Iğd Üniv Sos Bil Der / Igd Univ Jour Soc Sci
Sayı / No. 19, Temmuz / July 2019
Makale / Article

Impact of Privatisation on Refuse Collection: Review of Theoretical and Empirical Studies

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Geliş Tarihi: 24.02.2019 | Kabul Tarihi: 21.01.2019

Abstract: Over the last few decades, there has been a considerable discussion on the issue of whether privatization achieves its main aims which might be stated as cost-saving and quality improvement. This paper aims to present the theoretical approaches that are in favor of privatization. Then analyze the existing empirical studies from refuse collection literature to acknowledge to what extense these theories are consistent. Paper concludes that although theoretical explanations are in favor of privatization, empirical evidence is ambiguous whether privatization enables municipalities to decrease cost.

Keywords: Privatisation, complete contract, competition, refuse collection.

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Özelleştirmenin Çöp Toplama Üzerine Etkisi: Teorik ve Ampirik Çalişmalarin Değerlendirilmesi

Öz: Geride kalan son yıllar içerisinde, özelleştirmenin, maliyetlerin düşürülmesi ve kalitenin artırılması olarak ifade edilebilecek olan amaçlarını gerçekleştirip gerçekleştiremediği üzerinde dikkate değer bir tartışma söz konusudur. Bu makalenin amacı, özelleştirmeyi destekleyen teorileri sunmaktır. Akabinde, çöp toplama ile ilgili ampirik literatürü, teorilerin gerçeği yansıtıp yansıtmadığını anlamak için analiz eder. Makale, her ne kadar teorik açıklamalar özelleştirmeden yana olsa da, ampirik çalışmalar özelleştirmenin belediyelerin çöp toplama maliyetini düşürüp düşürmediği hususunda belirsiz olduğu sonucunu ortaya koyar.

Anahtar Kelimeler: Özelleştirme, tam sözleşme, rekabet, çöp toplama.

© Yılmaz, İbrahim. "Impact of Privatisation on Refuse Collection: Review of Theoretical and Empirical Studies." *Iğdır Üniversitesi Sosyal Bilimler Dergisi* 19 (2019), 545-561.

Introduction

Over the last few decades, there has been considerable discussion around economic and political circles as to whether the privatisation of public services has accomplished its main aims. Shleifer (1998) argues that the most crucial objectives of privatization are cost saving and quality improvement. The proponents of privatization, in general, contends that the privatisation of public services reduces the public expenditure. They further argue that a reduction of public expenditure does not have a detrimental impact on the quality of the service provided. However, those who are not in favour of privatisation claim that privatisation has not only failed to deliver any cost saving but has also led to a market to decrease in quality. The discussion leads many scholars from economic and political circle to think about to what extend ownership does matter in terms of cost and quality of the services provided. In order to clarify the discussion, this article is being divided into three parts. The first part constitutes the definition of privatization. The second part is theoretical and it concentrates on the effect of ownership in the case of complete contracts and incomplete contracts. The last section focuses on the existing empirical studies on garbage collecting literature in order to evaluate the impact of ownership on the cost saving and quality improvement.

1. Definition of Privatisation

At first glance, it is worth mentioning that the term privatisation and contracting out, in general, are used synonymously despite the fact that they have quite different meanings. The term of privatisation in general can be described as "transfer of ownership of physical assets from public to private ownership" (Domberger and Jensen 1997, p. 68). For instance, the sale of TEKEL, in Turkey, in 2004, could be considered as an example of full privatization. Whereas contracting out is defined as "the situation where one organisation contracts with another for the provision of a particular good or service" (Ascher, 1987: p. 7).

Taking contracting out into account it can be said that through contracting out, public authorities invite private organizations to deliver their services for an agreed period determined by the contract. The procedure is simply running like that, the organization which gives the lowest bid would obtain the right to deliver the service for a particular time which is indicated in the contract. For instance, in London, an operation of public transportation such as buses depends on contracting out system (Tfl, 2017). It is worth stressing that the main reason why these two terms are used synonymously might be because in each cases goods and services which used to be carried out by public sector organizations are now provided by the private sector organizations. The main differences between these two terms are while the former one does not necessarily involve competition the letter one does. In addition, what is meant by privatisation in the United States is contracting out rather than full privatisation (Lopez-de-Silanes, et al. 1997; Domberger and Jensen, 1997). As it is clear that there is synonymy using of both terms but when the privatisation is used in the article it would refer to contracting out rather than full privatisation.

