

**“If you want to get rid of filth diseases, you must first get rid of the filth” – the
‘economic’ decision by a city corporation to collect household waste.**

ABSTRACT

The collection of household waste is now taken for granted. Such services have a cost, borne by local/central government or householders. Literature highlights such costs, also noting how householders can reduce them by recycling. Waste collection was not always a service offered to householders, with the first such services appearing from the mid nineteenth century. While accounting history literature has explored accounting in cities and the public sector, research on how costs featured in the introduction of services such as waste removal appears scarce. This paper explores the decision to introduce waste collection to every household in an Irish city and the role of accounting and costs therein. Events around this decision are analyzed using a dual meaning of economic. The findings suggest a substantivist meaning of economic was paramount and costs were considered within a public health framing.

I. INTRODUCTION

Today, the collection of domestic waste is a ‘given’ service provided in cities, towns and villages of most countries. It is also encapsulated within Sustainable Development Goal 6, which has access to adequate and equitable sanitation as one of its targets. As highlighted by Quinn and Feeney (2020, 2111) Irish domestic waste collection is today a privatized profit-making industry. They provided an interesting quote from an Irish parliamentary debate in 2017, which highlighted a general sentiment towards the industry. The quote referred to fictional crime boss Tony Soprano and his involvement in waste management. While the Sopranos were fictional, connections between criminal organizations and waste disposal are documented (e.g., D’Amato and Zoli 2012). The involvement (and domination) of private

sector firms has increased in recent decades as local governments and cities struggle with reduced funding and higher costs (Eggerth 2005). Additionally, since the 1990s waste management also encapsulates recycling and potential costs to households for excess waste. In many instances, households pay a flat charge, or a charge based on weight/volume. The latter is common in most European cities and the waste literature refers to it as pay-as-you-throw (PAYT) - e.g., Reschovsky and Stone (1994), Scharff and Vogel (1994). In other jurisdictions, such as the United States, waste collection costs remain partially funded by municipal authorities and are more commonly a fixed charge¹.

How domestic waste collection is funded today is not at issue here, but it is a complex policy decision for city, local and national governments. Inspired by the work of Quinn and Feeney (2020) which highlighted the complexities around costs of waste collection, and an apparent lack of accounting history literature on the history of public services, this paper takes us back over a century to when towns and cities in Ireland first decided to collect domestic waste. As will be revealed, issues of public health were key. This is captured in a quote from Edward Jenner (creator of the smallpox vaccine) when he reportedly commented “if you want to get rid of filth diseases, you must first get rid of the filth” – which inspired the paper’s title (see later also). Of course, when cities and towns decided to collect domestic waste over a century ago, it had a monetary cost to society and reduced funds available for other services. However, this cost was outweighed by benefits to public health. This paper covers a period from 1883 to 1889, when an Irish city, Cork, faced such a decision. This paper’s objective is to explore the decision to introduce waste collection to every household in the city and the role of accounting and costs therein. To do this, the paper uses the archives of Cork Corporation and draws on the notion of ‘economic’ by Çalışkan and Callon (2009, 2010) – see more later.

¹ See for example <https://www.chicago.gov/city/en/depts/fin/provdrs/city-of-chicago-garbage-fee-webpage.html>

The remainder of the paper is structured as follows. The next section provides a review of relevant literature, which reveals little historical literature on service provision decisions of city councils or similar authorities. The next section provides context on local government in Ireland in the 1880s, as well as detail on the archival sources and the method used. Then, details from the archival records are recounted. The final section offers some discussion, limitations of the paper and opportunities for future research.

II. LITERATURE REVIEW

A literature review is first presented on accounting in public services, cities and local government (e.g., a county). As will be revealed, accounting history literature on specific service provisions of cities and local government appears scarce. Then, a brief review of literature on domestic waste is given, covering present-day and historic settings. Finally, an outline of ‘economic’ and economization is given as it is the theoretical lens applied here.

Accounting for municipal/local authority settings and public services

To provide an overview of the relevant accounting history literature, a search was performed using the Scopus database. The search combined ‘accounting history’ with the words ‘public sector’, ‘municipal’, ‘local authority’, ‘council’ and ‘city’. The search terms were chosen to be deliberately broad to capture any topic related to accounting history, which when combined with the other search words should include public services provided by towns and cities – such as waste collection. The abstract, title and keywords were searched, and the results are summarized in Table 1.

