessler & Littig, 2005).

The applied literature stresses the lack of a 'one-size-fits-all solution' to water governance worldwide, because national (and even sub-national) institutional contexts vary substantially, as do local water resources. The OECD's Principles on Water Governance (2015) remark exactly this point, clustering 12 main principles of governance in the water sector around three main goals: *effectiveness*, *efficiency* and *trust and engagement*. These goals are meant to inspire actions leading to better water governance at all levels of government and across the range of stakeholders involved in water policy design and implementation (Akhmouch & Correia, 2016). The OECD recognised that governance is highly contextual, and so water policies need to be specifically tailored for different places and contexts.

Arguments both in favour and against privatisation have been proposed. Bel and Fageda (2017), covering 30 years of privatisation policies, conclude that the key factors that lead to privatisation are ideological as much as financial. Although these terms do not always carry the same meaning, corporatisation and privatisation have been considered as instruments for reducing the costs of goods and services traditionally provided by local governments. Supporters argue that privatisation is a way to reduce the cost of services, thanks to higher competition, economies of scale, innovativeness and efficiency (Kiparsky, Sedlak, Thompson, & Truffer, 2013; Lieberherr & Truffer, 2015). Critics instead claim that privatisation tends to sacrifice public interest and values (Araral, 2009; Hailu et al., 2012). The empirical literature that compares private and public ownership is inconclusive.

Some studies find that privately owned utilities perform better in financial terms compared to publicly owned companies (Guerrini et al., 2011; Marques, 2008). Other works in contrast find that water

utilities under public ownership are more efficient than both privately owned and hybrid utilities (Ferreira da Cruz, Marques, Romano, & Guerrini, 2012; Romano & Guerrini, 2014). In other contributions finally, hybrid mixed-ownership firms result to be more efficient than private firms (Ferreira Da Cruz & Marques, 2012; Renzetti & Dupont, 2004). These conflicting results demonstrate that privatisations in the water industry have not necessarily been successful (Furlong & Bakker, 2010; Silvestre, 2012), challenging the New Public Management idea that private sector involvement in the delivery of public services inevitably leads to better economic outcomes (Silvestre, 2012). Lack of cost savings, poor service quality, high monitoring costs and poor social accountability are examples of the failures involved in numerous privatisation initiatives (Hefetz & Warner, 2004; Warner et al., 2003). The institutional context has been identified in the literature as a key determinant of the success of privatisation initiatives (Leal Filho et al., 2016). In particular, it has been noted that privatisations tend to work better in countries with higher institutional quality (Boubakri, Cosset, & Guedhami, 2005).

Although the involvement of the private sector in public utilities has sometimes generated positive results in terms of efficiency, moreover, privatisations do not always allow to achieve environmental and social sustainability (Lieberherr & Truffer, 2015). Such problems led to remunicipalisation (Mayne & Vigoda-Gadot, 2018; Wollmann, 2018), reverse privatisation, contracting back in and decorporatisation (McDonald, 2016a, 2016b). In other words, when privatisations failed to achieve the targets set, local authorities were forced to reintroduce some form of public provision of the services that had previously been contracted out (Hailu, Osorio, & Tsukada, 2012; Hefetz & Warner, 2004; Warner et al., 2003). Empirical contributions on the effects of contracting back in are still scant, but neo-institutional theory suggests the advantages of country-specific and stakeholder-driven solutions (Boubakri, Guedhami, Kwok, & Saffar, 2016; Zattoni et al., 2017).

The debate on the effects of privatisation is still ongoing, and the evidence gathered is inconclusive, possibly due to the different characteristics of privatisation processes across national contexts. In this light, it is essential to analyse the variables that define the

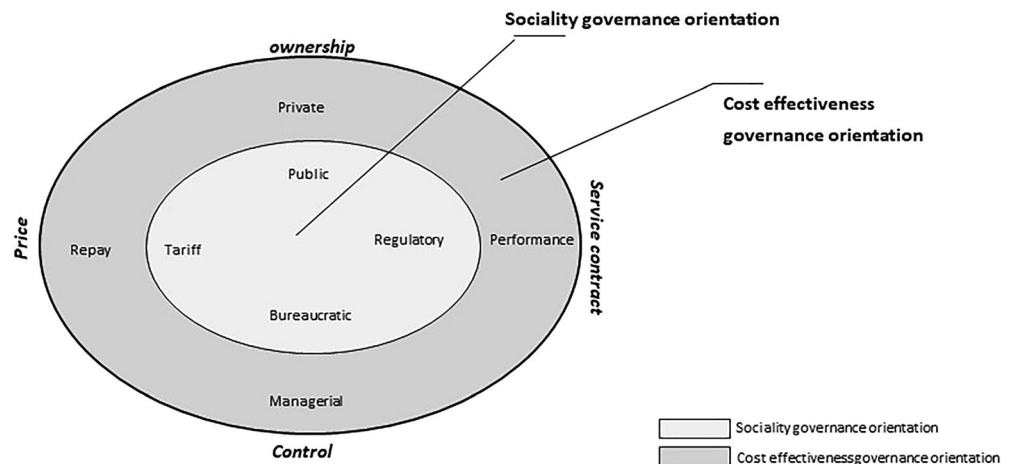
characteristics of the privatisation process (Flores, Özerol, & Bressers, 2017; Lieberherr & Truffer, 2015; McDonald, 2016a, 2016b). Moreover, many studies have measured the effects of privatisations resorting only to economic indicators, which may fail to capture the value generated for primary stakeholders, especially in the water sector (Griessler & Littig, 2005; Kallhoff, 2014a, 2014b; Lombardi et al., 2019; Marie, 2016). In spite of the ongoing debate on the role of privatisations, however, most water utilities in the world are publicly owned (Dominguez, Worch, Markard, Truffer, & Gujer, 2009).

Based on the above, we propose a framework to analyse the effects of different governance models, considering a number of variables:

1. The *type of ownership*, that is, the degree of involvement of the private and public sector.
2. The *nature of the service contract* (regulatory versus performance-based), or more generally, the relationship between the regulator and the utility.
3. The *pricing rule*, that is, whether the tariffs paid by consumer are set by a regulator based on the utility's cost and profit margins, or based on social considerations.
4. The *form of control*, in other words, whether the utility's goals and operations are determined by the utility's managers or by the local government.

The theoretical framework proposed is summed up in Figure 1. The four governance characteristics are further discussed below:

1. **Ownership:** A water utility may be entirely privately owned, entirely publicly owned or a mixture of the two. According to business efficiency theories, the most effective ownership structure is the one that minimises costs (both operational and administrative) and for which the costs of market imperfections are greater (Hansmann, 1988). On the one hand, end-users may be the most suitable owners of a water utility, because they have a powerful incentive to ensure the efficient and effective supply of services.



**FIGURE 1** Governance model. Source: original elaborations

In other words, the most rational (or perhaps least imperfect) form of capital structure may be the public company, whose ownership is diffused among end-users. Alternatively, workers may be seen as the key stakeholders, in which case, a worker cooperative would be the ideal form (Ostrom, 1990). In this view, privatisation not only fails to reduce inefficiencies but also fails to guarantee common interest, responsibility, social equity and sustainability (Boardman & Vining, 1989), because diffused ownership may reduce political influence, resulting into higher levels of accountability, cost-effectiveness and social equity (Kunze & Becker, 2015). Privatisations in Italy were more of a formality than a genuine reform process, because in most cases, the state or local government authorities became the only owners of the privatised companies and shares were not distributed among private individuals.