2. Theoretical Perspective

2.1 Complete Contract

Regarding the complete contract, it can be said that there is not too much discussion about the impact of the ownership on the cost and quality of the services. Both Hart et al., (1997) and Domberger and Jensen (1997) actually approve the idea that if contracts are complete the ownership does not matter. The main reason for that is because the cost of the service and the required quality of the service is exactly drawn within complete contracts. The point they were opposed to each other is in theory. Hart (1995) theoretically accepts the presence of complete contract but practically, he argues, there is no such a contract whereas Domberger and Jensen (1997) are both theoretically and practically convenient with complete contracts.

Roughly speaking, due to the fact that all contingencies are

taken into consideration with complete contract, therefore, regardless of by whom the service is delivered, the cost of the services will be the same in each case. According to Domberger and Jensen (1997), the only factor affecting the cost of services is an ex-ante competition, not ownership. They assert that because of the ex-ante competition, the cost of the public services which have been delivered by contracting out system has approximately decreased 20 percentage.

Quality of public services is another important issue. It is obvious that if the contracts are complete than the required quality of the services should be exactly drawn. Therefore, whether the service is delivered publicly or privately, the quality of the service should be the same. However, private firms are more likely to deliver high-quality services. This situation might be better explained by an example of public transportation in London. Operation of the bus system has been relying on contracting out in London. Every private firm operates for five years for the bus line which they get a contract. An operator receives two years of extension to operate if they meet or exceeds the criteria of the contract. However, if an operator does not operate satisfactorily, London Buses retains the right to terminate any contract. As Shleifer (1998) effectively argues that because of the reputation concern, the private firms try to reach a certain quality. It is to say that if private firms would like to continue their business they need to have a good reputation via satisfied quality service.

Generally speaking, taking complete contract into consideration, it can be contended that, because of the ex-ante competition, the cost of the public services has considerably decreased, and because of reputation concern the quality of the public services remain the same or even it may enhance in the case of private provision.

2.2. In-Complete Contracts

Hart (1995) argues that in reality contracts are incomplete, because of three main contracting costs; at first, as a result of

living in a highly complex and unpredictable world. In other words, it is almost impossible to take all contingencies into account when a contract is being written. Secondly, even if individuals make a future plan, contracting parties cannot negotiate about these contingencies. Thirdly, even parties make a future plan and negotiate for an unexpected situation, if they dispute for any reason they need to go higher authority (usually court) in order to solve the problem. In this case, because of the complex nature of the incomplete contract, the authority is unlikely to understand what these plans mean so that it cannot enforce any party to take any action. Eventually, he explicitly discusses whether public or private organization are more effective in terms of cost and quality innovation from the incomplete contract perspective and unlike Domberger and Jensen (1997), he argues that the most important thing is the allocation of the residual rights rather than the ex-ante competition.

In terms of cost efficiency and quality, two types of investment incentives are taken into account; cost reduction and quality innovation (Hart et al. 1997). Hart et al., (1997) effectively argue that in a situation where the assets are publicly owned, the manager of the service is unlikely to implement these two investments because of their lack of incentives to introduce these two investments. The main reason for that is the manager is not the owner of the company. Therefore, in either situation, if he/she introduces new investment the return will be very small or might be nothing. However, the incentives of private regulated contractors are considerably stronger. The main reason for that is being of the owner of the assets, the managers get more benefit if they introduce any investment either cost reduction or quality innovation. If the manager of the private regulated contractor introduces cost reduction, the profit of the organization will simultaneously increase. It will obviously be reflected in his/her personal income, simultaneously.

