

# More Headaches than it's Worth

Assessing Privatized and Semi-Privatized Waste Collection

David Campanella





**CCPA**

CANADIAN CENTRE  
for POLICY ALTERNATIVES  
CENTRE CANADIEN  
de POLITIQUES ALTERNATIVES

**ISBN 978-1-77125-208-9**

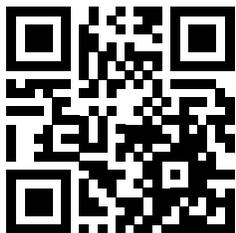
This report is available free of charge at [www.policyalternatives.ca](http://www.policyalternatives.ca). Printed copies may be ordered through the CCPA national office for a \$10 fee.

**PLEASE MAKE A DONATION...**

**Help us to continue to offer our publications free online. Click / scan the QR code below to make a tax-deductible donation to the CCPA-Ontario.**



**Stay up to date with the latest news and reports from the CCPA-Ontario office. Click / scan the QR code to subscribe to our e-newsletter.**



**ABOUT THE AUTHOR**

*David Campanella is an independent public policy consultant and former Public Policy Research Manager for the Parkland Institute. David holds a Master's degree from York University (MES), where he focused on political economy, and an undergraduate degree from the University of Waterloo (BES, Economics Minor).*

**ACKNOWLEDGEMENTS**

I would like to thank Sheila Block, David Macdonald, and Toby Sanger for helpful comments and suggestions that improved this paper. I would also like to thank Trish Hennessy for her substantial editing, as well as a proofreader for trying to fix all my grammatical errors. I take sole responsibility for errors or omissions.

With your support we can continue to produce high quality research—and make sure it gets into the hands of citizens, journalists, policy makers and progressive organizations. Visit [www.policyalternatives.ca/ontario](http://www.policyalternatives.ca/ontario) or call 416-598-5985 for more information.

The CCPA-Ontario office is based in Toronto. We specialize in provincial and municipal issues. We deliver original, independent, peer-reviewed, non-partisan research that equips progressives with the arguments they need to press for social change.

*The opinions and recommendations in this report, and any errors, are those of the author, and do not necessarily reflect the views of the publishers or funders of this report.*

## **More Headaches than it's Worth?**

- 5 Executive Summary
- 6 Introduction
- 13 Mixed Delivery and Other Alternatives
- 15 Conclusion
- 16 Appendix
- 17 **Notes**



# More Headaches than it's Worth

Assessing privatized and semi-privatized waste collection

---

## Executive Summary

In the search for cost reductions, a number of Canadian municipalities have turned to the promise of privatization for their garbage collection services.

This study reviews econometrics studies of privatization and semi-privatization of solid waste collection in the U.S., the UK, the Netherlands, Spain, Sweden, Ireland, and in Canada. The conclusion of decades of empirical research is that there is no clear connection between private waste collection and cost reduction. When all the relevant factors are included, it appears that privatization is often more of a headache than it's worth.

What's the number one reason U.S. city managers cite for reversing a decision to privatize services? Insufficient cost savings. In solid waste collection, studies reveal that any initial cost savings tend to diminish over time, and that cost savings have become increasingly less likely.

There are two main reasons why private waste collection fails to reduce municipal costs:

1. A widespread lack of competition; and
2. Large and often unaccounted for administrative costs from dealing with private firms.

Multiple studies have shown that a lack of competition can undermine cost savings from outsourcing. Researchers have found that a low number of bidders increases the chances of collusive behaviour and decreases the likelihood of a low-cost bid, while a higher number of bidders is associated with more cost savings. Municipalities have reported spending an excessive amount of time and resources trying to respond by stimulating and sustaining what little competition there is.

The key conclusion from an overview of existing studies: privatization of public services creates quasi-markets composed of only one buyer and few sellers. For a service like solid waste collection, competition is limited to being for the market, not in the market, because once a firm has secured a contract with a municipality, it is freed from direct market competition.

This study concludes that any government that opts for privatization or semi-privatization commands greater control over cost efficiencies if they nurture their own in-house expertise. Maintaining crews, equipment, and public institutional know-how signals to contracted firms that opportunistic behaviour may be met with the loss of business because service delivery can be readily resumed by the municipality. Decades of experience with privatization have shown that such opportunistic behaviour is widespread and remains a real concern for local governments, especially in the absence of strong competition.

---

## Introduction

Traditionally, municipal public services – such as waste management, road maintenance, water treatment, emergency services, parks and recreation management – have been provided directly by government employees. But for several decades, some jurisdictions have been taking these services out of public control and paying profit-motivated businesses to do this work instead.