Table 1 – results of literature search

Accounting history literature on ‘public sector’ is the most abundant as can be seen in Table 1. Literature in this area explores accounting at central/regional government level (e.g. Balluchi and Furlotti 2022; Baker and Rennie 2013; Black 2001), municipal level (Colquhoun 2011) and at institutional levels such as hospitals (Gebreiter 2022) and education (Martin-Sardesai, Guthrie, Tooley, and Chaplin 2019). Such studies focus more on higher level and externally oriented accounting/reporting practices, excluding in essence management accounting as used internally for decision making purposes. The papers on ‘municipal’ also include Colquhoun (2011) in addition to papers by Potts (1982) on accounting for property in municipal accounts, and Care (2011) on how accounting aided the Poor Law system in the United Kingdom (UK). The article found under ‘local authority’ relates to fisheries management and is not detailed here. Finally, the ‘city’ articles tend to focus on accounting topics/events related to specific cities, and not on accounting by city authorities *per se*. Examples include Vermiglio, Lombardi and Zarone (2023) and Lee (2022).

A review paper by Sargiacomo and Gomes (2011) – captured in the ‘municipal’ results in Table 1 - is worthy of further mention. Their paper summarized the themes and trends in five decades of research on accounting and accountability in local government and associated organizations. In total, 33 articles were found in both accounting history and general accounting journals. Similar to the point noted on the ‘public sector’ research earlier, the articles reported on by Sargiacomo and Gomes (2011) tend to focus on macro-level subjects, such as accounting systems and links to central government accounting, rather than on the use of accounting information for decision-making. Two exceptions are Carmona and Donoso (2004) – who studied cost systems in a royal soap factory – and Walker (2004) – who studied roles of accounting in the management of pauperism.

In summary, while accounting history literature is present on more macro aspects of accounting in cities and public sector entities, there would seem to be a gap in the literature on historical studies around decision-making and service provision by cities/local government. There is thus an apparently rich ground for papers such as this, but also for others on services such as provision of water, amenities and infrastructure.

Domestic waste

Literature on domestic waste management and policy is extensive and a full review is beyond the scope of this paper. However, a brief outline of some key issues highlighted in the literature is useful to frame the discussion later. A review of the limited historical literature on waste collection then follows.

The issue of cost to householders is widely discussed. Scharff and Vogel (1994) noted various volume-based/fixed rates in European cities. They also noted weight-based charges applied in the main to encourage recycling i.e., a PAYT system (see Reschovsky and Stone 1994). The PAYT system has been noted as an economically effective approach to reduce non-recyclable waste (Dijkgraaf and Gradus 2004; Husaini et al. 2007). Similarly related to costs, Domberger and Jensen (1997) suggested competitive tendering for waste collection services can yield cost savings with Eggerth noting that the “involvement of the private sector in providing [waste] services has become even more complex” (2005, 229). Despite this, Ma and Hipel (2016) suggested that “local government still plays an important role in developing policies and strategic plans for private sector participation, monitoring service provisioning, assessing service quality” (2016, 6). More specifically to the context of the present paper, Reeves and Barrow (2000) suggested that cost savings from privatizing waste collection in Ireland were substantial. However, as reported by Quinn and Feeney (2020), cost information on private

Irish waste collection companies was not available until at least 2016. Regardless, the consensus in the Irish context is that privatization has yielded efficiencies and encouraged recycling – albeit with some monitoring of market prices by the Irish government (Quinn and Feeney 2020). A second widely researched issue is societal and individual attitudes to waste e.g., Davies, Fahy and Taylor (2005), Purcell and Magette (2010). Accounting literature on environmental accounting and related areas also contains mention of waste management. For example, Qian, Burritt and Monroe (2011) studied environmental accounting by authorities responsible for domestic waste collection. They also noted a lack of research on environmental accounting in local government.