2. *Service contract*: With regard to contractual arrangements or the relationship between a regulator and a utility company, the empirical evidence suggests that *performance contracts* are better than *regulatory contracts* (see Brown, Potoski, & Van Slyke, 2006). In the water sector, generally characterised by long-term concessions that may produce a return on investments, the introduction of 'standard costs' with a subsidy cap may represent a reasonable solution.
3. *Price*: Opposers of privatisation claim that the introduction of private players may not improve water delivery services without increasing tariffs (Guerrini & Romano, 2013). Supporters of privatisation on the other hand argue that efficiency gains may lead to a decrease in tariffs. Tariff cuts however are not necessarily a good thing, because they may produce deficits and irresponsible behaviours on part of end-users (Bird, 2003). However, even after privatisation, the costs of inefficient management may still be transferred to end-users, if the government is forced to restore deficits with revenues from general taxation (Bel, 2020). In Italy, where tax evasion is widespread, the distortionary effects of inefficient management paradoxically hit the poorer strata of the population, undermining equity. Tariff cuts in other words may penalise the very people they are meant to support (Young & Tilley, 2006). Finally, allowing market price to reflect full cost recovery (plus allowances for profits and investments) will result in (1) an improvement in the economic and financial performance of utilities, by increasing their direct revenues but also reducing costs (Hartley, 2005), (2) a more responsible use of the services provided and a more realistic attribution of value—a specific instance of the well-known cost-price value paradigm (Cook, 1997) and (3) more responsibility of utility managers, who cannot blame the state for the scarcity of the resources transferred.
4. *Control*: Utility control systems have generally shifted from a bureaucratic to a managerial model (Kettl, 2011), which includes social and relational controls that may produce an improvement in overall performance (Hodgson, 2004). For services whose outputs or outcomes are difficult to measure, it may be more appropriate for managers to control processes, rather than outcomes (Niskanen, 2017; Warner & Hefetz, 2008). For public organisations

indeed, performance evaluation often needs to consider intangible dimensions other than profit (Brown & Potoski, 2005).

Overall, two main models of governance within the water industry result from different combinations of the four variables: the *social governance* model, where public interest prevails over efficiency and economic equilibrium, and the *cost-effectiveness governance* model, where efficiency and economic performance are the priorities (Hartley, 2005).

## 2.1 | Sustainability in the water sector

The issue of sustainability was introduced long ago in the economic literature and was later formalised in the Triple Bottom Line framework (TBL, see Elkington, 1997). The general idea of this theory is that firms—rather than considering only the demands of their shareholders—should define their strategy and measure their performance in relation to all the stakeholders they interact with, including employees, suppliers, end-users, local communities and governmental bodies. This idea represented a significant innovation in the 1990s (Griessler & Littig, 2005), in that it pushed firms to offer their contribution in support of the environment. Sustainability was then conceptualised as an alternative approach to full profit orientation (McWilliams & Siegel, 2001).

The TBL framework adds social and environmental measures to the economic dimension in the evaluation of firm performance. To measure the environmental dimension, it is necessary to look at two types of variables (Hubbard, 2009): on the one hand, the amount of resources used as production inputs (energy, land, water, etc.), and on the other hand, the negative by-products of the economic activity (waste, emissions, chemical residues, etc.). The social dimension instead broadly refers to the impact produced on local communities, which makes it difficult to measure. Although shareholder value, market share, customer satisfaction and even employee well-being are relatively easy dimensions to quantify regardless of the industry considered, the social and environmental dimensions are more nuanced notions, which are by their own nature specific to each sector, and often very difficult to operationalise. The social dimension of sustainability has been analysed along two perspectives: (1) from the point of view of the employees and (2) from the point of view of the whole host community (Vallance, Perkins, & Dixon, 2011). In the employee's perspective, sustainability concerns work conditions, rights protection and more in general organisational wellness. On the other hand, in the host community perspective, sustainability breaks down into real initiatives aimed to redistribute a share of the profits to the benefit of the community and/or in favour of some charitable initiatives in various areas of personal emancipation, for example, culture, education, health, leisure and infrastructure (McKenzie, 2004). This approach has greatly developed, both from a strategic point of view and in terms of communication, producing new approaches, perspectives and indicators that overcame traditional performance measurement tools (Yongvanich & Guthrie, 2006).

Although this strand of literature has focused by and large on private firms, state-owned companies have seldom been investigated (Guthrie, Ball, & Farneti, 2010), in part because profit never was their primary objective. Sustainability in public firms however is especially relevant, because their actions are traditionally targeted towards social and environmental goals, sometimes neglecting the economic dimension and often failing to reach the triple equilibrium identified by the TBL approach. In the public sector, the social dimension has often been hindered by rent-seeking activities, aimed at the creation of subsidies, privileges and patronage for some social groups (Mussari & Monfardini, 2010). Elkington (1997) tried to overcome this negative description, introducing a more modern perspective of the social dimension in public firms, that is, equity (Enyedi, 2002).

The literature on the theme of equity, mostly based on macroeconomic works, introduced two relevant notions: *horizontal equity* and *vertical equity*. The former is a static concept, prescribing that people with high incomes should contribute to the collective well-being more than those with low incomes (Etgen et al., 2003). The latter instead is a dynamic intergenerational notion, oriented to a differentiated equalisation of the costs, that allows future generations to keep enjoying the resources available today (Hubbard, 2009; Stavins, Wagner, & Wagner, 2003). According to the above interpretation, equity must be considered as a primary goal for public companies, even more crucial than economic efficiency and effectiveness (Bird, 2003; Stavins et al., 2003). Although horizontal equity is related a short-run perspective, vertical equity is compatible with long-run welfare.

### 3 | CASE STUDY: THE PUZZLE OF WATER MANAGEMENT IN ITALY

In the Italian water sector, the large infrastructural investments required and the low tariffs set by national regulations have historically deterred private involvement. From the 1960s to 1996, the Ministry of the Environment managed water provision directly, generating significant problems. Criticism concerned several dimensions, including the high fragmentation of the of the actors involved in the various stages of the water supply chain (more than 7,000 subjects), low efficiency levels, budgets in default, lack of investments and low quality of the services provided. All these factors contributed to the failure of the public water management season in Italy. Between the 1980s and the 1990s, several national reforms pushed towards change and eventually culminated into a wave of privatisations in the 1990s (Lobina, 2005).

In 1996, a regulatory mandate was granted to ARERA, an independent administrative authority, to supervise a process known as *corporatisation*, which consisted in the transformation of the municipal companies that handled local public services into corporations or limited companies. Thus, municipalities were required to create firms (mostly with capital shares owned by the municipalities themselves) that would handle water provision, aiming for efficiency and relying on an independent board of directors (McDonald, 2016a, 2016b).

These firms operated under concessions from the municipalities to manage water services, whereas much of the infrastructure, such as aqueducts, were owned by local governments.

