Review Article

Governance of Local Public Service Delivery: Between Policy, Efficiency, and Legitimacy

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We focus on the relationship between the public and the market in providing local public services, examining the dilemmas of efficiency and control that characterise the different governance models. Following a comprehensive review of the prevailing theoretical approaches and institutional transformations, the analysis demonstrates how outsourcing public services, while generating economies of scale and scope, concomitantly weakens public monitoring mechanisms. We suggest that integrated public industrial operators may be able to reconcile coordination needs with efficiency benefits, especially in fragmented contexts or where a territorial regulatory authority is lacking. A hybrid configuration is proposed to strengthen public governance while exploiting the advantages of the industrial dimension. The policy implications of this situation highlight the need for innovative institutional solutions capable of addressing the current challenges of local service sustainability.

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1. Introduction

In contemporary economies, the interaction between the State and the market in the provision of public services has regained momentum[1][2]. For many years, the public economics debate has highlighted the shift from the traditional paradigm of new public management towards the perspective of new public governance[3], which focuses on the production of services through collaboration between public, private, and civil society actors[4]. In parallel, the literature on State capacity has shown that the state's ability to set rules, collect resources, and ensure their implementation is a pillar for development[5] and necessary

to address global challenges such as ecological transition or economic resilience, since it is linked to economic growth[6].

Economic theory has traditionally assigned public intervention a role in correcting market failures; even with the development of welfare economics, public intervention has remained subordinate to the market. The State is expected to act when markets or private enterprises cannot coordinate efficiently or when choices must be made among alternative efficient allocations along the Pareto frontier. Conversely, if a divergence between efficiency and fairness is acknowledged, redistributive intervention is expected. In this sense, its role resembles a deus ex machina: it is not the central actor of economics but intervenes whenever necessary.

This study reflects on public intervention in the economy through enterprises and the relation with the market for public service provision. A renewed vision is becoming increasingly prominent in today's context marked by recurrent crises, geopolitical tensions, and sustainability goals[7] and technological change. While public enterprises face challenges in ensuring adaptability and performance, markets alone cannot achieve objectives that increasingly display the characteristics of public goods. In such areas, the scale of required investments and the need for strategic coordination make cooperation between the public and private sectors essential. We focus on the extent to which the efficiency gains associated with private provision compensate for the managerial weaknesses that sometimes emerge in in-house public service delivery models, drawing on the framework of government failure[8]. After that, we test if hybrid models reconcile the efficiency of private companies with the need for effective public control. Finally, we analyse whether public industrial operators can perform coordination and second-level regulatory functions within the scope of the services entrusted to them.

Recent thinking on the role of public intervention in the economy through enterprises has been renewed by the ideas that attribute the function of guiding and promoting innovation[9] and development[10] to the public sector, in addition to its typical functions of correcting market failures. There has also been a growing interest in hybrid forms of governance that integrate public and private resources in sometimes innovative organisational configurations[11].

We develop our ideas by consistently reviewing prominent literature and by means of a simple three-player framework in which a service provider, the local government, and society are represented. The discussion is based on a governance proposal interpreted as the role of a public enterprise with

coordination functions that reflect second-level regulation, interoperability, and shared assets. The institutional discussion later in the paper clarifies when this configuration is desirable.

The policy implications we suggest are as follows: an industrial operator configuration, interpreted as a system operator, can strengthen public coordination capacity, limit the negative effects of loss of control associated with the growth in the size of suppliers, and promote more integrated management of services. These considerations offer useful insights for rethinking institutional and regulatory structures in local public services.

Section 2 outlines the theoretical background. Section 3 contains the methodology and research questions, Section 4 contains the formalisation, and Section 5 develops the discussion and policy implications; conclusions follow.

2. Background

Public intervention in the economy traditionally revolves around some prominent roles such as the definition and protection of rights, market failure correction, and resource redistribution. It must ensure security and justice, support fiscal services and welfare infrastructure, and provide essential public services, to name a few. These services can be organised and delivered according to different institutional configurations: broadly speaking, in-house, privately, or via hybrid forms. That said, Governments are evolving and acquiring new roles, contributing to the governance of economic sectors[12], and in recent times, a proactive role in designing policies to address challenges from globalisation, digitalisation, and supporting transitions to greener economies[13]. The purposes can be traced back to two guiding principles: equity and efficiency; indeed, the government's role in promoting both equity (fairness in distribution) and efficiency (optimal use of resources) often involves trade-offs[14][15] and requires careful policy design.