Waste collection is one of the public services most often targeted for privatization, and many such experiments have been carried out across North America and Europe. How do these experiments inform the assump-

**TABLE 1: Is Private Waste Collection Cheaper?^†**

Yes (1)	No (12)
Dijkgraaf and Gradus (2007)	*Domberger, Meadowcroft & Thompson (1986)
	Dublin & Navarro (1988)
	*Szymanski & Wilkins (1993)
	Callan & Thomas (2001)
	*Dijkgraaf & Gradus (2003)
	*McDavid (2001)
	Ohlsson (2003)
	Bel & Mur (2009)
	Bel & Fageda (2010)
	Bae (2010)
	Dijkgraaf & Gradus (2013)

^Private waste collection is cheaper if study found statistically significant (below 10% level) negative coefficient to waste costs

\* Lower costs associated with contracting out explained by competition, not ownership

† Two studies – Tickner & David (1986) and Reeves and Barrow (2000) – found private waste collection to be cheaper but were not included because they did not account for the effect of competition

Source: Bel, G. et al (2010), and author's additions

tion that turning waste collection over to for-profit firms is a one-way road to savings? Are there advantages to maintaining at least some government involvement in service delivery? This paper reviews the academic literature to answer these questions (see Appendix).

### Little Evidence of Savings

The main argument that local governments invoke when considering privatizing public services like residential waste collection lies in its potential to reduce costs. But does the promise live up to reality?

Over the past 35 years, the academic literature has been much more likely to not find empirical support for the assertion that private waste collection reduces municipal costs. When accounting for the effect that competition can have on collection costs, 12 of the 13 studies published since 1980

have found no significant connection between private contracting and lower waste collection costs (see *Table 1*).

In 2010, researchers published a meta-analysis that incorporated the data from each of the 19 econometric studies on the cost of public versus private waste collection published to date. It is the largest, most comprehensive, and authoritative study to date on the topic. Their analysis of the entire data set found the evidence for cost savings from privatization to be decidedly ambiguous: there is no clear relationship between private production and lower solid waste collection costs.<sup>1</sup>

While there are certainly cases where privatization has meant lower costs, the combined data set shows that such an outcome is far from guaranteed. There are several other variables involved that strongly influence the outcome.<sup>2</sup> For instance, the study found that cost savings from privatization were less likely to be found in the U.S. and that cost savings were less likely to be found in more recent studies. Some evidence of publication bias was detected: studies were more likely to be published if significant savings from privatization were found.

The source of any savings from private waste collection may also be of concern. While some researchers claim the savings delivered by private firms is due to their superiority at increasing productivity through technological improvements as well as their more flexible labour practices,<sup>3</sup> other researchers find that the savings are due to paying workers significantly lower wages and using outdated equipment.<sup>4</sup>

### **Eroding Savings**

Insufficient cost savings is the most frequent reason city managers give when they reverse their decision to outsource and bring service delivery back into public hands.<sup>5</sup> When cost savings are achieved by contracting out, evidence shows they tend to shrink over time.<sup>6</sup> Whether because the contractor's price rises<sup>7</sup> or public delivery becomes more efficient,<sup>8</sup> studies show that the savings of taking public service delivery out of public hands erode over time.

Interviews with a dozen city managers in the U.S. who had contracted out a service found that only half could claim any cost savings after just four years.<sup>9</sup> Similar difficulty in maintaining initial gains over the first few years of a contract was found in the UK.<sup>10</sup> In Spain, only the newly signed private contracts showed lower costs than public service delivery.<sup>11</sup>

**TABLE 2: Competition in U.S. Public Services**

	Overall	Residential Waste Collection
Average # of alternative suppliers	1.7	2.6

Source: Hefetz, A. and M. Warner (2011), p.10, 23

This erosion of cost savings over time may also explain how more recent studies have found less of a link between privatization and reduced costs than older studies.

### Lack of Competition

Private ownership can often be conflated with competition. But private ownership doesn't necessarily entail competition and competition doesn't necessarily entail private ownership. When empirical investigations of waste collection began to separately examine the two variables in the 1980s, the findings showed that competition, not ownership, was the factor that most explained cost savings. Instances of local governments subjecting their residential waste service to a competitive tendering process and then awarding the service to their in-house department allowed the two variables – competition and ownership – to be analyzed separately.