A key element in this process was the separation between the address and programming functions on the one hand and the organisation and management functions on the other hand. The former remained in the hands of the local government, which owned the shares of the new corporate subjects, whereas the latter were entrusted to the managerial boards of the newly established firms. The higher degree of autonomy granted to these firms allowed to speed up the decision-making processes and was naturally counterbalanced by the personal civil and criminal liability of administrators and executives, as called for by many critics of the previous public management.

Corporatisation allowed to alleviate the fiscal strain of local administrations and of the national government. Moreover, it produced a number of positive effects, including larger flexibility, wider scope of managerial action, higher efficiency and the establishment of a stronger customer-provider link. During ARERA's mandate, a novel form of *incentivising regulation*<sup>1</sup> (price cap) became the main instrument to ensure, on the one hand, the sustainability and the certainty of significant efficiency-enhancing investments and, on the other hand, the protection of users, through the definition of clear and transparent tariffs, consistent with management costs. The certain and clearly defined rules regulating both tariff determination and service entrusting led to a considerable increase in investments over the years. The stability of the system during ARERA's mandate reconquered the trust of financiers.

Investments tripled in the 2012–2018 timespan, reaching 40€ per inhabitant in 2017, whereas planned investments for the 2018–2019 period exceed 55€ per inhabitant. In spite of the considerable effort, however, Italy still ranks below the EU-15 average, which amounts to about 90€ per inhabitant a year. Moreover, based on an analysis of the financial statements pertaining to the 100 largest water providers in Italy, a clear improvement in the indicators of economic and financial soundness emerges between 2012 and 2016. The new tariff scheme may be held responsible for this positive effect, because it allowed water suppliers to bring out total management and investment costs, recover previously sunk costs and restore the conditions of economic and financial soundness that grant access to credit, which had long been prevented to pre-ARERA water operators.

Novel rules on quality-governing contracts aimed to guarantee quality in the customer-provider relations, according to *Carta dei Servizi*,<sup>2</sup> a document produced by AREA. The intervention of the independent authority allowed to increase and homogenise contractual quality standards—which used to vary significantly under the previous regime—over the whole national territory. Moreover, a system of

<sup>1</sup>Incentivising regulation is a price regulation method that aims to bind the growth rate of a bundle of prices and tariffs of public utilities. The regulator sets the maximum growth rate for a certain bundle for some years, allowing firms choose their prices freely within the range established.

<sup>2</sup>*Carta dei Servizi* ('Service Sheet') set the quality standards that providers of public services must comply with, stating clearly its goals and recognising citizen rights. It is in other words an instrument to address user demands, protecting consumer needs.



bonuses/penalties was introduced, in order to safeguard general standards, resorting to automatic refund mechanisms in case of violations. Suppliers were also required to report compliance to the commitments made with customers.

Customer protection emerged a cornerstone in ARERA's mandate. A number of legal instruments were introduced for this purpose, including juridical tools for out-of-court dispute resolution (joint settlement), venues devoted to listening citizen/customer demands (consumer help desk), procedures for provider monitoring, a water bonus regulation in support of economic hardship and, more recently, a number of regulations on technical quality—that is, the set of general and specific standards that providers need to comply with in terms of containment of environmental repercussions and improvement of the quality of life on the territory.

Among the most recent effects of ARERA's work, it is important to mention a renewed commitment on part of water providers to customer satisfaction, with particular regard to infrastructure status. The innovative and asymmetric regulatory approach recently put into practice has allowed to focus on key factors that contribute to maintaining infrastructures in good health, achieving the targets of service improvement. Recent rules on technical quality instead compel water providers to measure and report infrastructure status according to homogeneous definitions and indicators, as well as to calibrate interventions based on the distance from certain targets, so as to reach satisfactory quality levels within established timeframes. ARERA's behaviour guaranteed cost and quality control, within a system of homogeneous rules. In this perspective, public regulation has acted as a stimulus for good management.

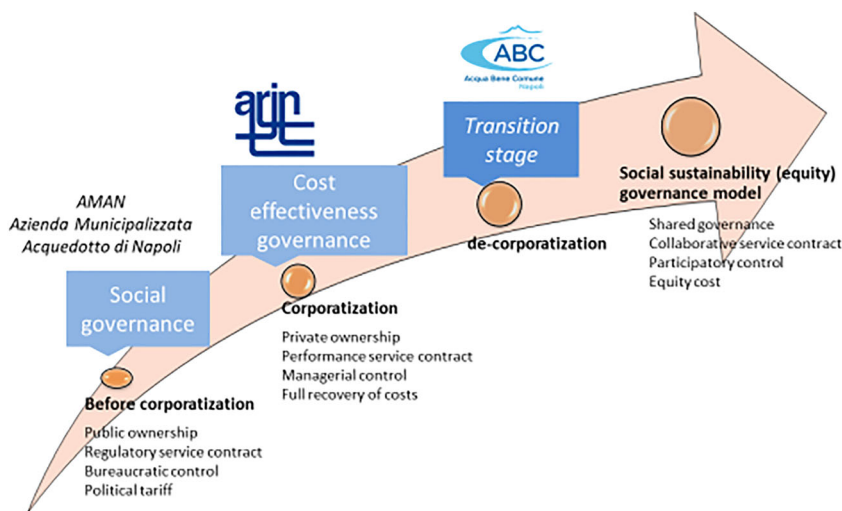
In spite of the positive results achieved under ARERA's mandate, an intense political debate centred on the ethical implications of water privatisation broke out. Following a failed attempt to fully privatise water provision in June 2011, several social movements scattered around the country advocated the decorporatisation of the Public Limited Companies that had been created (Lobina & Hall, 2014). Public Limited Companies were strongly criticised due to their orientation towards profits and to low transparency accountability

and citizen involvement (FIMA, 2012). As a result, some local governments decided to change the legal status of in-house operators, introducing varying forms of remunicipalisation in some cities, including Turin, Palermo, Vicenza, Pescara and Naples (FIMA, 2013). In particular, the Neapolitan case featured the introduction of a peculiar governance model, labelled *public special entity*. Special entities, as opposed to limited companies, face strong restrictions to their independence and lack a shareholder meeting.

*Acqua Bene Comune Napoli* (ABC), the water provider of the city of Naples, thus became—and still is—the only case of fully public provision of water in the country. It is today one of the largest water providers in Southern Italy, serving 1,650,000 citizens in the city of Naples and in parts of the provinces of Avellino, Benevento, Naples and Caserta, four of the five provinces in the region of Campania. The rest of Campania is served by Gori spa, a limited company.

After an initial period of Anglo-Belgian management, the water provider of the city of Naples was nationalised in 1963 and subsequently managed by the municipality, under the name *Azienda Municipale Acquedotto di Napoli* (AMAN). AMAN set a political price and was subject to political control, resulting into inefficiencies and financial problems. In 1996, following the corporatisation wave under ARERA's mandate, the municipal firm became a limited company, owned by the municipality and named *Azienda Risorse Idriche Napoli spa* (ARIN). ARIN, although owned by the municipality of Naples, was organised and managed as a private firm, and private investors were allowed to own its shares. In 2013 however, as strongly supported by the local government, ARIN was decorporatised and became ABC Napoli. Figure 2 sums up the historical evolution of the water provider, highlighting some key characteristics of the governance model for each phase.