These objectives presuppose the existence of a legal order capable of guaranteeing compliance with rules. The market failure corrective function primarily responds to allocative efficiency criteria. Defining, coordinating, and delivering services also requires efficiency. However, whereas equity is based on legal and coercive instruments, according to the Pareto criterion, allocative efficiency is reached through voluntary choices and mutually beneficial exchanges, and such efficiency tends to emerge in fair competitive environments. Justice and efficiency represent the guiding values of the State and the

market, which shape one another in an evolving relationship[16][17], raising the issue of the compatibility between the original justice-oriented role of the State and the more recent tasks related to efficiency.

Although economic theory has developed solid tools for analysing market failures and justifying public intervention, an unresolved issue is whether the public can use resources to deliver public services more efficiently than the private provision of public services. In this regard, the literature presents diverse findings given that efficiency depends on many factors such as context or sector, to name a few[18][19][20] and the interplay between government and market mechanisms.

During the 21st century, increased public intervention, with public enterprises as the main form, was observed up to the 1980s, when a rethinking of the effectiveness of government emerged with the rise of globalisation, which provided theoretical support for economic convergence, market integration and liberalisation. Recent financial and geopolitical crises and growing global economic competition have complicated the globalisation scenario. To this extent, the arguments on the rise and decline of public enterprises can frame the trajectory of public ownership and its performance limits[21].

2.1. Ownership and influence

The public sector can exert influence through direct ownership and alternative instruments. The four main levers are industrial policy, which involves selective support for strategic sectors; antitrust policies, which protect against market power as well as prices; environmental, social and governance regulation; and fiscal leverage. While these forms of intervention do not replace public ownership, they replicate some of its effects and create new models of the public economy. The Italian case is a good example and can be summarised as follows: starting from the establishment of the IRI in 1933, which was designed to remedy market failures and the financial crisis, it can be summarised as a super-holding company operating in many economic sectors. Then, the creation of the system of state-owned holdings occurred, where public enterprises combined economic and social goals. However, this led to the need for extraordinary financing and a progressive increase in the burden on the public budget; the creation of the Ministry of State Holdings increased political control. The 1960s and 1970s saw the continuous expansion of public enterprises, while from the mid-1970s to the end of the 1980s, a crisis of such a model became evident following the post-oil shock recession and growing social unrest. From the 1990s to the financial crises of the 21st century, there was a significant market development in public services, with the belief that it could bring greater efficiency up to the present day, where the need for coexistence and public-private collaboration is regaining momentum with modern solutions.

2.2. Rationality models

State and market activities are based on different rationales, with efficiency being the guiding value in healthy functioning markets, while justice and order prevail in the public domain[22]. In the private sphere, the rationality principle is consistent with efficiency[23]: enterprises and individuals freely choose ways and means to maximise their welfare. The voluntary dimension of exchange is essential since actors participate if they derive a benefit in terms of utility[24]. In the public sector, the achievement of social justice is the end, and the means are the laws, which act through mandatory provisions. In this context, coherence lies in the binding character of norms, which ensures the stability and universality of rights and[25][26] as Rawls already underlined. Publicly owned enterprises exist to balance public welfare, economic development, and strategic national interests[27][28]. This distinction generates a structural difference between the two spheres: market flexibility and public action rigidity. Private economic activity continually adapts to changes in price, demand, and technology. By contrast, public activity requires stable and durable rules to ensure legal certainty and enable individuals to plan their actions within a defined regulatory framework. However, problems arise when the public seeks efficiency-oriented objectives when substituting for the market due to market failures because a substantial difference exists between public action in the field of administrative issues and in the field of enterprises; thus, the administration of public participation is important[29][30]. In the first case, justice is the priority, and general rules are needed, valid for all, and applied according to stable and rigorous procedures. In the second case, the aim is to provide goods and services efficiently, paying attention to quality, accessibility, and, if possible, costs. The lack of distinction between these two areas can produce a crisis of rationality and a deviation from the objectives of efficiency.