A well-known study<sup>12</sup> and a follow up review with a larger data set<sup>13</sup> both found that the cost of public or private delivery was essentially the same if competitive tendering had been done. That is, municipalities achieved roughly equivalent cost reductions whether the winner of the competitive bidding process was a private or public entity.<sup>14</sup>

Similar conclusions that competition is much more important than ownership in explaining costs have also been found in studies of waste collection in the Netherlands<sup>15</sup> and Spain.<sup>16</sup>

The privatization of public services creates quasi-markets composed of only one buyer and typically few sellers.<sup>17</sup> For a service like solid waste collection, the municipality acts as the sole buyer. It is essentially a natural monopoly, since it is prohibitively expensive for each resident to individually contract with different garbage companies. Here's the important distinction: competition is limited to being for the market, not in the market,<sup>18</sup>

**TABLE 3: Market Share and Concentration Indices by Population in Spain and the Netherlands**

	Market Share of Largest Private Firm	Market Share of Four Largest Private Firms	Hirschman-Herfindahl Index
Spain	52%	86%	0.326
The Netherlands	36%	85%	0.231

Source: Bel, G. et al (2010).

because once a firm has secured a contract with a municipality, it is freed from direct market competition.

Diminished competition is the preferred outcome for private businesses bidding to win a lucrative waste collection contract. A competitive market is bad for business, as it compels companies to shrink their profit margin in order to stay in the game. A monopolistic market, where firms have the market power to command prices far above production costs, is preferred by the private sector. So it is in the self-interest of private companies to undermine competition through absorbing, repelling, or colluding with competitors.<sup>19</sup>

A typical residential waste collection market in the U.S. has fewer than three competitors (see *Table 2*).<sup>20</sup> While there is no agreed upon definition about what qualifies as competitive or how many bidders it takes to indicate a competitive market, some researchers note that it is commonly understood that to have a minimum level of competition requires at least three bidders.<sup>21</sup>

The lack of potential bidders is also reflected in the substantial market concentration. For instance, an analysis of the market in Spain found it to be an oligopoly, as four firms were responsible for collecting 86 per cent of the country's solid waste (see *Table 3*).<sup>22</sup> A study of Dutch municipalities found the top three firms controlled 50 per cent of the market nationally, while by province, three firms typically controlled upwards of 85 per cent.<sup>23</sup>

There are no studies calculating the concentration of the market in the U.S., but three firms are said to dominate – Waste Management Inc., Allied Waste Industries, and Republic Services – with one firm typically controlling any one particular market.<sup>24</sup> Such high levels of market concentration have also been documented in the UK<sup>25</sup> and are said to constitute a broad trend toward monopoly in the market.<sup>26</sup>

Competition in the waste collection market is differentiated by geographical region. Specifically, competition is found to be especially deficient in

metropolitan and rural areas. For instance, an analysis of the waste sector in Catalonia, Spain found that the large, urban municipalities were “highly oligopolistic,” as they were almost the exclusive territory of the three largest firms in the region. These municipalities were found to have a Hirschman-Herfindahl index, a commonly used metric of market concentration, of 0.439, whereas the Federal Trade Commission and the U.S. Department of Justice defines 0.18 and above as highly concentrated.<sup>27</sup>

In small, rural municipalities, the researchers found that local firms tend to monopolize the market as very few, if any, other firms participate in successive bids for the contract.<sup>28</sup> The physical characteristics of a waste market can dictate which businesses are able to compete and be profitable. While the small size and sparseness of rural areas present difficulties, so, too, does the complexity, denseness, and large size of urban cities.<sup>29</sup>

Without sufficient competition, firms have more market power to be able to dictate prices above where they would be from a strictly cost perspective. Multiple studies have shown that a lack of competition can undermine cost savings from outsourcing.<sup>30</sup> Researchers have found that a low number of bidders increases the chances of collusive behaviour and decreases the likelihood of a low-cost bid,<sup>31</sup> while a higher number of bidders is associated with more cost savings.<sup>32</sup>

Municipalities have reported spending an excessive amount of time and resources trying to respond by stimulating and sustaining what little competition there is.<sup>33</sup> When competition is not able to generate low-cost bids, municipalities must expend costly administrative resources in attempts to acquire costing information by other means.<sup>34</sup>

## **High Cost of Contracting Out**

Another key reason why cost savings have proven so difficult to achieve from privatization is due to transaction costs. Contracting with an outside firm requires public officials to prepare a contract, manage the bidding process, implement the contract, and oversee the winning firm’s activities to ensure the conditions of the contract are met.