The transformation from ARIN to ABC involved a partial strategic realignment. The statute of the newly established public entity dictated this change. In particular, ARIN's mission had been focused on cost-effectiveness, whereas ABC's mission focuses on social sustainability. The other changes brought by decorporatisation included the following characteristics:



**FIGURE 2** Towards a sustainable governance model. Source: original elaborations

**TABLE 1** Changes in the governance model

Variable	ARIN	ABC	Implemented
Shareholders	Private shareholders allowed	Only public shareholders	Yes
Tariffs	Full recovery costs	Equity cost	No
External control	Weak	Strong (Citizens' audit committee)	No
Water supply chain	Separation	Integration	Yes
Board	Appointed by the mayor	City council and green associations	No
Annual reports	Approved by the mayor	Approved by the city council	Yes
Management decisions	Approved by the board	Approved by the city council	No
Strategy	Chosen by the board	Chosen by the city council	Yes
Dividends	Transferred to shareholders	Transferred to charities (if any)	No
Reporting	Financial statement	Sustainability report	No

Note. Source: original elaboration.

1. Unlike ARIN, ABC has no private shareholders and is constrained not to have them.
2. ABC is a nonprofit public entity.
3. The city council of Naples sets the guidelines for organisation and management.
4. All management decisions are approved directly by the city council.
5. Budget and financial statements are approved by the city council.
6. An audit committee, formed by local residents, monitors the distribution of water.
7. The board of directors must include two members from a green association, who possess binding advisory power.
8. The water supply chain is more integrated, as ABC operates the aqueduct, the sewage system and purification services, previously divided among several operators.
9. Profits (if any) may not be distributed as dividends and must be used to fund water-related charitable activities in developing countries.
10. An annual report on sustainability must be produced.
11. Employees have a public-sector contract and may not be dismissed.

The lack of a shareholder meeting implies that the most important actions for the economic activity of water providers—such as the approval of the annual budget—must be discussed in municipal councils. Moreover, transparency and access to credit may be more difficult to achieve. Table 1 sums up the main changes that occurred with decorporatisation, highlighting the fact that although a number of new characteristics have been introduced, some of them have not been implemented yet (as of 2019) and their enforcement has been postponed to future periods.

The new *shared governance* model however slowed down the decision-making process significantly, potentially resulting into sub-optimal investment levels and financial rigidities. In the 2014–2015 period indeed, ABC invested not only less than the Italian average but also less than the corporate water providers of the other provinces of

Campania (REF, 2018). In spite of the lower amounts invested, however, and of the smaller extent of managerial and decisional autonomy, the quality of the service provided by ABC was not significantly worse than in the rest of Campania. Evidence in support of this claim may be found in Figure 3, which maps the levels of efforts demanded to local water providers to comply with national standards.

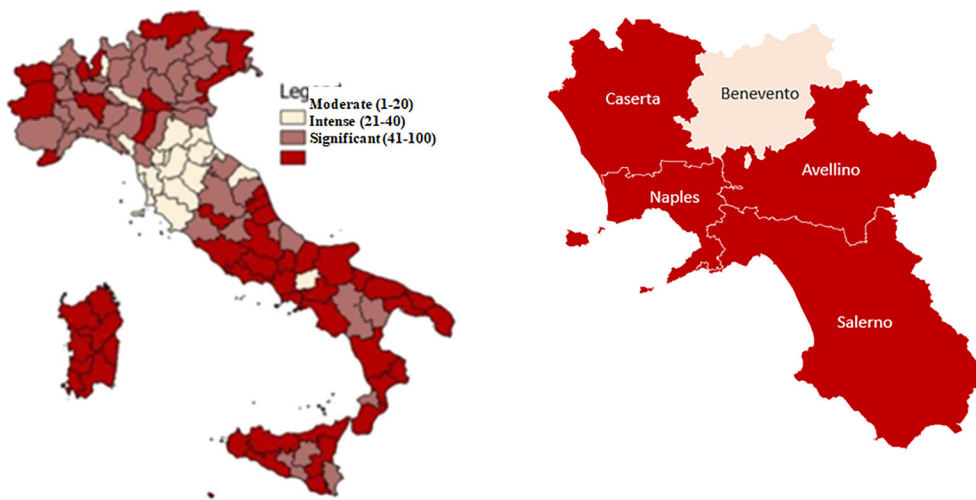
In particular, the map shows that the majority of the provinces of Southern Italy and some of Central Italy are far from the national quality standards that were set by law.<sup>3</sup> Most provinces of Campania (right part of the figure) need to make a considerable effort to reach national targets. The province of Benevento is the only exception, not only in Campania but also in the whole South. No significant difference however may be observed between the province of Naples, where water is publicly managed and those of Salerno, Avellino and Caserta, where water corporation provides water-related services.

Criticism against ABC moreover tackles solely the economic aspects of water provision. Although economic and financial sustainability are key requirements for the long-term stability of the special entity, other relevant aspects should be taken into account when gauging the effects of decorporatisation, including the environmental and social dimensions of sustainability. Water may not be analysed as a standard good, due to its fundamental role for human health and for economic activities. Water has indeed been described as a *quasi-public* good (Allouche et al., 2008; Luís-Manso & Finger, 2007) and a fundamental human right, according to the United Nations (UN, 2010).

#### 4 | A QUALIQUANTITATIVE ANALYSIS

Several studies on the water sector have adopted qualitative methods, because the contexts in which utilities operate vary substantially, not only across countries but also from one city or to another within the same country, or even within the same region (Schaefer, 2009). The

<sup>3</sup>Decreto del Presidente del Consiglio dei Ministri, 29 April 1999, available at <https://www.gazzettaufficiale.it/eli/id/1999/06/01/099A4300/sg>.



**FIGURE 3** Effort required to reach national quality standards. Source: REF (2018)

qualitative part of our research, aiming to unfold the social implications of the governance shift, was carried out through the case study methodology (Yin, 2017), focusing on ABC, the first water utility in Italy to undergo decorporatisation. The quantitative part instead aims to disentangle is based on data provided by ARIN, ABC and *Legambiente*. Overall, we proceeded as follows:

1. First, we analysed the firm's financial statements over the 8-year period 2009 to 2016, focusing on economic and financial sustainability. The 2009–2012 statements refer to ARIN, whereas the 2013–2016 statements refer to ABC (financial statements for 2017 were not available at the time of the study).
2. Second, we conducted in-depth semistructured interviews with managers, focusing on social sustainability (similar to Cashman & Lewis, 2007). The only manager we did not interview was the Head of the Engineering Department, because he was not well informed about the study issues.
3. Third, we analysed data on water losses before and after decorporatisation, focusing on environmental sustainability. In particular, we ran a diff-in-diff model, identifying the water provider of the nearby city of Salerno as a counterfactual.

#### 4.1 | Qualitative methods

In order to operationalise economic sustainability, we analysed the financial statements of the water provider of the city of Naples before (2009–2012) and after (2013–2016) decorporatisation. The data were obtained from the official documents published by ARIN and ABC.