2.3. Exit and voice

In his seminal work, Hirschman[31] analysed two ways in which dissent can be expressed against behaviour deemed unacceptable by organisations with which one has a relationship: exit and voice. The exit mechanism is typical of markets because customers can turn to another supplier to improve their condition if they are dissatisfied with a product, encouraging companies to correct their inefficiencies to stay in the market. His work still plays a remarkable role in public service studies[32]. The implications indeed are straightforward. The mechanism is precise (exit or stay), impersonal (avoids direct comparisons), and operates through signals detected by performance indicators; for the very same reason, in public services, exit loses relevance and the voice mechanism takes over. Exit, nevertheless, is

often impractical in public services, especially in essential services. Although market-based public management reform has introduced customer choice among competing providers of public services and voice can lead to quality improvements[33][34], in most cases citizens cannot give up consumption or easily replace it with equivalent alternatives. In addition, even when the exit is theoretically possible, it is ineffective if the public service providers maintain their legitimacy through institutional norms. If the exit is not feasible, the only instrument for dissatisfied users is the voice that, if well organised, could play a corrective role[35]. However, in the public sector, it is believed that voice is difficult to activate. Exit is an individual choice that does not require coordination, whereas voice requires collective action to be effective. As pointed out in Olson's popular book on public goods and the theory of groups, widespread collective interest is challenging because of the free-rider trap[36]: if everyone waits for others to protest, few act.

2.4. Organisations, costs and uncertainty

To comprehend the role, strength, and limitations of public undertakings in today's economic environment, it is beneficial to analyse their similarities and differences compared to private enterprises using two lenses. The first aspect pertains to the underlying rationale for their existence and the second aspect addresses whether they are similarly justified as private enterprises[37][38]. The discussion of the aforementioned topics is paramount to anticipate the discussion on their coexistence with or replacement by the market and the conditions under which such replacement might occur. According to traditional theory, the market represents a natural order, whereas organisations are seen as evolved solutions, and the emergence of enterprises indicates that in some contexts their coordination is efficient even if the situation becomes more complex with the introduction of public undertakings[39][40]. It may be argued that their existence is attributable to the inability of the market and private enterprises to effectively fulfil certain functions. However, this ex-ante justification may be incompatible with ex-post performance. First, the concept of market failure is associated with elevated transaction costs, information asymmetries, and opportunistic behaviour; secondly, the private sector, in both market and enterprise forms, has been found to lack the capacity to deal effectively with specific areas. Third, the rigidities of public undertakings themselves have not yet generated the evolution towards more appropriate institutions. Boosted by Coase's 1937 seminal paper, scholars have discussed the conditions and circumstances for firms' emergence when coordination through the market becomes too costly due to the complexity of production, the numerous transactions required, and the uncertainties associated

with information and opportunistic behaviour. In this respect, an interesting perspective of Coase's work was the incoherent treatment of social cost as market failure[41][42]. In such circumstances, firms facilitate the reduction of transactions and, to a certain extent, information and opportunistic problems; indeed, information is a scarce resource not easily available to enterprises and decision-makers[43]. According to neoclassical economics, the price orchestrates the economic system, with planning being regarded as inefficient. However, significant domains of public economic activity are not governed by price mechanisms. Both types of enterprises operate through hierarchical structures and use authority to coordinate production factors. However, personal authority prevails in private enterprises. In contrast, impersonal authority is dominant in public undertakings. In conclusion, public and private undertakings share the same theoretical reasons for their existence, particularly the need to reduce transaction costs. Impersonal rules, such as those typical of many public organisations, do not offer this flexibility because they are based on fixed ex-ante rules. Only a personal authority can consistently interpret the changing context and guide the organisation, and this is particularly relevant for public undertakings where top managers are often bureaucrats. These operate according to procedural constraints rather than result-oriented objectives, thereby reducing adaptive capacity. In the presence of environmental, technological, or needs variability, an organisation based on impersonal authority tends to be inefficient. A more flexible and result-oriented private enterprise retains an advantage in contexts where adaptability is crucial. The debate on organisational theories has evolved in recent years to analyse contemporary challenges such as, to name a few, governance, knowledge management, environmental issues, and the impact of new technologies[44] highlighting how the structure of companies must adapt to constantly changing contexts[45]. Moving to uncertainty, parametric uncertainty pertains to scenarios where all potential alternatives are known, whereas structural uncertainty pertains to a paucity of knowledge concerning the problem's configuration that is important in contemporary transitions of societies[46][47]. Contractual instruments struggle to address structural uncertainty, as their foundation lies in a forward-looking delineation of future circumstances. Thus, it is important to integrate an uncertainty management framework to support public service contracting[48][49]. Structural uncertainty or non-standard events cannot be managed through contractual agreements and necessitate a dynamic organisational structure, but in public undertakings operating through impersonal authorities, this is not a common organisational structure. Structural uncertainty is directly associated with transaction costs, e.g. information and search costs, negotiation and decision costs, or contract control and sanction costs[50]; the author suggests that these costs result from a lack of information.