While humans have accounted for the environment through various ecological accounts for millennia (Atkins, Doni, McBride and Napier 2023) historical literature on waste management appears scarce, with none found in accounting history journals. A search of the Scopus database using the terms ‘waste’, ‘history’ and ‘accounting’ yielded two results. Velis, Wilson and Cheeseman (2009) provided an interesting report on 19th century dust-yards in London, England. These dust-yards pre-date organized municipal waste collection and owe their origin to the value of ‘dust’ - household waste with “a high content of coal ash and was in demand by the brick industry and for agricultural applications” (Velis, Wilson and Cheeseman 2009, 1282). The authors noted how private contractors collected ‘dust’ from the streets, resulting in cleaner streets, but also an income stream for the city. They also made comparisons to present day private waste collection and zero-waste policies. The dust-yards, being “a semi-formal, systematic, municipality-wide approach to waste management” (ibid, 1288) also aided transition to more institutionalized waste management by UK cities as Public Health laws were enacted (see later). Weber (2013) similarly highlighted a waste recovery approach, but in the context of Germany during the First World War and the Nazi era. Weber (2013, 378) noted

how during the First World War, as raw material availability was hampered and hunger increased due to a longer than expected war, “waste and its potential salvage also became part and parcel of the national urge to save materials”; and how “Nazi Germany aspired to such a ‘total’ recovery of waste matter, fully expressing it after 1936, in parallel with the *Vierjahresplan* (Four-Year Plan) policies” (ibid, 392). While Weber (2013) did not make comparisons to present day waste management policy, they are apparent.

The ‘economic’

In the accounting literature, Quinn and Feeney (2020) utilized the concepts of ‘economic’ and economization by Çalışkan and Callon (2009, 2010). For ‘economic’, the meaning proposed by Çalışkan and Callon (2009) is quite broad, and more than what accounting scholars may associate with the term. Çalışkan and Callon (2009) distinguished two meanings of ‘economic’. First is a formalist meaning, whereby society can be analyzed as collections of individual behaviors (i.e., actions) on decisions to fulfil needs. Second is a substantivist meaning, which refers to mechanisms by which society meets its needs. Using the case of charging for domestic waste collection in present-day Ireland, Quinn and Feeney (2020) gave examples of both meanings. For the formalist meaning, they noted how individual behaviors engaging in more recycling increases personal wealth by reducing waste charges. This individual behavior may fulfil several needs, for example, removing waste, increasing personal wealth and contributing to a more sustainable environment. For the substantivist meaning, they noted how society must reduce waste through recycling and create policy mechanisms (e.g. no charge for disposal of recyclables) to encourage individual behavior towards recycling, linking to the formalist meaning as just described. Çalışkan and Callon also noted the term ‘economization’ which is “the processes that constitute the behaviors, organizations, institutions and, more generally, the objects in a particular society which are tentatively and often controversially qualified, by

scholars and/or lay people, as ‘economic’” (2009, 370). They also note that the concept of ‘economization’ reveals roles played by “techniques, sciences, standards, calculating instruments, metrology and, more generally, material infrastructure” (Çalışkan and Callon, 2009, 384). As argued by Quinn and Feeney, this links to the actor-network concept of calculation and accounting “as a technique, science and calculating instrument” (2020, 2117) – see also Callon and Muniesa (2005).

In addition to Quinn and Feeney (2020), the accounting and related literature includes some studies drawing on the ‘economic’ and economization. For example, Samuel, Dirsmith and McElroy (2005) commented on how the role of accountants and accounting provided insights and critiques on how medicine and healthcare became ‘economic’. In a paper on the provision of water services in Ireland, the work of Jollands and Quinn (2017) highlighted how the concept of cost can have different meanings, similar to the dual meaning of the ‘economic’ as noted above. Warren and Seal (2018) examined the UK power generation sector and the use of an accounting technique (discounted cash flow) drawing on economization and the related concepts of marketization and financialization. From non-accounting literature, Gregson, Watkins and Calestani (2013) noted the economization of ship recycling under the UK’s Ship Recycling Strategy resulted in the political becoming economic, rather than the other way around as envisaged by Çalışkan and Callon (2009). Briefly, UK politics wished to avoid being seen as ‘dumping’ ships for recycling and this led to framing ship recycling as an economic activity. This was achieved by utilizing assaying and assay devices.