The interviews instead were conducted in September 2017 and September 2018. Eight managers were interviewed separately at a scheduled time. The interviews lasted from 1 to 3 h. A questionnaire with open and closed questions was designed for the purposes of this study, creating the framework for semistructured interviews. To maintain spontaneity, we introduced the general aim of the research and outlined the broad areas to be covered in the interviews without specifying the questions we would ask, so that managers could not prepare their answers in advance. The questionnaire consisted of 25 items,

divided into five general sections: institutional assets (eight questions, both open and closed), regulation (two open questions), price (three open questions), control (four closed questions) and sustainability (eight open questions). Table 2 provides details on the interviews.

The interviews were recorded and transcribed. Additionally, notes were taken during each interview. Qualitative data analysis was applied (Denzin & Lincoln, 2011) to the content of the interviews (Talja, 1999). To avoid strategic answers, the results from interviews have been shared and discussed with all managers at the end of the interview process. Moreover, secondary data from the company website, newspaper articles, other official documents and financial statements were analysed in order to validate the primary data gathered through the interviews. A detailed description of the questions asked is provided in the Appendix A.

#### 4.2 | Quantitative analysis

Finally, to gauge the effect of the decorporatisation of ABC on efficiency, we resort to diff-in-diff estimation, identifying a counterfactual as a comparison term. In particular, we compare ABC with Gori spa,

**TABLE 2** The managers interviewed at ABC

Interviewee	Duration of interview (h)
Board-level management	
President	2
Past president	2
Chief executive officer	2
Top management	
General manager	2
Middle management	
Chief finance officer	3
Head of sales department	1
Head of human resources	1
Head of legal department	1

Note. Source: original elaborations.



based in Salerno, because the two providers operate within the same institutional framework, face similar socio-economic and cultural contexts and are very close to each other geographically. Gori spa has been a private company owned by the municipality of Salerno for the last 20 years, whereas ABC underwent decorporatisation in 2012. The two providers are very similar in terms of size, as shown in Table 3.

The estimation is based on a panel regression. Panel or longitudinal data are multidimensional data involving measurements over time. Panels contain observations of multiple phenomena, obtained over different time periods for the same units. In other words, the same cross-sectional unit (in our case a municipality) is surveyed over time, pooling observations over space as well as time.

Panel data methods offer several advantages, including the following:

1. They take explicit account of unit-specific heterogeneity (in our case 'unit' means municipality).
2. Exploiting two dimensions, they contain a higher extent of data variation, less collinearity and more degrees of freedom.
3. They are more suitable than cross-sectional data for studying the dynamics of change (for example, behavioural transitions).
4. They allow to detect and measure effects that cannot be observed in either cross-section or time-series data separately.
5. They allow to study complex behavioural patterns (for example, shifts in governance models).
6. Finally, they minimise the effect of aggregation bias that arises when grouping up municipalities into broad sets (Hsiao, 2014).

In this analysis, we consider the following equation:

$$Y_{it} = \alpha_0 + \delta T_i + \gamma P_t + \beta T_i * P_t + \varepsilon_{it}, \tag{1}$$

where the variable of interest  $Y_{it}$  represents the share of water losses along pipe, which constitutes a proxy for environmental sustainability.  $\alpha_0$  is a constant term,  $T_i$  is the treatment dummy, that is, a variable taking on value one if unit  $i$  undergoes decorporatisation and zero otherwise. Similarly,  $P_t$  is the prepost time dummy, that is, a variable taking on value one after 2012 and zero otherwise.  $T_i * P_t$  represents the interaction term. The coefficients  $\delta$ ,  $\gamma$  and  $\beta$  are the scalar marginal effects associated respectively with the treatment dummy, with the time dummy and with the interaction term. Finally,  $\varepsilon_{it}$  is an error term.

In the panel analysis, we distinguish between fixed effects (FE) and random effects (RE). The difference lies in the assumptions on the error term, which may be decomposed as  $\varepsilon_{it} = \mu_{it} + u_{it}$ , where

$\mu_{it}$  represents a specific individual effect, and  $u_{it}$  is the stochastic error term. In the FE model,  $\mu_{it}$  is assumed to be constant over time, so that it becomes simply  $\mu_i$ . In the RE model instead  $\mu_{it}$  is allowed to vary over time, and it is assumed to be orthogonal to  $u_{it}$  and uncorrelated with the explanatory variables in the model.

The choice between the FE and RE is not straightforward a priori. The Hausman compares the two alternative estimators and allows to choose between them. Under the null hypothesis, both estimators are consistent, which means the more efficient RE estimator may be used. Under the alternative hypothesis, the RE estimator is inconsistent, so the FE estimator must be used, because it is consistent in both scenarios (Hsiao, 2014).

The goal of the empirical analysis is to estimate the causal effect of decorporatisation, summed up by coefficient  $\beta$ . To do so, either fixed or random effects may be assumed, depending on the restrictions imposed on  $\alpha_{it}$ . We run both models and let the Hausman test establish which one is to be preferred. The reason why this model is known as diff-in-diff in the econometric literature is the fact that  $\beta$  may be seen as the difference between two conditional expected values:

$$[E(Y_{it}|T_i = 1, P_t = 1) - E(Y_{it}|T_i = 1, P_t = 0)] - [E(Y_{it}|T_i = 0, P_t = 1) - E(Y_{it}|T_i = 0, P_t = 0)] = \beta.$$

A key assumption that must hold for the identification of  $\beta$  is the parallel trends assumption: For the comparison to make sense, the treatment group (ABC) and the control group (Gori) need to share very similar characteristics. In particular, they must display a common trend before the treatment takes place. The parallel trends assumption may be verified by visual inspection (Cerciello, Agovino, & Garofalo, 2019; Chabé-Ferret, 2015). The data were drawn from the yearly reports on urban ecosystems published by *Legambiente*.

## 5 | RESULTS

An interesting notion that emerged from the interviews is that the decorporatisation of ARIN into ABC represented not only a juridical change but also a cultural change. The statute of ABC (article 2) indeed states that the entity operates based on economic, ecologic, efficiency and social solidarity criteria. The entity's management is inspired by transparency, democracy, sustainability and equity principles. The decorporatisation process was actually supported strongly by the mayor of Naples and driven by the results of a public referendum held in June 2011.

**TABLE 3** Revenues and workers for ABC and Gori (2013–2016)

Year	Revenues				Workers			
	2013	2014	2015	2016	2013	2014	2015	2016
ABC	90.147	92.097	98.607	100.75	403	402	402	377
Gori	122.83	144.029	158.632	166.538	583	578	565	571

Note. Source: Balance sheets of ABC and Gori Spa.

Decorporatisation however introduced some problems: from 1996 to 2012, ARIN had been managed by the same CEO and by only one general manager. This situation guaranteed the stability of the company in terms of its political, financial and economic assets over the years. Conversely, after decorporatisation, a lack of stability—in the form of continual changes to the board (six changes in 5 years)—is one of ABC's major difficulties.