2.5. Motivation and legitimisation

The performance of public undertakings is documented with heterogeneous results. In theory, in a healthy competitive environment, firms are driven to perform in a manner that is conducive to rational behaviour, and this process serves to penalise enterprises engaging in irrational behaviour. However, this selective dynamic often does not apply. The concept can also be rooted in Habermas's forms of crisis in a capitalist society: economic, rational, legitimacy, and motivation crises[51][52]. A crisis in the private sector is typically economic, while in the public sector, the prevailing crisis pertains to rationality. The absence of competitive pressure engenders challenges in inefficient deviation correction. Motivation is linked to the pursuit of profit or individual objectives, while market demand drives the notion of legitimisation. Society's needs motivate public services that should be produced in the absence of private interests; nevertheless, bureaucrats or politicians may deviate from these goals. When individual motivations prevail over institutional ones, a motivational crisis is generated that does not automatically lead to delegitimisation since the demand for public services is inelastic. Since the late 20th century, for example, many countries have undergone liberalisation and privatisation processes driven by the common idea that markets can deliver services more efficiently. The guiding paradigm has inspired reforms in the energy, transport and telecommunications sectors, expecting competition to replace public coordination as the primary driver of efficiency and innovation. However, the empirical results in the following years demonstrated mixed outcomes[53][54][55]. In the contemporary context, the prevailing economic conditions, geopolitical challenges, and the pressing need to address environmental objectives have brought to the fore some limitations of market mechanisms to cope with medium- to long-term goals, as the energy (decarbonisation) or waste (circular economy) sectors are showing and in which the role of industrial policy is increasing[56]. In many instances, the hypothesis that the liberalisation of public service sectors would invariably engender superior benefits compared to those achievable through public management has been demonstrated to be erroneous. Consequently, the division of roles between policy-making, regulation, and management must be re-evaluated, calling for exploring modern forms of ownership, governance, and influence. There is a need to separate two levels of judgement: the first is ex-ante and long-term, whether the public sector should conduct a specific activity, and the second is ex-post and short-term, whether the activity is conducted efficiently. The first judgement grounds the legitimacy of public enterprise; the second assesses the action's rationality. Confusing these two levels prevents the public sector from detecting inefficient structures. It is anticipated that public-private management has then evolved as a valid approach to delivering certain kinds of public services[57]. We

acknowledge that modern forms of cooperation are necessary to maximise society's welfare since the public sector can exploit the industrial policy lever to create new models of public service delivery.

3. Research questions and approach

This study addresses three research questions. The first question refers to what extent the efficiency gains associated with private provision compensate for the managerial weaknesses that sometimes emerge in in-house public service delivery models. To answer this question, this study draws on the framework of government failure[8]. Public choice literature has emphasised these aspects without developing a general theory of their inevitability. Nevertheless, it has had the merit of drawing attention to elements often overlooked using normative approaches. Public undertakings may exhibit quantitative and qualitative limitations concerning desired outputs, despite the presence of technologies, production factors, and demand that would allow for an adequate production level in a market setting; consequently, economic theory has proposed behavioural explanations that emphasise the self-interested actions of bureaucrats, politicians, and pressure groups. However, similar behaviours are also present in the private sector without necessarily leading to the same systemic consequences. Second, the study resumes public intervention in the economy and reflects on its contemporary relevance. Building on evidence and the current global context, it advances a partnership between public and private actors, in which the public counterpart actively guides and supports economic development.

The second question is whether hybrid models reconcile the efficiency of private companies with the need for effective public control. This question calls for a discussion on the interaction between public administration and private companies, considering partially diverging interests leading to reduced monitoring and controlling capability. While private firms may demonstrate greater productive efficiency, their growing scale and information advantages may weaken the capacity of local government to exercise oversight. Therefore, governance arrangements that combine private efficiency with the strategic guidance of public enterprises can address this issue.