In the light of Hart`s and his associates` argument, it might be claimed that they are in favour of in-house provision if the

effect of non-contractible cost reduction is simultaneously larger than the deterioration of the non-contractible quality and if the quality innovation is unimportant. In addition, they are also adherents of private provision, if quality innovation is important, and "when quality reducing cost reductions can be controlled through contract or competition" (Hart et al. 1997, p. 1159). They claim that services such as foreign policy and maintenance of armed forces and police should be in-house provision. Furthermore, services such as garbage collection should be provided by private firms. To cement the argument, Shleifer`s (1998) thoughts could be articulated here, he argues that if innovation is crucial, private organizations should be the only supplier of the services.

However, Levin and Tadelis (2010) approach to the same issue from a slightly different angle and they contend that those services which are difficult to make a contract on it should be an in-house provision. What is more, their analysis demonstrates that the cost of quality monitoring of contracted out services is considerably high. Therefore, those services which are essential in terms of quality should be provided by public authorities. Another way of saying is that Levin and Tadelis (2010) maintain that if public authorities care about the quality of the services, those services should be delivered by in-house provision instead of contracting out because of the cost of monitoring.

3. Empirical Studies

From a theoretical point of views both complete and in-complete contracts perspectives, it is clear that in the case of refuse collection privatisation is better than an in-house provision in terms of cost saving. In addition, in relation to the complete contract, the quality of garbage collection remains the same or it may enhance, in the case of privatisation rather than in-house provision. From the in-complete contract perspective, the quality of refuse collection may decrease in order to cost saving, however, it is trivial.

First of all, it is worth mentioning that almost all empirical studies regarding refuse collection mainly comes from developed countries such as UK, Canada and Spain (Bello and Szymansky, 1996; McDavid, 1985; Bel and Mur, 20019). These studies, in general, have focused on the comparison of the cost of private provision with public provision from other regions. However, to the best of my knowledge, there are a few empirical studies compare the cost of the refuse collection before and after a private provision in the same region (McDavid, 1985). In addition, empirical studies seem to neglect the issue of quality. In other words, whether the quality of service provided by private and public provision has not been compared with one another. Last but not the least there is no empirical studies compare the quality of the refuse collection before and after privatisation.

Although theoretical explanations are in favour of the private provision of refuse collection, empirical studies from various developed countries do not provide concrete evidence for this. In other words, empirical studies analysing the impact of ownership on the refuse collection are inconclusive. While some have found contracting out enable the municipalities to decrease the cost of the refuse collection (MacDavid, 1985; Reeves and Barrow, 2000), others have not reached such conclusion (Hirsch, 1965, Callan and Thomas, 2001; Bel and Mur, 2009). Moreover, a few of them shows that private provision is costly than public provision (Ohlsson, 2003).

One of the earliest empirical studies in refuse collection literature was undertaken by Hirsch (1965). Bel and Warner (2008) effectively argue that his production cost model has influenced many others since then. Collecting data from only 24 municipalities in St. Louis Country, Missiory, Hirsch (1965) found that ownership has no impact on the cost of refuse collection. Similarly, empirical analysis of Callan and Thomas (2001) confirms the findings of Hisrch (1965). Using data of 110 municipalities in Massachusetts, Callan and Thomas (2001) analyze

whether there is a scale economy in the solid waste collection. Their findings reveal that there is no difference in ownership of the cost of refuse collection and recycling. In a similar vein, Bel and Mur (2009) examined the determinants of the cost of urban solid waste services in a rural environment. Using data from 56 municipalities in Spain, they also found no difference in the cost of the refuse collection between private or public provision.

