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The efficiency and effectiveness of municipally owned corporations: a systematic review

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ABSTRACT

Municipally owned corporations (MOCs) are increasingly utilised to provide local public services, but little remains known about their efficiency and effectiveness. In this article, we offer a typology of MOCs, explore the variables that affect their behaviour, and perform a systematic review of public administration articles published between 2001 and 2015 on their efficiency and effectiveness. We find that MOCs are often more efficient than local bureaucracies in the provision of services such as refuse collection, water distribution, and transit services, although they also have high initial failure rates. We conclude that municipally owned corporations are a viable means for delivering some local public services for localities capable of initiating and managing complex contracts. In light of the scarcity of literature on this topic, our conclusions remain tentative, and we encourage additional research into this growing phenomenon.

KEYWORDS Local corporations; mixed enterprises; municipal companies; systematic review

1. Introduction

Municipally owned corporations (MOCs) are autonomous organisations owned by municipalities, used to produce or deliver local public services outside the local bureaucracy. A steadily increasing number of localities utilise them for public service provision (Florio and Fecher 2011; Grossi and Reichard 2008; Whincop 2005). Municipalities in Germany, Italy, and The Netherlands utilise on average between 10 and 20 local corporations for providing public services (Boogers et al. 2016; Grossi and Reichard 2008), a large majority of municipalities in Portugal own at least one MOC (Tavares and Camões 2007). Local corporations are also increasingly used for service provision in the United States (Bunch 2000; Molinari and Tyler 2003) and throughout Europe more broadly (Dexia Crediop 2004).

Despite the growing importance of MOCs, the literature on them remains scarce. While much of local governance literature has been devoted to

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investigating the comparative efficiency of different local service delivery modes (Bel, Hebdon, and Warner 2007; Hefetz and Warner 2007; 2012; Jossart-Mirelli and Musso 2005; Warner and Hebdon 2001), researchers have focused primarily on comparing private and public production for various services, and less on the efficiency of different types of service organisation within the public sector (Sørensen 2007; Pérez-López, Prior, and Zafra-Gómez 2015). Those studies that *do* recognise that public sector provision can occur in ways other than in-house provision usually consider only a single delivery form, or consider it solely in the light of the trade-off between public and private provision (Bel, Fageda, and Mur 2014; Benito, Bastida, and García 2010; Dijkgraaf, Gradus, and Melenberg 2003; Simões, Cavalho, and Marques 2013). Consequently, our empirical understanding of the efficiency and effectiveness of municipally owned corporations remains limited.

Yet there are reasons to suspect that institutional differences between MOCs and local bureaucracies may yield differences in effectiveness and efficiency (Bognetti and Robotti 2007; Da Cruz and Marques 2011; 2012; Dijkgraaf and Gradus 2013; Marra 2007; Zafra-Gómez et al. 2013). Key to understanding MOCs is their vast legal and managerial autonomy. While local bureaucracies are constrained by municipal law safeguarding public money, MOCs are often regulated by public or private commercial law instead (Bel et al. 2010; Bognetti and Robotti 2007; Da Cruz and Marques 2011; Tavares and Camões 2007). Next, MOCs are often granted extensive managerial autonomy and flexibility in delivery (Bel and Fageda 2006; Garrone, Grilli, and Rousseau 2013) by municipal owners seeking to remove politics from service provision (Bourdeaux 2013). MOCs allow shared ownership, facilitating extensive cooperation between localities and between public and private sector, allowing for cooperation as diverse as inter-municipal enterprises or public-private partnerships. Moreover, MOCs differ from local bureaucracies in funding, transaction costs, financial scrutiny, labour rights, permission to operate outside their jurisdiction, and, under some circumstances, in the right to make profits and risk of bankruptcy (Bel and Fageda 2010). Each of these factors may potentially cause MOCs' greater or lesser effectiveness and efficiency.

Do MOCs differ in efficiency and effectiveness from local bureaucracies, and if so, what factors bring this difference about? In this article, we offer a typology of MOCs, explore the variables that affect their behaviour, and perform a systematic literature review of public administration studies between 2001 and 2015 on their efficiency and effectiveness. We find that while MOCs often have high initial failure rate, they are also often more efficient than bureaucracies in the provision of services such as refuse collection, water distribution, and transit services, although our conclusions remain tentative in light of the scarcity of the literature.

The remainder is organised as follows. The next section offers a definition of MOCs. In [Section 3](#), we explore the differences between MOCs and local bureaucracies and formulate hypotheses about efficiency and effectiveness based on the literature. Next, in [Section 4](#), we discuss our methods for finding articles and offer descriptive statistics about the state of the literature. In [Section 5](#), we systematically review the literature on MOCs, testing our hypotheses using the empirical findings. In [Section 6](#), we summarise the state of the literature, discuss implications of our findings, and explicate this study's limitations. In [Section 7](#), we conclude.