As can be gleaned from the above, the notion of ‘economic’ and economization have been used in studies of the role of accounting in societal issues. Quinn and Feeney (2020) used it to good effect to show the dual meaning of ‘economic’ as mentioned above. In the present paper, it is

also deemed a suitable lens. However, the substantivist meaning is more relevant and is elaborated on in the methods section. To the best of our knowledge, it has not been used extensively in accounting history research.

III.

IV. CONTEXT AND METHOD

Before describing the archival sources and the methods to collect and analyze data therefrom, it is useful to provide some historic context of local government in Ireland.

Context

Today in Ireland, the Minister for Housing, Local Government and Heritage has responsibility for all county and city councils (collectively referred to as local authorities) and is accountable to national government for their performance. The remit of such local authorities (was and still) is to supply public services such as water supply, fire services and waste collection. The present-day structures of local government in Ireland date from the nineteenth century (Haslam 2003; Forde 2005), and a brief outline of their history to the late 1800s is useful.

Webb (1918) is a useful source, given the timeframe of this paper. According to Webb (1918, 154) local government prior to 1840 in Ireland was “one long, sordid story of misgovernment, corruption, jobbery and intolerance, all of which defects were directly traceable to the evil influences set at work during the Stuart period [1603-1714]”. The passing of the Municipal Corporations (Ireland) Act 1840 “revolutionised the system of municipal government in Ireland. The old corporations were swept away and in their place were set up municipal corporations substantially the same as we know them to-day” (Webb 1918, 238). As noted by Haslam (2003), the first post-independence legislation was the Local Government Act 1925. While the 1925 Act restructured some aspects of local government, the geographical

organization remained largely the same. The 1840 Act left the ten most important towns and cities as were but provided that “corporate powers should be exercised by Councils elected on a popular basis” (Webb 1918, 239), which remains so today. Both Webb (1918) and Haslam (2003) noted the relevance of the Public Health (Ireland) Act 1878 in the history of local government. This piece of legislation put a statutory obligation on cities and towns to provide sanitation services, such as clean water and waste collection, with the latter being relevant here. To paraphrase the Act, failure to provide such sanitation services left municipal authorities subject to certain penalties and having obligations in respect of matters relating to public health. It also allowed them to extend debts (by way of loans) to provide such services. This is not to say that some Irish towns and cities did not provide sanitation services before 1878. For example, the city of Cork (the subject of this paper) collected waste from streets during this time, but not from residences in an organized way. The 1878 Act is elaborated on later.

At the period of this study, cities and towns covered expenses through rates. While some income was derived from the sale of water, from tolls and rent, rates were the primary income source. Briefly, rates were charged on all properties (domestic and commercial) according to their rateable valuation. In essence, rates charged reflected the projected budget shortfall for the year. To give an example from Cork city, in 1888 the rates were 6s 7^{1/2}d (33.125 pence in decimal notation) per pound valuation. Thus, if a house was valued at £10, the rates payable were (6s 7^{1/2}d x 10 =) £3 6s 3d. Today, the same basic principles remain, but only commercial properties pay rates.

Data and method

The primary data source is the Cork City and County Archives Service, located in Cork, Ireland. As a public archive, full access to all records was possible by appointment. Both

authors consulted the records as shown in Table 2, covering a period from 1883 to 1889 – the period from initial discussion on to implementation of waste collection services. All relevant documents were photographed using Microsoft Lens and converted to a PDF format. The fact that all documents analyzed were in printed form allowed for easier conversion to digital format and implied ease of reading. To support the archival sources, newspapers were consulted through the online Irish Newspaper Archives² database. Legislation³ was referred to as required.

Table 2 – archival sources

While not directly related to the research objective, given the lack of research on local/municipal authority accounting a brief description of the annual accounts of Cork Corporation may be useful for accounting historians and future researchers. During the period covered by this paper, the annual accounts were prepared by Edward McCarthy, a local chartered accountant. The accounts begin with a five-to-six-page report including an analysis of income and expenses for the year. It is notable that McCarthy begins his reports with the following text each year analyzed here: “I beg to report that I have examined the Books of the City Treasurer's Department, and that they are kept most creditably by the Treasurer's Assistants, Messrs. Sutton and Ireton” (1887 Annual Report). This suggests he either prepared or examined the annual accounts, but there was no legal requirement at the time for an audit of the financial statements. While McCarthy's report included an analysis of income and expenditure, no formal income and expenditure account was included. Two balance sheets were included, a detailed and a summarized one. A reproduction of the latter format from 1887

² Available at <https://www.irishnewsarchive.com> .