According to the chief finance officer, regarding the *price* variable of our governance framework, the overall or average price charged for water has not changed. ARERA determines this price, through the 'water price method' established by resolution n. 664/15. The price provides for full recovery of costs combined with an annual price increase (of 6%) for investment support. The main change in the price structure, however, was the new redistributive policy launched by ABC, which exempts low-income citizens from paying any fee for the first 100,000 L they consume a year. The cost of this provision is spread across higher income consumers, who saw their yearly tariffs increase by about €20 per person a year.

With respect to the *control* dimension of the model, the general manager stated that the new legal framework reduced the company's independence (autonomy) and enhanced local government control. In relation to the *contract* dimension instead, as the Head of the Legal

Department stated, the service contract changed little after it was renegotiated between ABC and the municipality of Naples. Although there were few significant differences, the new contract does display any novel aspects, in terms of limitations on the company's independence, control by the local government, external grants and profit transfers (to water-related development projects).

## 5.1 | Economic sustainability

In order to measure economic sustainability, we analysed the financial statements of ARIN (2009–2012) and ABC (2013–2016). Although financial sheets for previous years are available, we focus on 4 years before decorporatisation and 4 years after. This choice is oriented to symmetry and comparability. Information on previous years indeed, predating the Great Recession may hardly be comparable. Table 4 shows the data used.

Revenues and costs remained quite stable after decorporatisation, at least until 2015. A large cost increase was then registered, due to the retirement several employees, which produced a spike in costs related to severance pay. This extraordinary event produced a negative economic result that must be interpreted as the

**TABLE 4** Economic sustainability

Performance (€/000)	ARIN					ABC				
	2009	2010	2011	2012	Mean	2013	2014	2015	2016	Mean
Revenues	95.366	114.621	105.704	91.951	101.910,5	90.147	92.097	98.607	100.75	95.400,25
Net income	2.626	3.909	2.933	2.312	2.945	1.373	7.972	0.654	3.247	3.311,5
EBITDA	15.983	20.271	16.521	12.609	16.346	16.03	21.369	11.648	5.401	13.612
Free cash flow	-14.159	-8.894	-8.64	-2.803	-6.68	11.258	8.421	9.66	-14.877	3.615,5
ROE	1.17	1.75	1.3	1.02	1,31	0.6	3.71	0.29	2.03	1,66
ROI	0.19	2.98	1.44	-0.17	1,11	1.33	3.81	0.49	0.35	1,50
ROS	1.58	6.2	3.08	-0.41	2,61	3.39	9.2	4.04	3.12	4,94
Quick ratio	2.51	2.79	2.47	2.21	2,50	2.02	1.92	1.13	1.11	1,55
Leverage (equity/ debt)	0.72	0.76	0.76	0.71	0,74	0.76	0.61	0.57	0.41	0,59
Structure margin	0.67	0.71	0.73	0.77	0,72	0.86	0.85	0.87	0.88	0,87
Total cost	99.655	111.932	112.093	103.259	106.735	95.784	106.417	150.246	112.841	116.322
EBIT	1.597	6.724	3.258	-379	2.8	3.059	-12.223	-5.215	-11.709	-6.522
Debts to banks	-	8.072	10.709	11.2	7.495	2	347	-	187	726
Credits for customers	121.12	133.582	143.414	156.678	138.699	171.627	186.891	199.382	222.428	195.082
Credits for local governments	99.563	142.161	161.838	86.421	122.496	92.221	196.336	101.297	193.023	145.719
Debts to suppliers	67.065	89.187	95.268	97.136	87.164	91.852	97.969	104.234	100.226	98.57
Investments	488.262	495.454	497.266	490.885	492.967	479.911	469.415	458.478	446.406	463.553
Δnet financial position	-13.13	-11.709	-3.189	-1.362	-7.348	9.572	8.421	8.509	-12.939	3.391
Workers	421	407	405	403	409	403	402	402	377	396

Note. Source: original elaborations on the financial statements of ABC and ARIN.

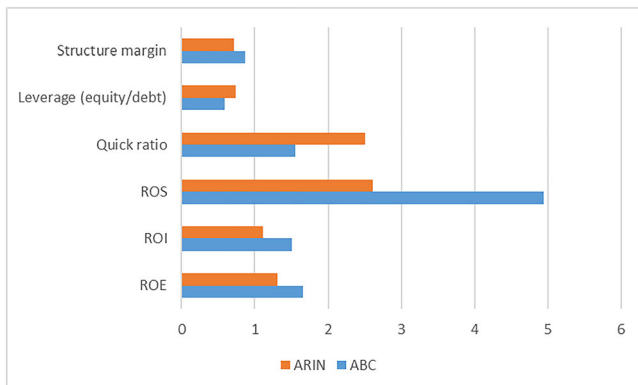
effect of a contingent and transitory shock. After decorporatisation, however, revenues displayed a steadily increasing trend.

The financial ratios, as shown in Figure 4, do not display significant changes after decorporatisation, confirming that the effects of the shift in corporate governance did not affect economic sustainability. One exception may relate to the increase in ROS, which however depends on the tariff increase allowed by ARERA. Net of some retirements, the number of employees remained constant. The amounts receivable from public institutions are instead steadily growing, whereas debts to banks are substantially being reduced. Despite this, budgets are balanced, because debts to providers are compensated by claims on institutions (including the local government, the Region of Campania and other public entities).

The analysis overall suggests that financially speaking, little has changed. Deeper investigations however may cast some doubts on this apparent consistency in the economic indicators. Some extraordinary events, such as a tariff increase in 2015, the billing of water treatment services to the Campanian Regional Government in 2014 and a loans sale to the central government in 2013 (under Law 35/2013) may in part be responsible for the positive results achieved after decorporatisation. Moreover, in 2014, contrary to the principles stated in ABC's statute, €16 million dividends were distributed to its sole shareholder to cover its urgent liquidity needs.

### 5.2 | Social sustainability

From a social point of view, significant changes occurred. First, 99 employees who had previously worked in the water lifting plant of the city were permanently hired. This manoeuvre received public acclaim, because the workers had been without salary for more than 2 years, despite their important role in the water cycle supply chain. Moreover, during ARIN's times, they were never hired on a permanent basis, working on fixed-term contracts instead. The recruitment operation has allowed ABC to better integrate the water cycle, because water lifting is a key important element in the phases that allow water from the source to reach end-users. Integration improves efficiency



**FIGURE 4** Financial ratios (time means). Source: original elaborations on the financial statements of ARIN and ABC

and effectiveness in the long term, as long suggested by both the OECD and national regulations (OECD, 2015). As a result of integration moreover, ABC has become the only water provider in the metropolitan area of Naples.

Second, ABC tested some innovative special work permits (adopted used in Italy before) for four categories of employees, keeping their wages constant:

1. Workers with a partner, children or parents struggling against serious health conditions or undergoing specialist therapies are granted 4-h weekly permits for 1 year.
2. Both male and female workers with an infant child (aged between 3 months and 2 years) are granted 4-h weekly permits for 1 year.
3. Workers with more than one infant child are eligible for 4-h weekly permits for 2 years.
4. Female workers may apply for 2-h weekly permits.

About 10% of the workforce (53 women and 20 families with dependent children) will benefit from these paid permits, whereas the ABC will arrange shifts differently, keeping personnel costs constant. This innovative policy aims to improve employee well-being, recognising the role of workers as primary stakeholders in water utilities.