2. Municipally owned corporations

The advent of New Public Management in the 1980s brought a shift towards involving markets in producing public services (Van Genugten 2008). By the 1990s, contracting out local services was a growing trend in the United States (Hefetz and Warner 2007) and Europe (Pérez-López, Prior, and Zafra-Gómez 2015). Initial studies showed large cost savings (Domberger and Jensen 1997; Domberger and Rimmer 1994; Hodge 2000). However, these cost savings were later found to diminish over time (Bel and Costas 2006; Dijkgraaf and Gradus 2011). By the early 2000s, local governments were bringing more contracted services back into public provision than they were contracting out (Hefetz and Warner 2007; Wollmann et al. 2010).

Some municipalities began experimenting with *municipally owned corporations* (MOCs). MOCs are corporations constituted by municipalities to provide typically a single service, most often bus services, water and sewerage services, and refuse collection. They differ from bureaucracy in that they are governed by appointed executive boards and have independent corporate status (Bel and Fageda 2006). Some MOCs rely on revenue from user fees, distinguishing them from agencies and special districts funded through taxation (Tavares and Camões 2007). MOCs are typically identified as single-purpose organisations operating under private law (Bel et al. 2010; Bel and Fageda 2010; Warner and Bel 2008), although MOCs can be multi-purpose (Bognetti and Robotti 2007) and operate under public law in various countries, including The Netherlands and Norway (Torsteinsen and Van Genugten 2016). Finally, municipalities retain ultimate control through ownership (Bel and Fageda 2006). Since ownership can be transferred, MOCs can facilitate cooperation between localities and between municipalities and the private sector. [Table 1](#) illustrates typical differences between MOCs and bureaucracy. Factors in *italics* describe typical cases and factors in normal font describe identifying features.

It can quickly be perceived that MOCs are not easily defined, which can explain why, to our knowledge, only Tavares and Camões (2007) established a definition. They describe (Portuguese) MOCs as single-purpose public

Table 1. Production by enterprise and bureaucracy compared.

| | Provision by | |
|-------------------------|---------------------------|----------------------|
| | MOC | Bureaucracy |
| Legal status | Corporation | Government |
| Governed under | <i>Multiple options</i> | Public municipal law |
| Organisation form | <i>Single-purpose</i> | Multi-purpose |
| Governed by | Appointed executive board | Local bureaucracy |
| Funded through | <i>User fees</i> | Taxes |
| Cooperative flexibility | <i>High</i> | Medium |

organisations, dependent on user fees, with independent corporate status and governed by an executive board appointed by local government officials, although as mentioned we also discovered MOCs that rely on tax revenues (also in Portugal) and are multi-purpose organisations.

For this article, we define MOCs as organisations:

- (1) with independent corporate status (i.e. with *legal autonomy*);
- (2) managed by an executive board appointed primarily by local government officials (with *managerial autonomy*);
- (3) with *majority public ownership*.

3. Theory and hypotheses

In this section, we theorise about the efficiency and effectiveness of MOCs. We focus on the effects of the factors that distinguish MOCs from bureaucracy: (i) legal autonomy; (ii) managerial autonomy; and (iii) majority public ownership.

3.1. *Legal autonomy*

Much has been written about the economic effects of the *legal autonomy* that is granted to keep operators at arm's length of public officials. In the literature on authority-operator dynamics, transaction cost economics (Williamson 1981) has been applied to study various political institutions and modes of public service delivery. The consensus in this literature is that as distance between the regulator and the service operator grows, monitoring mechanisms become more important, the authority's objectives are less often satisfied, and contracts more likely fail. This effect is typically strongest in smaller jurisdictions and with services that are more technical and have less overt public objectives (Brown and Potoski 2003a, 2003b).

Transaction costs matter because distance between authority and operator may create goal divergence, information asymmetries, and principal-agent problems such as operators hiding information or shirking public

orders. A wide array of capacities is necessary to mitigate such costs (Brown and Potoski 2003a), including research capacity, technical knowledge, economic knowledge, legal expertise, negotiation skills, and network access. Particularly for smaller municipalities managing more complex services, such capacities are not self-evident. Fortunately, transaction costs can shrink when the regulator and operator have a good working relationship (Agranoff and McGuire 2003; Jeffries and Reed 2000; Williamson 1985), but distance typically brings such costs nonetheless.