Even if a private firm succeeds at being more efficient, any cost savings for the municipality can be overwhelmed by transaction costs. Some researchers have estimated that transaction costs can add up to 25 per cent of the cost of a contract.<sup>35</sup> The full extent of these costs is often not accounted for when public officials assess the financial case for contracting out.<sup>36</sup>

Three aspects of transaction costs have proven to be particularly important in public service privatization: monitoring, contract development, and market management. After insufficient cost savings, the second most common reason why governments re-internalize public services is unsatisfactory quality of service.<sup>37</sup> To increase profits, private firms have an incentive to reduce costs at the expense of quality.<sup>38</sup> To guard against a decline in quality, it's critical that local government monitors each firm's activities and its adherence to the contract.<sup>39</sup>

Designing effective contracts can be a challenging task. Past experiences with contracting out municipal services show it can be difficult to balance crafting a contract that is not too vague but one that is also not overly specific. A contract that is not specific enough exposes the local government to a host of problems, as the expectations of the firm and those of the government may differ significantly around service delivery.<sup>40</sup> Worse, contract vagueness offers the potential for abuse by opportunistic businesses.<sup>41</sup>

At the same time, local governments require a certain amount of flexibility in order to meet the changing needs of citizens. Contracts that are too rigid can prevent governments from being able to adapt.<sup>42</sup> In waste collection, for instance, citizens might prioritize less garbage creation through increased diversion yet find their government contractually obligated to maintain current operations. Even with seemingly simple services, the task of designing an appropriate contract and ensuring the firm meets its stipulations can be exceedingly difficult and not necessarily cheap.

City officials may have to not only oversee the activities of a specific contractor but also the wider market. A regular concern of municipalities contracting out is ensuring sufficient competition. Surveys of local governments have found that considerable attention of public managers is given to creating, sustaining, and growing competition.<sup>43</sup> Strategies include actively seeking out and pursuing potential vendors, encouraging vendors to bid, nurturing rather than dropping poor performing contractors, designing contracts in such a way as to discourage monopolization by a single provider, or directly increasing competitive pressures by re-internalizing all or part of the service.<sup>44</sup>

These efforts have been shown to require a real investment of the local government's administrative resources<sup>45</sup> and can be more time-intensive than other forms of transaction costs.<sup>46</sup>

---

## Mixed Delivery and Other Alternatives

Despite its enthusiastic promise, experimentation with privatization has been hit and miss, leading many jurisdictions to re-think the promise behind the theory. Over the past decade or so, local governments have increasingly adopted new types of service delivery that do not rely entirely on either in-house or private firms.

Some research has suggested that dual public-private service delivery can be cost effective. Using a regression analysis based on a large sample of U.S. municipal data, a study showed that services jointly delivered by in-house departments and private contractors were associated with a reduction in municipal costs.<sup>47</sup> A Canadian study found that mixed systems had lower than average costs.<sup>48</sup>

Unfortunately, since then there has been a lack of similar empirical research attempting to measure the economic performance of mixed delivery systems. Research on mixed delivery has, instead, tended to focus on documenting its increased importance in how public services are being delivered,<sup>49</sup> the stated rationale for why municipal governments choose mixed over a “pure” type of contract,<sup>50</sup> or how the effectiveness of the privately delivered aspects of the service compare to those delivered by a public agent.<sup>51</sup>

Mixed delivery has been characterized as a way for municipalities to capture the benefits of increased competition while also curtailing the shortfalls of complete privatization. As noted above, the main reason privatization fails is because it doesn’t ultimately reduce a municipality’s expenditures.

Maintaining a level of direct involvement gives the municipality two important tools that can address this shortcoming: a credible threat to re-internalize service production and direct information about production costs. Maintaining crews, equipment, and public institutional know-how signals to contracted firms that opportunistic behaviour may be met with the loss of business because service delivery can be readily resumed by the municipality.

Decades of experience with privatization have shown that such opportunistic behaviour is widespread and remains a real concern for local governments, especially in the absence of strong competition. Eroding competition, as well as cost savings, can also be addressed. The flexibility to be able to re-internalize the contracted out aspects, if need be, enhances a municipality’s bargaining power and can maintain the pressure on private contractors to perform well or lose business. As one U.S. city manager explained, the city’s involvement in service production alongside private firms “kept them honest.”<sup>52</sup>

Similarly, the continued involvement of the municipality in service production provides it with direct, independent, and ongoing knowledge of production costs. The municipality can use this information to better assess the credibility of private firms' bids and changing costs. Local governments have noted that there have been attempts by contracted companies to renegotiate the terms of the deal based on unexpected or higher than anticipated costs. They have also noted tendering processes that do not attract low-cost bids. Mixed delivery has the potential to address these problems and curtail the costs involved.