³ Irish legislation can be found at www.irishstatutebook.ie.

can be seen in Figure 1 – shillings and pence are ignored here but are presented in the original. The balance sheet total of £316,821 equates to approximately £34.4 million⁴ in 2023 values.

Figure 1 – example of summarized balance sheet, 1887.

As outlined, this paper draws on the notion of ‘economic’ by Çalışkan and Callon (2009). More specifically, the substantivist meaning of ‘economic’ is most applicable. As noted by Quinn and Feeney (2020, 2129) with reference to a present-day setting “waste collection in Ireland aligns to a formalist meaning of ‘economic’ – individual behaviors leading to waste collection and avoidance of health risks and reduced cost to the Irish household [and] while individuals needs may be met directly through a waste market scenario [...] or through indirect taxation, the state also had a role – a substantivist meaning”. Here, however, the historical setting is the introduction of waste collection to all dwellings. Thus, the substantivist meaning of ‘economic’ is more applicable given the city corporation (as an arm of the state) was introducing a service. The formalist meaning is not disregarded as revealed later. Analyzing the archival records shown in Table 2, and keeping in mind the meanings of economic, this paper will show the role of cost accounting and costs in the debates around introducing waste collection services to Cork city. Therefore, the paper is using theory to analyze and interpret historic events. In line with the argumentation of Rowlinson and Hassard (2013), a contribution to theory is thus not envisaged from this paper, whereas a contribution to contemporary debates and issues is.

**V. THE INTRODUCTION OF GENERAL DOMESTIC WASTE COLLECTION
TO CORK CITY**

⁴ Calculated using <https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator>.

The Public Health (Ireland) Act 1878 as a piece of legislation consolidated prior public health legislation and thus was varied and extensive. Some parts of the Act are worthy of mention to set the context of the decision by Cork Corporation to begin waste collection from all households. Sections 52 to 54 of the Act are most relevant, and extracts are shown in Table 3. Section 52 suggested a lead in time to give cities/towns time to instigate a waste collection service before being ordered to do so. It also allows for authorities to sell any saleable matter from waste. Section 53 provided for penalties should waste not be collected. Both sections suggest waste collection services can be contracted for or pursued by cities. Additionally, Section 11 provided for the appointment of a “medical superintendent officer of health” who among other duties was responsible for “generally aiding the administration of sanitary laws”. This person’s role becomes apparent later.

Table 3 – extracts from Public Health (Ireland) Act 1878

Proposal for waste collection

Following the 1878 Act, Cork Corporation (hereafter Corporation) formed a Public Health Committee which reported quarterly and included reports with costs. For example, a Public Health Committee (CP/RP(p)/03, see Table 2) report dated 9th October 1883, noted the estimated deficit of the Sanitary Fund⁵ (which included expenditure on waste removal) for the half-year ended 1st March, 1884, was projected at £1,062 (about £109,000 today⁶) – comprising receipts of £609, expenditure of £1,671. The same estimate noted income from removal of household waste would be £80. Estimated associated costs are not given, but this suggests that some household waste was being collected. By 1887, the audited accounts (CP/RP(p)/06, see Table 2) of the Corporation show the Sanitary Fund had grown. For the year to December 31st,

⁵ The Corporation accounted separately for funds as follows: Borough Fund, Improvement Fund, Sanitary Fund, General Purposes Fund, Waterworks Fund, Cemetery Fund.

⁶ Calculated using <https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator>.

1887, the income on the Sanitary Fund was £6,533, with expenditure at £6,436 i.e., a surplus of £97. Further details provided in the financial statements noted that the Sanitary Fund had an accumulated surplus of £928. The audited accounts show the accumulated surplus had declined to £797 in 1888 (CP/RP(p)/07, see Table 2), with expenditure rising to £6,800 (about £739,000 today). Thus, in a period of four years, expenditure had increased about fourfold.