Separating politics from service provision also has upsides. Efficiency may be impaired when politicians are involved in the provision of services, who may face incentives to sacrifice efficiency for increasing re-election chances (Shleifer and Vishny 1997). There is, for instance, evidence that employees receive more protection and are hired in greater numbers at higher wages in public firms than in private firms (Boycko, Shleifer, and Vishny 1996; Savage 1993; White 1997). The further politics is removed from service provision, the less rent seeking can transpire (Shleifer and Vishny 1994).

How does this relate to MOCs? Municipally owned corporations may be kept at distance from the bureaucracy, but are not uniformly so. Relational ties between the MOC's executive board and the public actor are not always properly defined. While typically public actors appoint executive boards that share their plans and objectives, the executive board is often given leeway in their management precisely to introduce distance between the operator and the bureaucracy. In other scenarios, the public actor may meticulously dictate policy.

Hence, MOCs vary in transaction costs, which increase as MOCs gain distance from the authority. Because of information asymmetries and transaction costs, MOCs may have a higher initial failure rate than bureaucracy does, particularly for technical services, services with less overt public objectives, and in smaller municipalities, which may have less contract-management capacity. Beyond this phase, as contracts become more specific, responsibilities become clear and mutual understanding grows, downsides may diminish, making MOCs more effective and efficient than bureaucracy.

Hypothesis 1a: *MOCs have a substantial initial failure rate, but if this can be overcome, MOCs are more efficient than bureaucracy.*

Hypothesis 1b: *MOCs' initial failure rate is lower for services that are less technical and for which there are overt public objectives.*

Hypothesis 1c: *MOCs fail less initially in larger municipalities.*

3.2. Managerial autonomy

While it is difficult to pinpoint exact differences, since MOCs are subject to different sets of laws across countries (Dexia Crediop 2004), not falling under municipal law means that MOCs are typically subject to less financial scrutiny and have more discretion in personnel management (Tavares and Camões 2007; Da Cruz and Marques 2011). Consequently, MOCs may have a cost advantage in overhead and labour costs, although the extent to which this advantage exists depends on government employee protection and strictness of financial regulation of the public sector compared to the private sector. However, this may not happen everywhere: in countries where labour unions are relatively powerful, such as in Spain and Portugal, unions have been known to demand higher salaries for the same jobs to accept the creation of MOCs, to compensate for workers' reduced job security.

Hypothesis 2: *MOCs have lower labour costs than local bureaucracies.*

3.3. Flexible majority public ownership

The final characteristic of MOCs is flexible majority public ownership. Unlike local bureaucracies, MOCs can be owned by multiple localities or shared by the public and private sector (Da Cruz and Marques 2013). Such shared ownership brings the potential for both welfare-detrimental conflict and welfare-beneficial cooperation.

Cooperation between localities can exploit economies of scale (Bel, Fageda, and Mur 2014; Bel and Warner 2015), thwart rent seeking by politicians by making steering more difficult (Shleifer and Vishny 1994), and allow risk sharing between municipalities, reducing intertemporal budget volatility. The drawback is that shared ownership may intensify principal-agent problems, as the operator must serve multiple masters (Van Thiel 2016; Waterman and Meier 1998). Conflict may break out between localities over objectives, incentives to monitor the service are diluted, and localities lose some control over their service provision. It is from theory unclear whether efficiency gains from cooperation may offset efficiency losses from reduced ownership and control.

Similarly, cooperation between the public and private sector (which can occur when the locality sells some of the MOC's shares to a private entity) can bring both efficiency gains and losses. Efficiency is increased by the introduction of private expertise, the stimulation of good management through profit incentives, risk sharing with the private sector, and limiting of opportunistic behaviour by the political body (Bognetti and Robotti 2007;

Marra 2007). In the best scenario, such cooperation brings an optimal combination of incentives for reducing costs and improving quality in comparison with pure production forms (Schmitz 2000), because private firms providing public services may care little about quality erosion (Hart, Shleifer, and Vishny 1997).

However, the risk of conflict is greater, as private and public objectives can conflict. Since the locality usually keeps most of the MOC's shares, private partners are unlikely to buy shares without first obtaining important contractual rights, and thus public objectives do not always trump private objectives. Moreover, when contracts require renegotiation, the private partner has a powerful bargaining position as the incumbent (Cruz and Marques 2013).

When MOCs have multiple principals, potential for efficiency gains exists. This potential increases when the private sector gets involved. However, a potential for conflict also exists, which likewise increases when the private sector gets involved. Long-operating MOCs are more likely to have solved their conflicts.