It is the ability to benchmark the cost of private contractors that researchers conclude help to explain the association of mixed delivery systems with lower expenditures.<sup>53</sup> In the Dutch residential waste collection market, researchers found that when a public firm was operating in a market, private firms in the surrounding area tended to operate more cost effectively. The opposite was also true: without the presence of a public firm, private operators tended to inflate their costs.<sup>54</sup>

While research points to the benefits that can be accrued from a mixed approach, more empirical research is required to determine the optimal level of private involvement or competitive bidding. Do cost savings increase as more of a municipality's services are put out to tender? What share of a municipality needs to be serviced by in-house employees for the two key leverages of a mixed-system – the threat of re-internalization and costs benchmarking – to be effective? These questions remain largely unanswered by the academic literature. For contractors to believe the government department poses a serious threat to their business, it stands to reason that the public service should have a sizeable involvement in the market. As well, the comparability of the government departments' cost figures to those of private contractors would be bolstered if the two were operating in similar types of jurisdictions.

---

## Conclusion

The idea of private waste collection may sound appealing to some. But in reality, it has proven to have limited success and, given the amount of monitoring associated with trying to make private waste collection work for the public good, it may be more of a headache than it's worth. In general, local governments are primarily seeking to reduce their costs by contracting out service delivery. In residential waste collection specifically, these sav-

ings are far from guaranteed. Decades of empirical research from jurisdictions across North America and Europe show no clear connection between private waste collection and cost reductions. Moreover, cost savings appear to be increasingly less likely.

The two main reasons why private waste collection fails to reduce municipal costs: (1) a widespread lack of competition, and (2) large and often unaccounted for transaction costs. Research shows, for instance, a broad trend in the waste collection market toward private oligopolies, where markets are heavily dominated by just a few firms.

In the absence of the political will to completely return the delivery of such vital public services into public hands, the difficulties with waste collection privatization suggest that municipalities may benefit from maintaining a significant in-house presence in the market alongside private firms. This mixed delivery system has been shown to be associated with lower municipal costs than a fully privatized system, but there is insufficient empirical evidence to conclusively say it is the most cost efficient option.

The research points to two important leverages that mixed-delivery models provide municipalities that can be used to address problems with privatization. Mixed-delivery models can provide the local government with greater control over the specifics of the contract terms and can also enable governments to more readily re-internalize collection if the political will exists. Both of these conditions can increase competitive pressure in the market, reduce transaction costs, and drive public sector efficiencies.

---

## Appendix

Since 1965, there have been 21 studies that have used multivariate regression techniques to compare the cost of public and private delivery of solid waste collection. Most of these studies do not examine a municipality's costs prior to and following privatization. Instead, they analyze a large database using statistical methods to compare the cost of municipalities that keep service delivery in public hands and those that contract out to private businesses. These statistical analyses require researchers to control for a range of variables that may affect delivery costs, such as frequency of waste pick up and the amount of garbage collected.

Several studies have found a statistically significant relation between private delivery and lower municipal costs. But these studies have major limitations. Four of the studies are more than thirty five years old. Two others

did not account for the impact of tendering.<sup>55</sup> That is, did private ownership lower the costs or was it the competition between those vying for the contract that drove costs down? Without accounting for the impact of competition, the studies could very well have credited private ownership for inducing cost savings that were, in part or entirely, due to competition.<sup>56</sup>

Studies have also been faulted for failing to fully account for the various public administrative costs imposed on municipalities from contracting with outside firms – costs which must be included for comparisons to be accurate. Not including this variable biased the findings against in-house delivery.<sup>57</sup>

Recently, researchers have found evidence that previous studies did not adequately control for the differences between municipalities being compared.<sup>58</sup>

As studies have begun drawing on larger databases, using more sophisticated econometric methods and including more variables in their analysis, previous conclusions about lower costs from private contracting are being cast into serious doubt. In fact, the four most recent empirical studies, which analyzed municipalities in the U.S., the Netherlands, and Spain, found that private residential waste collection is not associated with lower costs.<sup>59</sup>

# Notes

**1** Bel, G., X. Fageda and M. Warner. "Is Private Production of Public Services Cheaper Than Public Production? A Meta-Regression Analysis of Solid Waste and Water Services." *Journal of Policy Analysis and Management*, 29 (3), 2010, 553-557.