One reason for the considerable increase in the expenditure under the Sanitary Fund heading is likely the implementation of various requirements of the Public Health (Ireland) Act 1878. For waste collection, the archival evidence is clear in this regard. An Order of Council dated 14th May 1886 (CP/RP(p)/06, see Table 2), noted:

That the Public Health Committee enquire and report on the desirability of having a general collection of House Refuse from *all* houses in the City and the expenses defrayed by a rate under the Public Health Act (emphasis added).

The rate referred to above relates to Section 52 of the 1878 Act – see Table 3 – or a rate for the Sanitary Fund. This Order was the beginning of a process which resulted in a nine-page report presented to the Mayor dated 1st June 1886. The report contents are detailed in the next section.

Report by Public Health Committee and its implementation

The timeline of events to the introduction of waste collection to all houses in the Corporation areas - based on the archival evidence shown in Table 2 – spanned from June 1st, 1886 (as noted) to early 1889. Key events in the timeline are now described.

The report requested by the Order mentioned above was presented by Denis D. Donovan (Medical Superintendent Officer of Health) and M. J. McMullen (City Engineer) on 1st June 1886 (CP/RP(p)/06, see Table 2). The latter was appointed as City Engineer in 1881 or 1882,

remaining in the role until 1896, at which time he retired due to poor health⁷. Donovan was a licensed physician and graduated from the Royal College of Surgeons (Edinburgh) in 1870⁸. Around the same time - 1865 to be precise - a fellow of the College, Sir Henry D. Littlejohn, published a *Report on the sanitary condition of the City of Edinburgh* (Littlejohn, 1865). Littlejohn was the first Medical Officer of Health for Edinburgh and pioneered compulsory notification of infectious diseases⁹. Littlejohn's (1865, 117) report recognized the public health benefits of removing waste, in the conclusions noting that Edinburgh should engage in "the perfecting of the system of cleansing, by which all accumulations of filth and refuse in houses and courts are prevented". This brief elaboration on the work of Littlejohn is relevant in that it is likely that Donovan was familiar with his work, as Littlejohn lectured at the Royal College of Surgeons in Edinburgh from the 1850s.

The June 1886 report contained some interesting points. Firstly, it emphasized the public health aspect of waste collection and the legal duties of the Corporation under the 1878 Act. It then proceeds to give examples from other UK cities on costs and operational matters of collecting waste – Sheffield is noted as paying contractors £33,000 for example. A comparison was also made to Dublin (Ireland's largest city), which cost £26,000 in 1884, covering a population of 250,000. The report then asks, "what are we going to do", presenting an argument for waste collection stating that "it will tend to lower our death rate and promote general health and comfort of the citizens". A particular mention is given to poorer classes who "have little or no facility for getting rid of their filth and refuse". A recommendation to continue was given to proceed and that dustbins for shopkeepers and householders "should be emptied, if not daily, at least three times a week for large establishments, and once a week for smaller ones". It was

⁷ See <https://www.dia.ie/architects/view/3935/MCMULLEN%2C+MICHAEL+JOSEPH>.

⁸ See <https://archiveandlibrary.rcsed.ac.uk/surgeon/3766432-dennis-dempsey-donovan>.

⁹ <https://archiveandlibrary.rcsed.ac.uk/surgeon/3770455-henry-duncan-littlejohn>.

also noted that “the cost will be comparatively trifling as contrasted with any of the towns mentioned”. However, no cost estimates were given.

On 14th January 1887, an Order of Council requested Donovan and others to prepare “a Report on the best method of carrying into effect [household waste collection] with an estimate of the probable first cost, and annual cost [of waste collection] attendant thereon” (CP/RP(p)/07, see Table 2). The response to this Order is not dated, but based on file sequence, it was before 21st March 1887. Figure 2 shows the estimated costs as presented by Donovan, McMullen, Thomas McDonnell (General Superintendent) and Daniel Galvin (Sanitary Officer). In addition to the costs in Figure 2, the following were also noted:

The Corporation would have to provide [...] properly made iron dust bins, and supply [...] to householders at cost price.

There would be a further outlay of about £400 necessary to provide properly constructed manure depots, but as such would have to be provided whether the proposed new system is carried out or not, the cost could not be fairly added.

The point on the manure depots is interesting in that it demonstrates an understanding of relevant costs. As can be seen in Figure 2, the additional annual cost was projected at £628, or about 9 percent additional expenditure on the Sanitary Fund. Whether or not dustbins were provided to householders at cost cannot be confirmed by archival or newspaper sources.