Hypothesis 3a: *MOCs with multiple owners have a higher initial failure rate, but bring large efficiency gains if this can be overcome.*

Hypothesis 3b: *Mixed (public-private) MOCs have the highest initial failure rate and the highest efficiency potential.*

4. Data and methods

The articles incorporated in this study were selected in three stages. First, we specified a definition that articles had to meet for inclusion and systematically examined eighteen public administration (PA) journals for 2001–2015 to collect relevant articles. Second, we reviewed all references within these articles to include papers outside these eighteen PA journals we missed before. Third, we identified the journals outside the eighteen PA journals where most research originated and examined all articles published between 2001 and 2015 in those journals as well.

For inclusion in this study, an article was required to:

- exceed a length of four pages;
- concern itself primarily with the production or provision of a local service;
- discuss production or provision through a municipally owned corporation in the abstract or introduction; and
- discuss effects thereof.

Table 2. The eighteen PA journals by SJR ranking.

| Journal | SJR |
|--|--------|
| Administrative Science Quarterly | 10.565 |
| Journal of Public Administration Research and Theory | 5.400 |
| Educational Administration Quarterly | 2.945 |
| Public Administration Review | 2.530 |
| Governance | 2.126 |
| Journal of European Public Policy | 1.975 |
| Journal of Policy Analysis and Management | 1.843 |
| American Review of Public Administration | 1.699 |
| International Public Management Journal | 1.696 |
| Environment and Planning C: Government and Policy | 1.568 |
| Journal of Public Relations Research | 1.544 |
| Public Administration | 1.460 |
| Regulation and Governance | 1.437 |
| Review of Public Personnel Administration | 1.376 |
| Policy Studies Journal | 1.299 |
| Human Resources for Health | 1.193 |
| Journal of Information Technology and Politics | 1.092 |
| Review of Policy Research | 1.058 |

In stage 1, only PA journals were selected with a 2015 SJR ranking exceeding 1.0 (SCImago Research Group 2016) (see Table 2). The first author systematically examined the abstracts and introductions of all articles in these journals for 2001–2015, including articles meeting our definition in a database. In total, we retrieved eight articles in this stage, four of which were published in *Public Administration*. These papers varied in data origin, methods, and the sector and structure studied. For internal validity, the co-authors replicated this review for six journal volumes. After extensive discussion and deliberation, this led to the inclusion of one extra article to the database.

In the second stage, we examined all reference lists in the previously retrieved articles and added studies for 2001–2015 that fit our definition. Through this process, we added 12 new articles from eight journals to the database. Two journals, *Local Government Studies* and *Annals of Public and Cooperative Economics*, had produced more than one article relevant for our definition, both adding three articles to our database. Therefore, in stage 3, we examined all articles for 2001–2015 published in these journals, finding no new papers meeting our definition.

Altogether, our search rendered 21 articles from 13 journals. Table 3 offers descriptive statistics.

5. Results

Table 4 summarises the articles incorporated in this study. There is much variation in the constructs investigated, the countries and industries studied, and the methodology of the articles. As a result, we cannot conduct a

Table 3. Descriptive statistics of included studies.

| Period | Studies |
|--|------------------|
| 2001–2005 | 3 |
| 2006–2010 | 8 |
| 2011–2015 | 10 |
| Country | |
| Spain | 5 |
| Italy /The Netherlands /Portugal | 3 |
| USA | 2 |
| Others | 1 each |
| Industry | |
| Refuse collection | 14 |
| Transit | 9 |
| Water management | 8 |
| Urban services /health services | 2 |
| Type | |
| Single-owned | 15 |
| Shared public–private | 11 |
| Joint public–public | 8 |
| Methodology | |
| Regression | 14 |
| Case study | 6 |
| Other | 1 |
| Journal | |
| Public Administration | 4 |
| Annals of Public and Cooperative Economics | 3 |
| Local Government Studies | 3 |
| Journal of Public Administration Research and Theory | 3 |
| Others | 1 each (8 total) |

quantitative meta-analysis of the research, and instead make inferences based on the similarities and differences between the articles.

Throughout the analysis, we will discuss MOCs' efficiency and effectiveness. Like Vining, Boardman, and Moore (2014), we must ask: efficiency and effectiveness compared to what? As a baseline, we will assess MOCs' effectiveness and efficiency compared to that of bureaucracy, although not every study included makes this comparison. We again attempt to enable such comparisons by synthesising the different papers treating the topic.

From here on, we refer to MOCs owned by a single locality as a 'singular MOC'. MOCs owned by several localities are 'joint MOCs' and MOCs owned by the locality, and a private actor is 'mixed MOCs'.