Empirical studies finding a difference in public and private provision of the cost of refuse collection, in general claim that, these results have been mainly driven as a result of competition. For instance, the use of data from 48 Canadian municipalities with higher than 10.000 inhabitants, Kitchen (1976) found that the cost of refuse collection for private firms is significantly lower compared to in-house provision. He claims that because of an absence of competition, municipalities are unlikely to improve efficiency, which results in higher cost in comparison to private firms. (p:70). He claims that competition is the main source of efficiency. In more detail, he claims that because of an absence of competition, some municipalities are unlikely to improve efficiency, which results in higher cost in comparison to private firms. Like many other studies, he also does not provide information about the quality of the services provided by public and private provision. An empirical study from Ireland also provides supporting evidence of a claim that privatisation is likely to increase the efficiency of refuse collection. Using a sample of 48 Irish Municipalities, Reeves and Barrow (2000) analyze the determinants of the cost of the refuse collection. Their results show that the cost of refuse collection of municipalities contracting out their services through competitive tendering is significantly lower compared to others. In addition, their results indicate that contracting authorities have lower costs of around 46 per cent on average. They expand their analysis and conducted an interview with Irish local authorities to acknowledge from where and how this cost efficiency was derived from. They found that having more flexible work practices such

as smaller crew size enable private firm contractors to incur a lower cost. In addition, they also reveal that the existence of poorer working conditions in the private sector also allow them to increase productivity. In a similar vein, McDavid (1985) also found that there is a substantial cost difference between public and private refuse collection in Canada. In more detail, dividing refuse collection system in three, public, private and mixed collection system, he found that public collection was around 41 per cent more expensive than a private collection. It is worth noting that he also compared the differences in the cost of the refuse collection before and after privatization. He found that privatization of refuse collection significantly reduces the cost of the service. He reveals that private firms achieve a reduction in cost by using different technology and labour productivity. He claims that the main reasons for achieving cost reduction is introducing competition into the market.

As it is pointed out above, findings of several empirical studies indicate that it is the competion rather than ownership that is likely to decrease the cost of refuse collection (Domberger et al., 1986). For instance, Bello and Szymanski (1996) analyze the impact of the introduction of compulsory competitive tendering on the cost o refuse collection in the UK. Their findings show that the introduction of compulsory competitive tendering in a refuse collection in the UK resulted in a decline in cost. Similarly, collecting data from England and Wales, Domberger et al., (1986) show that the critical factor to achieve lower cost in the refuse collection is competition rather than awarding contracts to private firms. Their results show that the cost of refuse collection is approximately 20 per cent lower for the area where there is a competitive tendering in comparison to the area where the is no competitive tendering. It is important to highlight that in the case of competition, in terms of cost there is no difference in public or private provision. Their result also demonstrates that cost-saving resulted in competition do not undermine the quality of the services provided. In addition,

the study of Szymanski and Wilkins (1993) also provide similar results with Domberger et al., (1986). Collecting data from 365 English municipalities from 1984-94, they show that contracting out reduces the unit costs approximately 20 per cent. Furthermore, collecting data from 365 English municipalities from 1984-94, Szymanski (1996) finds that the refuse collection of public production is costly than private production. It is worth stressing that although there is an erosion in cost saving over time, still private production remains more effective.

Although the empirical literature of the impact of ownership on refuse collection goes back to 1960s, this discussion still remains vivid in many European countries such as the Czech Republic, Spain and Portuguese. For instance, one of the recent empirical studies in the literature also provides supporting evidence for contracting-out and claims that it is not the form of production but it is the competition that enables the municipalities to cost efficiency. Collecting data from 2065 municipality in Czech Republic Soukopova et al., (2017) demonstrate that per capita cost of the refuse collection is significantly lower in municipalities which implement contracting out in comparison to others. In addition, they also show that the form of production does not have an impact on cost saving in the municipalities where contracting out system has been implemented.

A study by Dijkgrafand and Gradus (2008) also provide supporting evidence for privatisation of waste collection in Netherland. Collecting data from 85 municipalities in Holland, Dijkgrafand and Gradus (2008) also demonstrate that contracting-out of refuse collection is significantly associated with lower cost. In a similar vein, collecting data from Portuguese local governments Simoes et al., (2012) examine the impact of ownership on the efficiency of refuse collection. Providing support for privatisation, their result shows that in terms of cost saving private companies are more efficient. It is worth stressing that they did not take quality into consideration in their analysis.