The third question inquires whether public industrial operators can perform coordination and second-level regulation functions within the scope of the services entrusted to them. This is an innovative approach to public-private partnership value creation knowledge. Recent thinking on the role of public intervention in the economy through enterprises has been renewed by the ideas that attribute the function of guiding and promoting innovation[9] and development[10] to the public sector, in addition to its typical functions of correcting market failures. There has also been a growing interest in hybrid forms

of governance that integrate public and private resources in sometimes innovative organisational configurations[11]. These experiences demonstrate how market and public service logics can co-exist if properly regulated. Thus, the problem is what it is and how to regulate a complex relationship between a public administration and a private firm.

We develop our ideas by adopting both a theoretical approach based on literature analysis and an analytical formalisation of a three-actor framework (enterprise, local government, society) that links production efficiency, control capacity and social welfare. The framework is extended by introducing a governance parameter interpreted in public service delivery as the role of a public enterprise with coordination functions that reflect second-level regulation, interoperability, and shared assets, partly offsetting the loss of control due to scale. In our framework, the provider chooses the effective quality level to maximise profits; the local government sets the tariff limit and the contractual quality while facing monitoring frictions that worsen with the scale of the provider relative to the local government; and society minimises total disutility from tariffs and quality shortfalls. The institutional discussion later in the paper clarifies when this configuration is desirable. This approach allows us to integrate economic considerations with an institutional perspective, providing an interpretative framework for discussing policy implications and the conditions under which hybrid models may be desirable for maximising social welfare.

4. Formalising interests and social welfare relation

In the current context, examples such as energy, waste management, and ecological transition are increasingly recognised as public goods and of strategic interest. In these areas, private investment alone is often insufficient or not adequately geared towards the common good, making public intervention through public enterprises essential to guide and support the necessary transformations. This section resumes a typical case of public service delivery, and we argue that this equilibrium among different interests is hard to maintain given that there is an underlying tension, which we call the public control paradox. Although a service contract binds a company, the public sector often lacks the information or resources to exercise effective control. As a result, regulatory power is likely to be weak, whereas a company that knows its costs and operating structure better can obtain extra rents, even at the expense of service quality. We simplify this argumentation by considering the following three actors: a service provider that aims to maximise profit; the public administration, as contracting authority, whose objective is to maximise compliance with the contractual quality; and citizens, whose objective is to

minimise costs, given that they cannot choose the operator in a local monopoly. Therefore, voice and exit mechanisms are limited. The situation described above presents some problems, including information asymmetry, given that the company knows the cost structure better than the administration, and contractual incompleteness because any change in the service (e.g. extraordinary collection) implies additional costs. The situation can be described as follows:

A private enterprise whose strategy is choosing the effective quality level Q given a tariff T that is regulated by the authority (local or national). Its objective is formalised in Equation 1, i.e. maximising profit Π, with $c(Q)$ being the cost of providing the service as a function of effective quality Q.

$$\max_{Q} \quad \Pi = T - c(Q) \tag{1}$$

A Local Government that approves tariff T (typically regulated by an authority) and defines a minimum contractual quality standard Q^*; the actual level Q is chosen by the company; its goal is minimising the deviation between contractual and actual quality as described in Equation 2, given its monitoring capacity $\phi(S)$, where Q^* is the minimum contractual quality level, $\Pi_{\min}$ reflects minimum profit ensuring contract sustainability, and $\phi(S)$ is the monitoring capacity (decreasing in scale S).

$$\min_{T,Q^*} \quad \frac{|Q - Q^*|}{\phi(S)} \quad \text{s.t.} \quad \Pi \geq \Pi_{\min} \tag{2}$$

Society (Users) that cannot choose T or Q (exclusive concession regime) and wishes to minimise the total perceived cost and disutility from insufficient quality as in Equation 3.

$$\min \quad U_C = T + D(Q) \tag{3}$$

Where U_C is the total perceived cost and $D(Q)$ is the disutility arising from a quality level Q below expectations. Therefore, a combination (T, Q, Q^*) is considered acceptable if it satisfies the following conditions simultaneously: economic sustainability, i.e. $\Pi \geq \Pi_{\min}$; minimum quality guarantee, that is $Q \geq Q^*$; and acceptable cost for citizens, $U_C \leq U_C^{\max}$. Here, $U_C^{\max}$ represents the maximum cost the community is willing to bear. A summary of the above situation is provided in Table 1, which reports the actors, the variables they control, their objectives and the corresponding functions.