5.1. Legal autonomy effects

5.1.1. Failure rates and efficiency

Our database incorporates 21 studies of MOCs, but we limit ourselves in this subsection to the discussion of singular MOCs, to separate the effects of legal autonomy from those of dispersed ownership.

Nine articles in our database compare singular MOCs to non-MOC delivery modes. These studies are not uniformly positive about MOCs' efficiency:

Table 4. Efficiency of MOCs.

| Citation | Country /Form /Sector | Method (sample) | Findings |
|--|--|---------------------------------|--|
| Albalade et al. (2012) | Spain /Singular /Bus services | Case study (1 metropole) | Singular MOCs are inefficient when not exposed to competitive pressures. |
| Bel and Fageda (2006) | Spain /Joint /Waste collection, water distribution | Regression (540–548 localities) | Cooperation between small localities through a joint MOC reduces costs. |
| Bognetti and Robotti (2007) | Italy /Singular, Mixed /Various | Regression (2003 MOCs) | Mixed MOCs are more efficient than singular MOCs. |
| Bourdeaux (2013) | USA /Singular /Landfill, incinerator siting, development | Case study (8 cases) | MOCs have a more professional focus but are more prone to conflict. |
| Cuadrado-Ballesteros, García-Sánchez, and Prado-Lorenzo (2012) | Spain /Singular, Mixed /Various | Regression (9,000–9,100 people) | Singular MOCs are judged more positively than bureaucracy in health, transit, and trade services. Mixed MOCs do well for water services. |
| Da Cruz and Marques (2011) | Portugal /Singular, Joint /Water | Mixed methods (20 firms) | Singular MOCs performed badly in Portugal, particularly because they lacked real autonomy. |
| Da Cruz and Marques (2012) | Portugal /Mixed /Various | Case study (4 firms) | Mixed MOCs often fail because of goal conflict and the incumbent partner's bargaining power. |
| Dijkgraaf and Gradus (2003) | The Netherlands /Joint /Refuse collection | Regression (85 municipalities) | Joint MOCs outperform bureaucracy as well as private firms when exposed to competition. |
| Dijkgraaf and Gradus (2007) | The Netherlands /Joint /Refuse collection | Regression (453 municipalities) | Joint MOCs do as well as private firms. Costs go down when they are exposed to competition. |
| Dijkgraaf and Gradus (2008) | The Netherlands /Joint /Refuse collection | Regression (491 municipalities) | In localities where MOCs competed with private firms for contracts, prices went down. |
| Filippini and Pioni (2003) | Switzerland /Singular, Mixed /Bus services | Regression (34 firms) | Mixed MOCs are more cost efficient than regular MOCs are. |
| Garrone, Grilli, and Rousseau (2013) | Italy /Single, Joint, Mixed /Various | Regression (27 multi-utilities) | Mixed MOCs are efficient. Joint MOCs are not. Autonomy creates problems. |
| Marques and Berg (2011) | Portugal /Mixed /Water distribution | Case study (2 municipalities) | Mixed MOCs show potential for efficiency gains, but also often bring contract failure. |
| Marra (2007) | Italy /Mixed /Water distribution | Regression (40 basin plants) | Mixed MOCs have lower operating costs, attract more private capital. |

(Continued)


Table 4. (Continued).

| Citation | Country/Form/Sector | Method (sample) | Findings |
|--|--|-----------------------------------|--|
| Ohlsson (2003) | Sweden /Singular /Refuse collection | Regression (150 firms) | Singular MOCs were slightly more cost-efficient than private firms in Swedish refuse collection. |
| Pérez-López, Prior, and Zafrá-Gómez (2015) | Spain /Singular, Mixed /Various | Regression (1,058 municipalities) | Mixed MOCs were they only delivery mode to contribute to efficiency both before and during the financial crisis. |
| Roy and Yvrande-Billon (2007) | France /Mixed /Transit operation | Regression (165 networks) | Mixed MOCs do worse in technical efficiency than in-house or private modes of production/ |
| Sørensen (2007) | Norway /Singular, Joint /Refuse collection | Regression (269–412 MOCs) | Joint MOCs have problems with goal conflict, monitoring. These drawbacks outweigh scale benefits. |
| Swarts and Warner (2014) | Germany /Singular, Mixed /Bus services | Case study (1 metropole) | Singular and mixed MOCs both reduce labour costs and make monitoring easier, but singular MOCs are less likely to fail. |
| Zafrá-Gómez et al. (2013) | Spain /Mixed, Joint /Refuse collection | Regression (923 municipalities) | Joint MOCs increase efficiency among small localities. |
| Zullo (2008) | USA /Singular /Bus services | Regression (508 agencies) | Industries where singular MOCs are used for all elements of service provision are more efficient than where only used for parts. |

like state enterprises, singular MOCs are found to be inefficient when not exposed to competitive pressures (Albalade et al. 2012; Boggetti and Robotti 2007). Indeed, when governments put up barriers to entry, they insulate MOCs from competition and remove market pressure to maximise their efficiency.