Third, ABC reviewed its tariff system in 2015. Tariffs are per se determined according to the Water Tariff Method, established by ARERA with resolution no. 664/15. In short, the resolution is based on the principle of full cost coverage, but it also allows for an annual increase, meant to support investments. ABC confirmed a tariff increment of 6%, accompanied nevertheless by an innovative redistribution policy. In particular, 35,000 low-income families<sup>4</sup> were exempted from paying the first 100,000 L consumed per year and were granted a fixed price for exceeding litres. The missing revenues resulting from the exemptions were balanced by an increase in the tariff paid by high-income families that was estimated at 20€ per user a year. This is a substantial novelty for Italy, as disadvantaged consumers are not only untouched by the tariff increase but also received water for free. This point is even more interesting in light of the fact that ABC already sets very low tariff compared to the rest of Italian water utilities. This measure aims to benefit social cohesion and the overall welfare of the local community.

Finally, the profits obtained by ABC (if any) must be devoted to financing an international cooperation fund, aimed at improving water accessibility in third world countries and ecological literacy courses.

### 5.3 | Environmental sustainability

Water losses along the production chain represent an inefficient and unsustainable use of water, which is by its own nature a scarce resource (Sahely & Kennedy, 2007; Whitehead, 2017). We use data

<sup>4</sup>The threshold defining low income is set at €9,000 a year, which is higher than the one suggested by ARERA, that is, €8,100.

**TABLE 5** Descriptive statistics

Variable	Obs	Mean	Std. dev	Min	Max	Source
Water losses	30	0.387333	0.12385	0.13	0.664	Legambiente

published by *Legambiente* on water losses in urban environments to assess the environmental effects of decorporatisation. Though only a partial measure of environmental sustainability, water losses are one of the relevant dimensions in the assessment of the performance of water utilities (Del Borghi, Strazza, Gallo, Messineo, & Naso, 2013). Table 5 provides descriptive statistics on the dataset on water losses.

Water Losses are measured as the total amount of losses that occur along the water network annually. The observations available span 15 years and cover the city of Naples (served by ABC) and the nearby city of Salerno (served by Gori). The fine-grained detail of the observations allows to compare the two providers. Table 6 presents the estimation results.

The estimated coefficient for the interaction term is negative and significant, implying that the causal effect produced by the decorporatisation process consists in a significant reduction in water losses. The estimates produced by the fixed effects and random effects models are very similar, suggesting that the more efficient random effects estimator is consistent (the Hausman test indeed fails to reject the null hypothesis of consistency). Moreover, model fitness slightly improves when individual effects are allowed to vary randomly.

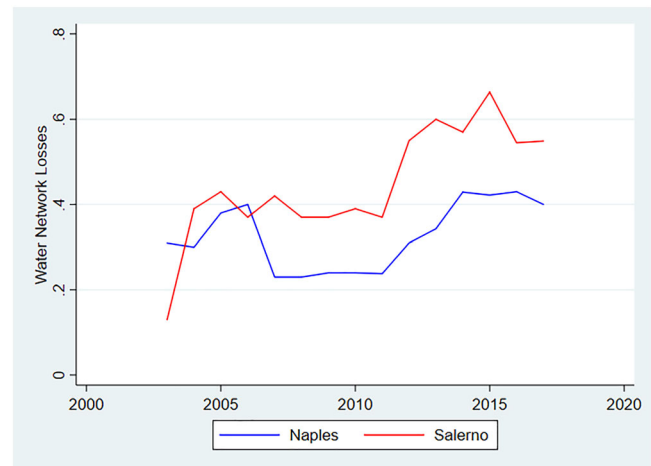
The parallel trends assumption may be verified by looking at Figure 5. From 2007 to 2013 (when the treatment occurs), there is no significant difference in the slopes of the two groups, which actually exhibit very similar trends. The result of the empirical analysis highlights the relative improvement in terms of environmental sustainability that occurred after decorporatisation.

Some limitations however need to be highlighted with respect to the empirical analysis carried out. First, water losses are only of the many dimensions of environmental sustainability. Other dimensions include emissions, energy usage and waste production. The lack of data at the municipal level<sup>5</sup> does not allow to investigate the effect of decorporatisation on these dimensions. Second, the model we resort to does not control for the determinants of water losses, other than governance. In particular, infrastructural endowments, technological investments and socio-economic factors may contribute to explaining differences in water losses across municipalities. Failure to consider these variables may lead to omitted variable bias. Again, lack of data at the municipal level makes it difficult to address this problem, but the large similarities between Naples and Salerno may attenuate this problem significantly. Moreover, the high extent of model fitness

**TABLE 6** Estimation results

	Fixed effects	Random effects
Treatment	(omitted)	-0.075 (0.032)**
Post	0.220 (0.036)***	0.212 (0.033)***
Treatment * Post	-0.116 (0.051)**	-0.117 (0.05)**
_cons	0.323 (0.016)***	0.360 (0.023)***
Hausman test		0.021 (0.99)
R <sup>2</sup>	0.63	0.72
N	30	30

\* $p < 0.1$ . \*\* $p < 0.05$ . \*\*\* $p < 0.01$ .

**FIGURE 5** Parallel trends assumption. Source: original elaborations on data provided by Legambiente

( $R^2 = 0.72$ ) implies that the lack of covariates does not represent an insurmountable obstacle.

## 5.4 | Discussion

Both advantages and drawback emerge from our analysis of the shift from ARIN to ABC. First of all, some of the novel elements introduced by ABC's statute have been announced but not implemented yet. Moreover, accountability is slow (as of 2019, the annual social report has not been drafted, the 2017 financial report has not been published, and the final reports for 2014–2015–2016 were published only in June 2018) and democratic participation has been intermittent, as the Citizen Committee suspended its activities from 2015 to 2018, failing to participate in board decisions until 2019, when it renewed its participation.

<sup>5</sup>The data published by *Legambiente* cover several Italian municipalities (NUTS-4 administrative units) of medium-high size, typically one per province. Data on emissions and waste exist for Italian provinces (NUTS-3), but more than one water provider typically serve different municipalities within the same province. For example, the municipality of Pozzuoli, which is literally adjacent to the city of Naples is served by Gori spa, which makes it impossible to disentangle the effect of decorporatisation at the provincial level.

In economic terms, ABC appears to be conducting the same activities and achieving the same results as its predecessor, as the financial and operational reports on water quality confirm. Reportedly, citizens have not noticed any changes (except from the logo, which changed from ARIN to ABC) and new investments have remained scarce, due to uncertainty about resources. Regarding the social dimension of sustainability, some positive effects may be observed. The workforce was expanded, increasing vertical integration. Moreover, workers were granted full-time permanent contracts and innovative weekly permits were introduced, allowing for a better life-work balance were introduced. The tariff system was revised, favouring redistribution. Finally, ABC's statute was revised, forbidding the distribution of profits, which must instead be used to fund water-related charities in the third world. Finally, concerning the environmental dimension, a positive result has been achieved, in terms of reduction in water losses. This phenomenon may be explained by the higher extent of vertical integration that ABC achieved, even in the face of a substantial lack of investments.