**2** Unfortunately, the data set did not allow for an analysis of the effect on cost of the level of competition.

**3** Bel, G. and M. Warner. "Does privatization of solid waste and water services reduce costs? A review of empirical studies." *Resources, Conservation and Recycling*, 52, 2008, 1337-1348.

**4** Post, J., J. Broekema, and N. Obirih-Opareh. "Trial and Error in Privatization: Experiences in Urban Solid Waste Collection in Accra (Ghana) and Hyderabad (India)," *Urban Studies*, 40, 2003, pp. 835-52.

**5** Homsy, G. and M. Warner. "Intermunicipal Cooperation: The Growing Reform," *Municipal Year Book 2014*. Washington, DC: ICMA Press, forthcoming; Warner, M. and A. Hefetz. "Cooperative Competition: Alternative Service Delivery, 2002-2007." *Municipal Year Book 2009*, Washington, DC: ICMA Press, 2009, 11-20.

**6** Hefetz, A., M. Warner, and E. Vigoda-Gadot. "Privatization and intermunicipal contracting: the US local government experience 1992-2007." *Environment and Planning* 30, 2012, pp. 675-692.

**7** Dijkgraaf, E. and R. H. J. M Gradus. "Collusion in the Dutch waste collection market." *Local Government Studies*, 33, 2007, pp. 573-588.

**8** Bel, Germa, Xavier Fageda and Mildred Warner. "Is Private Production of Public Services Cheaper Than Public Production? A Meta-Regression Analysis of Solid Waste and Water Services." *Journal of Policy Analysis and Management*, 29 (3), 2010, 553-557; Warner, M., and A. Hefetz. "Managing Markets for Public Service: The Role of Mixed Public-Private Delivery of City Services." *Public Administration Review*, 2008, pp.155-166.

**9** Pack, J.R. "Privatization and Cost Reduction." *Policy Sciences*, 22(1), 1989, pp. 1-25.

- 10** Szymanski, S. and S. Wilkins. "Cheap Rubbish? Competitive Tendering and Contracting Out in Refuse Collection – 1981-88." *Fiscal Studies*, 14 (3), 1993, pp. 109-130.
- 11** Bel, G. and A. Costas. "Do Public Sector Reforms Get Rusty? An Empirical Analysis on Privatization of Solid Waste Collection." *The Journal of Policy Reform*, 9(1), 2006, pp. 1-24.
- 12** Domberger, S., S.A. Meadowcroft, and D.J. Thompson. "Competitive Tendering and Efficiency: The Case of Refuse Collection." *Fiscal Studies*, 7(4), 1986, pp. 69-87.
- 13** Szymanski, S. and S. Wilkins. "Cheap Rubbish? Competitive Tendering and Contracting Out in Refuse Collection – 1981-88." *Fiscal Studies*, 14 (3), 1993, pp. 109-130.
- 14** Unfortunately, the studies do not detail how the public bids were put together. Szymanski and Wilkins simply note that their data gathering uncovered 13 cases between 1948 and 1988 where collection services had been put out to tender but kept in-house.
- 15** Dijkgraaf, E. and R. H. J. M. Gradus. "Cost Savings of Contracting out Refuse Collection." *Empirica*, 30, 2003, pp. 149-161.
- 16** Bel, G. and A. Costas. "Do Public Sector Reforms Get Rusty? An Empirical Analysis on Privatization of Solid Waste Collection." *The Journal of Policy Reform*, 9(1), 2006, pp. 1-24.
- 17** Lowery, D. The Political Incentives of Government Contracting." *Social Science Quarterly*, 63(3), 1982, pp. 517-29.
- 18** Warner, M. "Privatization and Urban Governance: The Continuing Challenges of Efficiency, Voice, and Integration." *Cities*, 29, 2012, S38-S43.
- 19** Sclar, E. *You don't always get what you pay for: The economics of privatization*. Ithaca, NY: Cornell University Press, 2000; Vickers, J. and G. Yarrow. "Economic Perspectives on Privatization." *The Journal of Economic Perspectives*, 5(2), 1991, pp. 111-132.
- 20** Hefetz, A. and M. Warner. "Contracting or Public Delivery? The Importance of Service, Market and Management Characteristics." *Journal of Public Administration and Theory*, 22(2), 2012, pp. 289-317.
- 21** Girth, A. M., A. Hefetz, J. M. Johnston, and M. Warner. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review*, 72(6), 2012, p.888.
- 22** Bel, Germa, Xavier Fageda and Mildred Warner. "Is Private Production of Public Services Cheaper Than Public Production? A Meta-Regression Analysis of Solid Waste and Water Services." *Journal of Policy Analysis and Management*, 29 (3), 2010, p.489
- 23** Dijkgraaf, E., and R. H. J. M Gradus. "Collusion in the Dutch waste collection market." *Local Government Studies*, 33, 2007, p.576
- 24** Warner, M. and G. Bel. "Competition or Monopoly? Comparing Privatization of Local Public Services in the US and Spain." *Public Administration*, 86(3), 2008, p.728
- 25** Davies, S. "Politics and markets: The case of UK municipal waste management." Working Paper No. 95. Cardiff, Wales: School of Social Sciences, Cardiff University, 2007.
- 26** Girth, A. M., A. Hefetz, J. M. Johnston, and M. Warner. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review*, 72(6), 2012, p.889
- 27** Bel, G. and X. Fageda. "Big Guys Eat Big Cakes: Firm Size and Contracting in Urban and Rural Areas." *International Public Management Journal*, 14(1), 2011, pp. 4-26.
- 28** Bel, G. and X. Fageda. "Big Guys Eat Big Cakes: Firm Size and Contracting in Urban and Rural Areas." *International Public Management Journal*, 14(1), 2011, pp. 4-26.