Gomez-Lobo and Szymanski (2001) approach the same issue from a slightly different angle and rather than focusing on ownership they solely concentrate on the impact of competition on the cost of refuse collection. Using data from England, they reveal that the cost of refuse collection service is associated with the number of bids. In other words, the more the number of bids the lower becomes the cost of refuse collection. It is important to highlight that the more the bids, the higher the competition becomes. Therefore, their results show that the degree of competition is related to the cost of refuse collection.

Although it is quite limited in numbers, there have been a few empirical findings showing that the cost of refuse collection of public provision is lower in comparison to private provision. For instance, using data from 115 municipalities, Ohlsson (2003) contradicts the earlier findings. His results are in favour of public production rather than private production. In more detail, his findings demonstrate that as a result of having higher capital and input cost, private production of refuse collection is costly than public production.

Table 1: Main empirical studies

Author(s)	**Country**	**Year**	**Sample Size**	**Main Findings**
Hirsch (1965)	United Stataes, Missiory	1960	24 municipalities	Ownership has no impact on cost
Kitchen (1976)	Canada	1971	48 municipalities	Cost of refuse collection of private firms is significantly lower compared to in-house provision.
McDavid (1985)	Canada	1979, 1980, 1981, 1982, 1983	126 municipalities	Cost of refuse collection of private firms is significantly lower compared to in-house provision.

Domberger et al., (1986)	England and Wales	1983 1984 1985		Competition enable cost savings Cost saving do not achived at the expense of deterioration in the quality of the service provided
Szymanski and Wilkins (1993)	England and Wales	1984-1988	1460 observations	Competition enables cost saving
Bello and Szymansky (1996)	UK	1984-1993	697 observations	Introduction of compulsory competitive tendering resulted in declining the cost of refuse collection
Szymanski (1996)	England and Wales	1984-1994	3598 observations	In the case of competitive tendering, public production is more costly than private production
Reeves and Barrow (2000)	Ireland	1993, 1994, 1995	48 municipalities	Private companies are more efficient in terms of cost
Callan and Thomas (2001)	Unites States, Massacushetts	1997	110 municipalities	Ownership has no impact on cost
Ohlsson (2003)	Sweeden	1989	115 municipalities	Cost of refuse collection of private company is higher than public companies
Dijkgrafand and Gradus (2008)	The Netherlands			Competitive tendering decrease the cost of refuse collection

Bel and Mur (2009)	Spain	2003	56 rural municipalities	Ownership has no impact on cost
Simoes et al., (2012)	Portuguese	2001-2008	196 operators	Private companies are more efficient in terms of cost saving in the case of short term contract
Soukopova et al., (2017)	Czech Republic	2014	2065 municipalities	Competition enables cost saving

Concluding Remark

To sum up, the theoretical studies claim that privatisation of certain public services is likely to decrease the cost of services as well as increase the quality of it. Reducing the cost of services, as it is argued, is relatively depending on the types of the contract. It is widely accepted that if contracts are complete, the cost of the service reduces because of the ex-ante competition. However, if contracts are incomplete, the cost of services goes down if it is delivered by private firms because incentives of the private firms are more likely to reduce the cost of the service. While the cost of the service is reducing, the quality of the service remains the same or at most ascended, because of the reputation concern of private companies. Findings of empirical studies of the refuse collection are ambiguous. Although the majority of them find that the cost of refuse collection of private provision is lower compared to public provision, some of them find no difference in the cost of public or private provision. Those studies which find a lower cost of private provision, mainly argue that it is not the ownership, but it is the competition that enables the companies to decrease the cost. In addition, there have been a few empirical studies claiming that poorer working condition is the source of lower cost for private firms.

One of the important issues that is needed to be highlighted here is that empirical studies have been carried out in de-

veloped countries, and to the best of my knowledge, there has been no empirical study that analysing the cost of refuse collection, in developing countries. Furthermore, empirical studies, in general, compare the cost of refuse collection of a private firm with the public ones. Only a few of them makes a comparison of the cost of the refuse collection before and after privatisation. Moreover, a difference in the quality of refuse collection between public and private provision is almost not addressed in the empirical studies, as it is addressed in theoretical studies.

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