However, the large-N studies all show that singular MOCs are quite efficient when exposed to market pressures. Singular MOCs were slightly more efficient than private firms for refuse collection in Sweden (Ohlsson 2003), and comparable in efficiency to private firms in the US bus industry (Zullo 2008). Bourdeaux (2013) finds that MOCs have a more professional focus than bureaucracies; and in the quality of life study of Cuadrado-Ballesteros, García-Sánchez, and Prado-Lorenzo. (2012), singular MOCs were preferred over bureaucracy in all industries. In Pérez-López, Prior, and Zafrá-Gómez (2015), singular MOCs (defined as 'agencies') had higher efficiency in some industries but worse in others. Berlin transit operator BVG gained efficiency in transitioning from a municipal unit to public law corporation, which allowed labour restructuring (Swartz and Warner 2014).

Of the studies included, only one suggests that singular MOCs may do worse than bureaucracy (Da Cruz and Marques 2011). The authors point out that in Portugal, MOCs are rarely subject to competition, have little autonomy, and are difficult to regulate since the (centralised) regulator is hesitant to infringe upon local delivery choices. Moreover, they have in several instances led to overlapping functions between MOCs and municipalities, demonstrating that coordinating responsibilities is not always an easy task. However, they too point out that, if these problems are solved, MOCs may well do better than bureaucracy.

Overall, there is tentative evidence that singular MOCs have efficiency advantages over the bureaucracy in at least some industries, mostly because they substitute politics for professionalism (Bourdeaux 2013). Here, however, the general point that MOCs have high initial failure rates stands too. This is the most important finding in Bourdeaux (2013): while MOCs are more likely to deliver services professionally, they are vulnerable to political conflicts (over goals), which are arbitrated away in bureaucracy delivery. Similarly, Da Cruz and Marques (2011) caution that lacking well-defined responsibilities for the MOC, bureaucracy may be the better policy channel.

Large-N studies into the efficiency and effectiveness of single-owned MOCs inform us that singular MOCs are a viable policy instrument when compared to private firms or local bureaucracy delivery, but case studies demonstrate that, in individual cases, failure is a real possibility. The empirical literature thus corroborates hypothesis 1a. Singular MOCs may yield efficiency gains compared to bureaucracy, but it is imperative to exhaustively negotiate goals, expectations, incentives, and responsibilities to assure MOCs can meet these expectations.

5.1.2. *MOCs across sectors*

Only two studies (Cuadrado-Ballesteros, García-Sánchez, and Prado-Lorenzo. 2012; Pérez-López, Prior, and Zafra-Gómez 2015) actively distinguished across and between service sectors in analysing how MOCs compare to bureaucracy. In Cuadrado-Ballesteros, García-Sánchez, and Prado-Lorenzo. (2012), MOCs were found to provide more quality of life than local bureaucracy in all sectors. Meanwhile, Pérez-López, Prior, and Zafra-Gómez (2015) find different efficiency performances across sectors. Particularly, MOCs demonstrate higher efficiency in the waste, water, and development. In contrast, MOCs are found to be significantly less efficient in culture and in urban services and less efficient in social and transit services. The results of these studies are not necessarily contradictory as the studies measure different things: while Cuadrado-Ballesteros, García-Sánchez, and Prado-Lorenzo. (2012) measure service satisfaction (in essence, quality perception), Pérez-López, Prior, and Zafra-Gómez (2015) measure cost efficiency. It is plausible that MOCs, in the Spanish context of local government austerity, can better safeguard quality than local bureaucracies.

Nevertheless, the findings of Pérez-López, Prior, and Zafra-Gómez (2015) provide tentative albeit limited evidence that MOCs do better in services that are less technical and which have overt public objectives. The empirical finding that MOCs do comparatively better in refuse collection, water management, and development than in providing culture and social services is in line with our notion that MOCs face lesser coordination issues when objectives are clear-cut and non-politicised. Altogether, however, evidence is too scarce to accept hypothesis 1b, although the data lend tentative support for it.

5.1.3. *MOCs across municipalities*

We also aimed to investigate if MOCs fail less often in populous urban municipalities than in smaller rural ones. Unfortunately, only one study of joint MOCs makes this distinction, finding that smaller municipalities gain from cooperation through scale economies (Bel and Warner 2015), but beyond that data are absent. Consequently, we cannot corroborate or falsify hypothesis 1c.