- 29** Girth, A. M., A. Hefetz, J. M. Johnston, and M. Warner. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review*, 72(6), 2012, pp. 887–900.
- 30** Bel, G. and M. Warner. "Does Privatization of Solid Waste and Water Services Reduce Costs? A Review of Empirical Studies." *Resources, Conservation, and Recycling*, 52, 2008, pp. 1337–1348; Warner, M. and G. Bel. "Competition or Monopoly? Comparing Privatization of Local Public Services in the US and Spain." *Public Administration*, 86(3), 2008, pp. 723–735; Bel, Germa, Xavier Fageda and Mildred Warner. "Is Private Production of Public Services Cheaper Than Public Production? A Meta-Regression Analysis of Solid Waste and Water Services." *Journal of Policy Analysis and Management*, 29 (3), 2010, 553–557.
- 31** Bel, G. and X. Fageda. "Big Guys Eat Big Cakes: Firm Size and Contracting in Urban and Rural Areas." *International Public Management Journal*, 14(1), 2011, pp. 4–26.
- 32** Gómez-Lobo, A. and S. Szymanski. "A law of large numbers: bidding and compulsory tendering for refuse collection contracts." *Review of Industrial Organization*, 18(1), 2001, pp. 105–13.
- 33** Girth, A. M., A. Hefetz, J. M. Johnston, and M. Warner. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review*, 72(6), 2012, pp. 887–900.
- 34** Brown, T. and M. Potoski. "Managing Contract Performance: A Transaction Costs Approach." *Journal of Policy Analysis and Management*, 20, 2003, pp. 275–297.
- 35** DeHoog, R.H. "Competition, Negotiation, or Cooperation: Three Models for Service Contracting." *Administration and Society*, 22(3), 1990, 317–40.; Pack, J.R. "Privatization and Cost Reduction." *Policy Sciences*, 22(1), 1989, pp. 1–25; Prager, J. "Contracting out Government Services: Lessons from the Private Sector." *Public Administration Review*, 54(2), 1994, pp. 176–84; Whittington, J. "When to Partner for Public Infrastructure?" *Journal of American Planning Association*, 78(3), 2012, pp. 269–285.
- 36** Sclar, E. *You don't always get what you pay for: The economics of privatization*. Ithaca, NY: Cornell University Press, 2000.
- 37** Homsy, G., and M. Warner. "Intermunicipal Cooperation: The Growing Reform" *Municipal Year Book 2014*. Washington, DC: ICMA Press, forthcoming
- 38** Hatry, H. P. "Privatization presents problems." *National Civic Review*, 77, 1988, pp. 112–117.
- 39** Ballard, M. and M. Warner. "Taking the High Road: Local Government Restructuring and the Quest for Quality." *Cornel Working Papers in Planning #194*, 2000; Warner, M. and A. Hefetz. "In-sourcing and Outsourcing." *Journal of the American Planning Association*, 78(3), 2012, pp. 313–327.
- 40** Bajari P., R. McMillan & S. Tadelis. "Auctions versus Negotiations in Procurement: An Empirical Analysis." *Journal of Law, Economics and Organization*, 25, 2003, pp. 372–399; Yvrande-Billon, A. "The Attribution Process of Delegation Contracts in the French Urban Public Transport Sector: Why Competitive Tendering Is a Myth." *Annals of Public and Cooperative Economics*, 77, 2006, pp. 453–478.
- 41** Ballard, M. and M. Warner. "Taking the High Road: Local Government Restructuring and the Quest for Quality." *Cornel Working Papers in Planning #194*, 2000.
- 42** Ballard, M. and M. Warner. "Taking the High Road: Local Government Restructuring and the Quest for Quality." *Cornel Working Papers in Planning #194*, 2000.
- 43** Girth, A. M., A. Hefetz, J. M. Johnston, and M. Warner. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review*, 72(6), 2012, pp. 887–900.