Actor	Controlled Variables	Objective	Utility/Objective Function
Service provider	Effective quality Q	Maximise profit	$\Pi = T - c(Q)$
Local government	Tariff T, minimum Q^*	Minimise deviation from contractual quality	$\frac{\lvert Q - Q^* \rvert}{\phi(S)}$ s.t. $\Pi \geq \Pi_{\min}$
Society	—	Minimise total cost and dissatisfaction	$U_C = T + D(Q)$

Table 1. Public service stakeholders

Therefore, under the conditions listed (sustainability, minimum quality and acceptable cost), there is a solution (T, Q) that satisfies all actors: the company covers its costs and obtains a minimum profit, the administration verifies compliance with quality standards, and citizens bear an overall burden that is not excessive. In this way, the public control paradox is overcome. In the current model, the tariff T paid to the company covers operating costs and investment costs. In particular, achieving circular economy objectives requires substantial investments in treatment plants and new technologies, which only medium-sized and large companies can afford. In this context, the following emerge: economies of scale, as larger companies can sustain higher investments with a decreasing average cost per unit of service; and economies of scope, mainly related to operating costs, thanks to the possibility of sharing resources between different services (e.g., software, personnel management, logistics) and generating operational synergies. However, a larger company typically manages contracts in several municipalities, and this reduces the bargaining power and control of local administrations, which struggle to monitor service quality effectively. In other words, although technical efficiency may increase, local control may decrease.

This fact presents us with a paradox: in the first part of the analysis, we observed that to achieve efficiency, enterprises must grow. However, such growth implies a loss of control for local administrators, while the position of society does not change because they cannot exercise the exit option. Let S denote the scale of the company, e.g. the number of municipalities served or overall production capacity. With

reference to the private company, the cost function, see Equation 4, now includes economies of scale and scope:

$$C(Q, S) = c(Q) \cdot f(S) \tag{4}$$

where $f'(S) < 0$ for small S, and $f''(S) > 0$ (risk of diseconomies). The enterprise maximises profit as formalised in Equation 5, where $f(S)$ is a decreasing function for small scales (economies of scale) but may increase beyond a threshold (organisational complexity), while economies of scope are embedded in the structure of $c(Q)$, which may decrease with broader service integration.

$$\max_{Q,S} \ \Pi = T - c(Q) \cdot f(S) \tag{5}$$

As for the local government, its ability to monitor and regulate the service decreases with the scale of the private company, as in Equation 6, as a larger service area reduces the effectiveness of oversight:

$$\text{Regulatory capacity} = \phi(S), \quad \text{with} \quad \phi'(S) < 0 \tag{6}$$

The local government seeks to minimise the deviation from the contractual quality level, weighted by its monitoring capacity, and as S increases, $\phi(S)$ decreases, making deviations from Q^* more likely, as in Equation 7.

$$\min_{T,Q^*} \quad \frac{|Q - Q^*|}{\phi(S)} \quad \text{subject to} \quad \Pi \geq \Pi_{\min} \tag{7}$$

Finally, society cannot directly influence the outcome, but its members are indirectly affected by the scale of the service provider. In this case, the tariff T may decrease due to increased efficiency, but service quality may worsen due to weaker control mechanisms, so the total perceived cost can be formalised in Equation 8.

$$\min \quad U_C = T + D(Q, S) \tag{8}$$

Where: $D(Q, S) = d(Q) + \delta(S)$ with $\delta'(S) > 0$; therefore, disutility increases with scale due to a loss of local responsiveness and oversight, as summarised in Table 2.

Actor	Objective	Effect of scale S
Service provider	Maximise $\Pi = T - c(Q) \cdot f(S)$	$f'(S) < 0$: efficiency gains from scale and scope
Local government	Minimise $\frac{\lvert Q - Q^* \rvert}{\phi(S)}$	$\phi'(S) < 0$: weaker monitoring capacity
Society	Minimise $T + d(Q) + \delta(S)$	$\delta'(S) > 0$: higher disutility from weaker control

Table 2. Public service stakeholder objectives with scale effects

The model reveals a trade-off: larger private companies can achieve greater efficiency through economies of scale and scope; however, control capacity deteriorates, making it harder for public authorities to enforce quality, and citizens experience a risk of service degradation, despite potentially lower tariffs or, on the contrary, service improvement but at a higher cost.