5.2. *Managerial autonomy effects*

We were unable to falsify or contradict hypothesis 2 that MOCs have lower labour costs. None of the incorporated studies discusses how labour costs in MOCs compare to those in bureaucracy. Some studies report that labour costs are higher in singular MOCs than in mixed MOCs (Swarts and Warner 2014) or private firms (Albalade et al. 2012), but empirical evidence compared to bureaucracy lacks.

5.3. Ownership effects

5.3.1. Joint MOCs

In our database, seven studies discuss joint MOCs. Garrone, Grilli, and Rousseau (2013) and Sørensen (2007) emphasise that the managerial autonomy of joint MOCs creates monitoring problems in Norway (Sørensen 2007) and goal conflict in Italy (Garrone, Grilli, and Rousseau 2013), which outweigh gains from the exploitation of economies of scale. Bel and Fageda (2006) and Zafra-Gómez et al. (2013) observe the opposite effect in Spain, finding that small localities gain efficiency from cooperation with other localities through public firms. In the Dutch waste industry, MOCs do better than bureaucracy (Dijkgraaf and Gradus 2003) and as well as private firms (Dijkgraaf and Gradus 2003; 2007). They also lower the costs of service provision in localities where they compete in auctions, even when the bid is eventually won by another party (Dijkgraaf and Gradus 2008).

What explains these contradictory findings? Bel and Warner (2015) answer this in their review of studies on inter-municipal cooperation. First, Norwegian municipalities tend to be larger than those in Spain, leaving more economies of scale to be captured in Spain (while small localities were under-represented in the study of Garrone, Grilli, and Rousseau 2013). Second, joint MOCs in Spain are managed by a single authority to which municipalities delegate, while in Italy and Norway multiple municipalities are directly on the board of MOCs. Bel and Warner (2015) suggest that political transaction costs are higher with multi-government ownership, which is consistent with our hypothesis 3a that failure rates of MOCs increase under dispersed ownership. The Dutch counterexample is explained away by the (then) prevalence of unit-based pricing, which is associated with lower costs.

Our hypothesis further suggests that we should observe variation in joint MOCs between MOCs that struggle under joint ownership and fail and MOCs that manage to overcome problems and reap the rewards of cooperation. Unfortunately, we lack empirical data to falsify these claims. The scarcity of literature on joint MOCs, in conjunction with the preponderance of large-N studies in this literature, leaves such micro-level analysis impossible.

5.3.2. Mixed MOCs

Eight articles discuss mixed MOCs. Five studies, all large-N studies, find that mixed MOCs realise real efficiency gains (Bognetti and Robotti 2007; Filippini and Prioni 2003; Garrone, Grilli, and Rousseau 2013; Marra 2007; Pérez-López, Prior, and Zafra-Gómez 2015). Furthermore, three other studies, all small-N case studies, emphasise potential efficiency gains from mixed MOCs, but show that these could not come to long-term fruition due to goal

conflict and negotiation problems (Da Cruz and Marques 2012; Marques and Berg 2011) or labour conflict (Swarts and Warner 2014). Only Roy and Yvrande-Billon (2007) (a large N-study) finds a negative effect of mixed MOCs in technical efficiency.

The five large-N studies that positively evaluate the efficiency effects of mixed MOCs study their economic efficiency (i.e. profits or total costs), while the one that finds negative effects studies more narrowly technical efficiency (i.e. what outputs they can produce with the resources available). Roy and Yvrande-Billon (2007) suggest that mixed MOCs may do worse due to opportunism by both the public and private partner (i.e. goal conflict) or difficulty in attributing responsibilities (i.e. incomplete contracts). However, performance differentials were only small, and mixed MOCs have more than double the variation in performance scores than singular MOCs. This may be congruent with an environment in which some mixed MOCs fail, while others are successful.

The case studies of mixed MOCs corroborate hypothesis 3b that mixed MOCs have the highest initial failure rates but the highest efficiency potential. Da Cruz and Marques (2012) narrate particular cases where mixed MOCs faced goal conflicts and where contracts required costly renegotiation shortly after their founding, and Marques and Berg (2011) discuss in-depth the difficulty in saliently writing up contracts for mixed MOCs, giving recommendations on how to prevent contract failure. Swarts and Warner (2014) highlight a case where a mixed MOC provided immediate gains in efficiency, mostly through labour restructuring, which were eroded by subsequent unionisation.