- 44** Girth, A. M., A. Hefetz, J. M. Johnston, and M. Warner. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review*, 72(6), 2012, pp. 887–900.
- 45** Lowery, D. The Political Incentives of Government Contracting." *Social Science Quarterly*, 63(3), 1982, pp. 517–29.
- 46** Girth, A. M., A. Hefetz, J. M. Johnston, and M. Warner. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review*, 72(6), 2012, pp. 887–900.
- 47** Miranda, R., and A. Lerner. "Bureaucracy, organizational redundancy, and the privatization of public services." *Public Administration Review*, 55, 1995, pp. 193–200.
- 48** McDavid, J. "Solid-waste contracting-out, competition, and bidding practices among Canadian local governments." *Canadian Public Administration*, 44 (1), 2001, p.14.
- 49** Gradus, R., E. Dijkgraaf and M. Wassenaar. "Understanding Mixed Forms of Refuse Collection, Privatization and its Reverse in the Netherlands." *International Public Management Journal*, 17(3), 2014, pp. 328–343.
- 50** Hefetz, A., M. Warner, and E. Vigoda-Gadot. "Concurrent Sourcing in the Public Sector: A Strategy to Manage Contracting Risk." *International Public Management Journal*, 17(3), 2014, pp. 365–386.
- 51** Bel, G. and J. Rosell. "Public and Private Production in a Mixed Delivery System: Regulation, Competition and Costs." *Research Institute of Applied Economics*, Working Paper 2014/18, 2014.
- 52** Dijkgraaf, E., and R. H. J. M. Gradus. "Collusion in the Dutch waste collection market." *Local Government Studies*, 33, 2007, pp. 573–588.
- 53** Miranda, R., and A. Lerner. "Bureaucracy, organizational redundancy, and the privatization of public services." *Public Administration Review*, 55, 1995, pp. 193–200.
- 54** Dijkgraaf, E., and R. H. J. M. Gradus. "Collusion in the Dutch waste collection market." *Local Government Studies*, 33, 2007, pp. 573–588.
- 55** Tickner, G. and J. McDavid. "Effects of scale and market structure on the costs of residential solid waste collection in Canadian cities." *Public Finance Quarterly*, 14, 1986, pp. 371–393; Reeves, E. and M. Barrow. "The Impact of Contracting Out on the Costs of Refuse Collection Services: The Case of Ireland." *The Economic and Social Review*, 31 (2), 2000, pp. 129–150.
- 56** Boyne, G. "Bureaucratic Theory Meets Reality: Public Choice and Service Contracting in U.S. Local Government." *Public Administration Review*, 58 (6), 1998, pp. 474–484.
- 57** Bel, G. and J. Rosell. "Public and Private Production in a Mixed Delivery System: Regulation, Competition and Costs." *Research Institute of Applied Economics*, Working Paper 2014/18, 2014.
- 58** Dijkgraaf, E. and R. H. J. M. Gradus. "Cost advantage cooperations larger than private waste collectors." *Applied Economic Letters*, 20, 2013, pp. 702–705.
- 59** Bel, G. and M. Mur. "Intermunicipal cooperation, privatization and waste management costs: Evidence from rural municipalities." *Waste Management*, 29, 2009, pp. 2772–2778; Bel, G. and X. Fageda. "Empirical Analysis of Solid Management Waste Costs: Some Evidence from Galicia, Spain." *Resources, Conservation and Recycling*, 54 (3), 2010, pp. 187–193; Bae, S. "Public Versus Private Delivery of Municipal Solid Waste Services: The Case of North Carolina." *Contemporary Economic Policy*, 28 (3), 2010, pp. 414–428; Dijkgraaf, E. and R. H. J. M. Gradus. "Cost advantage cooperations larger than private waste collectors." *Applied Economic Letters*, 20, 2013, pp. 702–705.





**CCPA**

CANADIAN CENTRE  
for POLICY ALTERNATIVES

CENTRE CANADIEN  
de POLITIQUES ALTERNATIVES