4.1. Governance, influence and industrial policy

The public sector can exert influence through direct ownership and alternative instruments. The four main levers are industrial policy, which involves selective support for strategic sectors; antitrust policies, which protect against market power as well as prices; environmental, social and governance regulation; and fiscal leverage. While these forms of intervention do not replace public ownership, they replicate some of its effects and create new models of the public economy.

In light of this paradox, we believe it is necessary to rethink the governance of services, not as a simple bilateral relationship between public bodies and private enterprises but as a collective good to be managed through co-governance. One possible solution is represented by mixed forms of public-private industrial management in which large private companies' capital and industrial expertise allow economies of scale and scope to be achieved. At the same time, the presence of public partners ensures effective control over the objectives of quality, universality and equity. This configuration, summarised in Equation 9, aims to preserve efficiency through scale (S large) while keeping control capacity by introducing shared governance mechanisms (G). Formally, we redefine the regulatory capacity as:

$$\phi(S, G), \quad \text{with} \quad \frac{\partial \phi}{\partial S} < 0, \quad \frac{\partial \phi}{\partial G} > 0 \tag{9}$$

Thus, public–private governance models can compensate for the loss of public control, mitigating the scale paradox and creating space for the structured participation of local authorities, particularly smaller municipalities, through consortia or multi-level instruments. This perspective is based on the idea that waste management is a public service with social infrastructure characteristics crucial for the ecological transition.

The implications in terms of efficiency and effectiveness are twofold. With regard to efficiency, we refer to the synergies that may emerge if the public industrial operator moves towards a multi-utility configuration service, to some specific aspects, in a specific area, and with specific functions as a system operator[56]. In this set-up, starting from Equation 9, governance capacity (G) is strengthened through the integration of complementary services, with potential benefits derived from synergies and with the following objectives:

- Preserving the public nature of the industrial operator and consolidating the strategic partnership between municipalities, enabling monitoring and control capacity.
- Overcoming management fragmentation and achieving economies of scale.
- Guaranteeing integrated waste cycle management from collection to treatment and recovery over a sufficiently large geographical area;
- Promoting the synergistic use of public infrastructure and facilities;
- Developing integrated policies between network services (waste–water–energy), functional to the circular economy and decarbonisation objectives.

Further optimisation can be observed in terms of effectiveness, which is significant both in regulated contexts and in contexts where industrial organisation is mainly delegated to the market. Large-area authorities that coordinate and plan service delivery aim to overcome fragmented management. In cases where such structures do not exist, the proposed system operator model can effectively fill the gap left by the absence of a basin authority, playing a second-level regulatory role: this is not comparable to a single municipality, which does not have adequate regulatory capacity, nor to the large-area authorities, since the latter do not exist. In this context, the regulatory capacity function formalised in Equation 6 shows how an increase in the size S reduces the monitoring capacity $\phi(S)$, making deviations from the contractual quality standard Equation 7 more likely. By operating on behalf of public administrations and aggregating several services, the industrial operator is able to compensate for this regulatory deficit, strengthening its control capacity and defending the interests of municipalities and, ultimately, society

more effectively. From society's perspective, optimising Equation 8 reduces the total cost of the service, including the tariff T and the disutility $D(Q, S)$ linked to quality and management scale.

The benefits can be summarised as follows: strengthening of the business plan thanks to economies of scale and scope resulting from synergies between the water service and the waste management sector. Integration allows for economies of scale and specialisation, accompanied by greater investment in infrastructure and facilities, with positive effects on the overall quality of waste management. This promotes the rationalisation of investee companies through incorporation processes, in line with the objectives of public intervention efficiency and effectiveness. Finally, by integrating regulatory and management functions to ensure higher service levels and greater protection of public interests, such a configuration can contribute to effectiveness.