In sum, the empirical evidence supports hypothesis 3a and 3b: MOCs with dispersed ownership bring large efficiency gains but come with a large chance of failure. Public–private mixed MOCs have a larger failure potential but a higher efficiency potential than public–public joint MOCs.

6. Discussion

Our prediction about the effects of legal autonomy on the efficiency of MOCs was supported by the data. MOCs, on aggregate, are more efficient than local bureaucracies (*hypothesis 1a*), at least in refuse collection, waste management, and transit services. Simultaneously, the data corroborate the hypothesis that transaction costs and principal-agent problems induce a higher chance of failure (*hypothesis 1a*). This chance of failure increases under joint or mixed ownership (*hypotheses 3a and 3b*), which exacerbate transaction costs and principal-agent problems, and particularly the problem of serving multiple masters (Da Cruz and Marques 2012; Van Thiel 2016; Waterman and Meier 1998) is pressing and should be studied further. However, if these problems are overcome, cooperation with the private sector or between localities through a MOC can be very beneficial, as the data demonstrate (*hypotheses 3a and 3b*).

Our data were insufficient to corroborate or contradict our hypotheses about efficiency differences across municipality and service types (*hypotheses 1b and 1c*). Since the three most discussed sectors in the literature (water management, refuse collection, and transit services) are all often grouped as 'utilities' and are relatively homogeneous (they all involve infrastructure, have relatively overt public objectives, and are relatively capital-intensive), we cannot infer direct effects of service technicality (*hypothesis 1b*) or of labour intensity (*hypothesis 2*), although there is tentative evidence that overt and non-politicised public objectives make MOCs more likely to succeed (*hypothesis 1b*).

There remains much scope for research into MOCs. While studies have been done into MOCs operating in utilities, there have been few studies into MOCs in other sectors, such as in health care, culture, or welfare services. MOCs have been studied more in some countries (in particular in Italy, the Netherlands, Portugal, and Spain) than in others, and in Europe, particularly the mixed (public-private) form of MOC seems more prevalent in the Mediterranean countries than in the rest of Europe. Beyond being specific, data are also scarce. Our research spanned 20 journals for 15 years, plus the references in relevant articles, for an estimated 12,000 articles, of which only 21 (<0.2%) discussed effects of MOCs. Since many questions remain unanswered, we invite researchers to fill in the research gaps.

We should note that literature on MOCs exists beyond what we have examined. While we have limited this study to discussion of *effects* of MOCs, there exists a body of literature (Bel and Fageda 2010; Gradus, Elbert Dijkgraaf, and Wassenaar 2014; Rodrigues, Tavares, and De Araújo 2012; Røiseland 2011; Tavares and Camões 2007) examining the *causes* of MOCs. Moreover, we did not discuss (chapters in) books and publications in other sources than peer-reviewed academic journals, which increased our study's reliability at the expense of its sample size. This is a limitation of this study, as good studies have been conducted outside of peer-reviewed journals (see: Dijkgraaf and Gradus 2014; Hulst and Van Montfort. 2007; Wollmann and Marcou 2010), although we are aware of none that challenge our findings. Similarly, we may have missed studies published in other languages than English or that used vocabulary or abstracts and introductions that obscured the fact that they discussed MOCs.

On that note, we encourage researchers to be specific about the type of public organisation they are investigating. We found that researchers often group together and juxtapose 'public' and 'private' firms without accurately specifying what form of public organisations they investigate, leaving the reader unable to infer (multiplicity of) ownership, applicable laws, and whether the author discussed public firms, in-house production, or a combination of both.

7. Conclusion

We make five main observations about MOCs. First, large efficiency gains can be and are realised through MOCs. Second, MOCs used for cooperation with the private sector can potentially yield even larger efficiency gains. Third, there is tentative evidence that MOCs used for inter-municipal cooperation can gain efficiency when scale economies are present only if problems of dispersed ownership can be overcome; the Spanish approach of delegating joint MOCs to one authority is one potential solution to this. Fourth, MOCs have a high initial failure risk resulting from goal conflict and principal–agent problems; localities need contracting capacity to mitigate this risk. Fifth, more ownership dispersion implies a higher risk of failure, and the problem of serving multiple masters, what we call the *multiple principal problem*, is a pressing one for (public) organisations.

It is important to emphasise that we deal with scarce and heterogeneous data: we have reviewed a limited number of cases, differing in service sector, country, and organisation type. In view of this limitation and in view of the fact that multiple things about MOCs remain unknown, we encourage additional research about how MOCs fare in different institutional environments and across service sectors, and about the specific processes in which the problems MOCs face initially can be and are overcome.

Disclosure statement

No potential conflict of interest was reported by the authors.

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