The elements analysed in the case study reflect the transition of ARIN/ABC from a cost-effectiveness governance model not to a social governance model, as initially set out in our formulation, but towards a new, third model, characterised by an equity orientation (see Table 7).

The current (and perhaps in part unintended) governance model is characterised by a *shared governance* (Ness & Haugland, 2005; Ostrom, 1990), where the local community is engaged in all the strategic processes of *participatory control* (Brown et al., 2006), *collaborative service contracts* (Tadelis, 2002) and *equity cost* (Liao, Warner, & Homsy, 2019). In fact, for the first time, socially oriented price-setting may not impact financial balance.

The case of ABC highlights how the decorporatisation process shifted the governance structure from a cost-effectiveness governance model towards a social sustainability governance model, which could be more suitable for 'common goods' like water (Ostrom, 1990). This change is evident in the new policies, oriented to the protection of employees and end-users, who are considered as primary stakeholders due to their long-term interest (Seuring & Gold, 2013).

After decorporatisation, workers and end-users have been the main beneficiaries of the public value generated (Sharma & Henriques, 2005). Workers do enjoy better working conditions and end-users pay an equity-based tariff. The new governance model represents a novel and suitable solution for the water industry, especially in a context such as Southern Italy, where unemployment is high and per capita income is low. In fact, the new governance model

simultaneously meets the needs of politicians and managers, generating a wide consensus on business operations, creating jobs and redistributing wealth.

## 6 | CONCLUSIONS

This work contributes the debate on the governance of water utilities through an analysis of the first case of decorporatisation in Italy, to the benefit of policymakers, regulators (including ARERA) and local administrators. We find that decorporatisation did not affect economic sustainability significantly, whereas it improved both social and environmental sustainability. This work provides some preliminary evidence that strong public sector involvement in utilities may be compatible with economic sustainability, while improving both social and the environmental attainments.

A new and sustainable governance model arises from the experience of the city of Naples, overcoming both the traditional social governance model, where public interests prevail over the economic equilibrium, and the cost-effectiveness governance model, where the economic equilibrium and efficiency are priorities. In this new model, economic sustainability is a necessary but not a sufficient condition, while equally important are the social and environmental dimensions, translated into the promotion of horizontal equity and the protection of the environment.

The operational model outlined that allows to pursue sustainability in water provision, according to the OECD principles on water governance of 2015. In this particular context, sustainability takes the form of social equity, overcoming the public/private dichotomy and the divide between performance-oriented and social-oriented management. Our case study shows that for the first time in Italy a balance has been reached between the needs of all stakeholders, including employees, end-users and owners. In spite of these positive and promising results, the sustainable governance model is yet to be fully realised in Naples. Some of the innovations announced are yet to be implemented and they might as well remain on paper. Moreover, relevant concerns remain with respect to the persistently low level of investments, which might in the long run hinder vertical equity.

Although this case study offers some insights on a much-debated topic, some limitations should be considered in interpreting our results. First, we analyse a single case, where the transformation process is still not concluded, so the results of decorporatisation may be observed only in part. Second, the data used are limited: the interviews were held only with top management and members of the

**TABLE 7** Comparison of the three governance models

Dimensions	Cost orientation	Social orientation	Equity orientation
Ownership	Private ownership	Public ownership	Shared governance
Service contract	Performance Contract	Regulatory Contract	Collaborative Contract
Control	Managerial	Bureaucratic	Participatory
Price	Full recovery costs	Political tariffs	Equity costs

Note. Source: original elaborations



board, while the information drawn from financial statements and from *Legambiente* reports do not allow to extend the analysis beyond 2016. Third, the lack of data on other dimensions of environmental sustainability and on the determinants of water losses allows to get only a partial picture of the environmental effects of decorporatisation. Fourth, the case study refers to a company that operates in a specific institutional and regulatory context, which may be exceptional in some regards. In conclusion, despite the interesting and promising indications provided by this analysis, the results may depend on some local features and are hardly generalisable.

An important and positive aspect of this work consists in its originality: To our knowledge, this is the first attempt to evaluate a decorporatisation experiment along the three dimensions of sustainability. Although more evidence is required before the current debate on private/public ownership of water utilities may ultimately be addressed, this work hopefully paves the way for a strand of literature. Future studies should analyse and compare cases from different countries and institutional contexts, exploiting fresher data and longer timespans, building on this contribution, to provide a broader and more solid picture of the effects of decorporatisations.

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## APPENDIX A

The questionnaire administered to managers has been translated into English and may be found below.

### Section 1—INSTITUTIONAL ASSETS

1. **In your opinion, which of the following statements best represents the change in the company's management after the transformation?**
  - a. it has improved
  - b. it has worsened
  - c. it has improved on some aspects and worsened on others
  - d. no significant changes occurred
  
2. **In your opinion, which of the following statements best represents the change in the company's management after the transformation?**
  - a. the management of the company is mainly efficiency-oriented
  - b. the management of the company is mainly effectiveness-oriented
  - c. the management of the company is mainly oriented to economic balance

- d. the management of the company has not undergone significant changes
- 3. In your opinion, how has service quality changed after the transformation? Could you please explain?
- 4. The company's workforce
  - a. is functional to the mission
  - b. is excessive
  - c. is unbalanced between functions
  - d. there is not enough turnover
- 5. In your opinion, is the company in a situation of financial balance?
- 6. How do you assess the company's autonomy from the owner?
  - a. High
  - b. Low
  - c. Reduced after the transformation
  - d. Inexistent
- 7. How do you assess the company's financial autonomy from the owner?
  - a. High
  - b. Low
  - c. Reduced after the transformation
  - d. Inexistent
- 8. How do you assess the economic balance of the company?

**Section 2—REGULATION**

- 9. How do you evaluate the service contract in general?
- 10. How do you evaluate the service contract with respect to sustainability?

**Section 3—PRICE**

- 11. After the transformation, does the company set a price fostering social equity? Could please you explain?
- 12. How do you evaluate tariff evasion and what has been done after the transformation in order to fight the phenomenon?
- 13. Are the financial resources obtained from tariffs sufficient to finance the company investments? Could you please explain?

**Section 4—CONTROL**

- 14. What kind of control is carried out by the owner on the business activities?
  - a. Ex-ante
  - b. In itinere
  - c. Ex-post
  - d. none
- 15. What are the control tools used by the owner?
  - a. budget
  - b. financial reporting
  - c. qualitative reporting
  - d. formal bureaucratic checks on each document
- 16. What players exert control?
  - a. the mayor
  - b. the assessor
  - c. the city council
  - d. the municipal manager
- 17. The company plan its activities:
  - a. in the short run
  - b. in the medium run
  - c. in the long run
  - d. it does not plan at all

**Section 5—SUSTAINABILITY**

- 18. Does the company make sustainable investments? Could you please provide some examples?
- 19. Do you think being a public entity improves sustainability? How?
- 20. On which type of sustainability is the company most focused after the transformation?
- 21. What is social sustainability for you?
- 22. What is economic sustainability for you?
- 23. What is economic sustainability for you?
- 24. To what extent, after the transformation, does the company contribute to sustainability?
- 25. Do you think sustainability is the core value for the company, after the transformation?