5. Discussion and implications

On the one hand, two primary explanations for public sector productive inefficiency were identified. The first of these concerns the underlying causes of inefficient behaviour, while the second highlights the limits of exit and voice options. On the other hand, however, the market has also encountered difficulties in meeting the expectations of efficiency established in the aftermath of liberalisation and privatisation reforms. Public-private coordination efforts are important because problems may arise, as formalised in the paper. The prevailing use of regulatory instruments produces an ex-ante legitimisation, while an ex-post legitimisation based on evaluating the results achieved and the possibility of modifying or terminating the activity in the event of unsatisfactory outcomes is lacking. Even if competition is deemed to be an efficiency driver, it is difficult to assess results, promote corrections, or threaten the organisation's existence in the event of persistent inefficiencies. This is also true in the private provision of public services because of asymmetric information, as previously explained. In this context, governance can be understood as a common good where the presence of large public operators operating according to market logic can support municipalities, particularly smaller ones, in carrying out monitoring, planning and investment functions that they would not be able to sustain on their own, thus ensuring both industrial efficiency and consistency with the objectives of quality and universality of service. Consequently, it can serve to overcome both public and market failures, leading to the necessity of defining a new organisational model that ensures efficiency by identifying some of its characteristics without claiming to be exhaustive. Market logic, rather than legal and administrative instruments, should regulate public enterprises. They should also be reorganised into a new institutional form that is

intermediate between the public and the market, to maximise the interests of the main stakeholder: the community. This engenders an organisational dichotomy: public structures dedicated to administrative acts and services, which must be maintained within the public administration, and enterprises producing goods and services, which can coexist with market logic. In relation to the structural uncertainty referenced in the initial part of this article, effective enterprises require managerial oversight because structural uncertainty necessitates leadership based on personal authority, as opposed to reliance on legal and administrative instruments. In the context of the concept of exit or voice, even public companies must risk dissolution if they demonstrate an inability to function efficiently over an extended period. The notion that administrative acts assure the existence of such entities is not tenable in the long term. Given the ineffectiveness of exit and voice instruments, the responsibility for exercising economic and quality control cannot be entrusted to the citizens who use the services because they generally have no alternatives. Consequently, the responsibility for such control must be assigned to independent authorities, who must protect users within a clear regulatory framework. The public sector must be able to divest itself of services provided by inefficient public enterprises and replace them with more efficient ones to benefit the community. As articulated in this article, the simultaneous optimisation of societal interests and cost-effectiveness is a challenging objective to realise within the prevailing theoretical administrative framework for delivering public services. Therefore, a consolidation of management and governance models that go beyond the classic public-private dichotomy is hoped for. In this regard, it is recommended that public enterprises act as contracting authorities on behalf of the public administration, especially at the local level, and more effectively represent and defend their interests. At a strategic level, and in this context, the examples of the energy sector and the circular economy are apparent; a new proactive role for the State is required, given the monopoly characteristics of certain facilities and the fact that the investments required to achieve them are beyond the business models of private companies.

To conclude, two policy implications for local governance are suggested. First, strengthening local governance: the proposed configuration with the innovative role of the industrial operator can be a second-level regulatory tool in areas without a river basin authority, filling the coordination gap and strengthening the monitoring capacity of local governments, with positive effects on service quality and the protection of collective interests. Second, integrating services and infrastructure: promoting the proposed model encourages economies of scale and scope, incentivising integrated investments in environmental and energy infrastructure.

6. Conclusion

This paper has focused on public service provision, highlighting the inherent structural tensions in service delivery models, from public enterprises to outsourcing. If public enterprises are deemed inefficient, the analysis argued that outsourcing public service provision can have two distinct outcomes. On the one hand, it can improve efficiency gains derived from economies of scale and scope. However, it can concomitantly weaken the capacity of local authorities to exercise control. The proposed formalisation underscores the need for a balanced approach that considers economic sustainability, quality standards and acceptable costs for citizens: this balance cannot be assured solely by market forces or standard contractual regulations. A novel approach has been proposed that foresees a proactive role for a public multi-utility acting as a second-level regulator in search of the optimal scale and scope of services to be delivered to society. The policy implications of this approach suggest the necessity for the structured involvement of public bodies capable of rebalancing information asymmetry. Efficient public industrial operators can play a subsidiary role, supporting municipalities, particularly smaller ones, in monitoring, planning, and investment functions that they could not perform independently. In addition, they could replace local administrators in monitoring and controlling activities. The paper's added value lies in formalising the link between industrial efficiency and local government capacity, demonstrating that the loss of control is not a side effect but a structural consequence of operators' size growth. This observation underscores the necessity for a co-governance approach that balances scale and accountability, which is paramount for competing in today's geoeconomic reality and for meeting medium-term goals that require an ecological transition process that can only be achieved through the modernisation of public services.

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Declarations

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.