Figure 2 – annual cost of waste removal

7 Carriers at 5s. 6d. per day = per week	£11 11 0	
21 Labourers at 2s. „ = „	12 12 0	
2 Gangers at 2s. 6d. „ = „	1 10 0	
	<hr/>	
	£25 13 0 = per year	£1,333 16 0
PLANT REQUIRED.		
14 Carts, at £15 each, £210, cost might be spread over 6 years, one-sixth =	£35 0 0	
Wear and tear plant, &c.	60 0 0	
	<hr/>	
	£95 0 0	
		<hr/>
		£95 0 0
Cr. probable receipts for sale of manure		£1,428 16 0
		<hr/>
		800 0 0
		<hr/>
Net additional cost		£628 16 0

An 1887 annual report to the Public Health Committee (signed by Donovan), dated April 1888, suggests no decision on household waste collection had been made. The following extracts of this report are notable (CP/RP(p)/07, see Table 2):

Some of these diseases are preventable, and all of them, or nearly all, are filth diseases, [...]. And you will ask me, how are we to get rid of such diseases? I will answer in the words of Sir Edward Jenner, who [...] says – “if you want to get rid of filth diseases, you must first get rid of the filth”.

Simply because we have no proper system of domestic scavenging, and not having this system of cleansing, we must, as a matter of necessity, have accumulations of filth; and here we find one of the factors and promoters of typhoid fever.

Why does the Corporation not take up this question of domestic scavenging in the city? Is it because it will cost one penny in the pound? Surely the ratepayers won't object but will on the contrary be very glad to have clean surroundings.

An 1888 year-end report by the Sanitary Officer noted that the scheme was adopted from 1st July 1888, but came into operation from 1st February 1889. This agrees to notices of tender for the supply of equipment for domestic waste collection appearing in local newspapers from November 1888. As noted earlier, expenditure on the Sanitary Fund was £6,800 for 1888. This rose to £9,367 in 1889. While itemized expenditure is unavailable, it is likely some of the increase is due to the costs of domestic waste collection. A comment to the 1889 accounts noted

the actual expenditure of the Sanitary Fund was £2,139 more than estimated – which may in part be due to what the Sanitary Officer termed the public “satisfaction” with the system.

VI. CONCLUDING COMMENTS.

It is useful to first briefly relate the events at Cork Corporation to the limited prior historical literature on waste collection and the historical context. There are some similarities to Velis, Wilson and Cheseman (2009) in that first, public areas would be cleaner as all waste was removed; and second, the accounting records and documents suggested Cork sold manure as a leftover product, likely linked to the more rural context of Cork compared to London. Nevertheless, the notion of selling by-products of waste collection was the same in Cork and London, and is today captured in waste recovery and recycling policies (Quinn and Feeney 2020).

The preceding outline of the decision to remove all household waste encapsulates the notion of ‘economic’, in particular its substantivist meaning (Çalışkan and Callon 2009). The formalist meaning is also apparent but less so. The reports noted earlier reveal suggestions that poorer citizens of the city would likely be happy to have less ‘filth’ in their surroundings and would be willing to pay i.e., making an individual decision to their longer-term economic benefit by improving their health. The formalist meaning of the ‘economic’ is thus less immediate than in a present-day setting. Today, citizens can increase their wealth (or avoid expenditure) by recycling to reduce waste collection charges (Quinn and Feeney 2020) - facilities such as separate recycling bins or recycling centers did not exist at the time period of this study. While we have no available evidence that individuals were indeed happy with a regular waste service, a search of newspapers of the time shows no negative coverage of its introduction.

As a reminder, Çalışkan and Callon (2009) distinguished the substantivist meaning as mechanisms by which society meets its needs and noted that the concept of ‘economization’ reveals roles played by “techniques, sciences, standards, calculating instruments, metrology and, more generally, material infrastructure” (Çalışkan and Callon 2009, 384). A substantivist meaning of ‘economic’ is apparent in that the discussions and costs around the introduction of waste collection are framed in a public health debate i.e. the need for a healthier society could be met to a degree through the mechanism of domestic waste collection. The Act of 1878 was the impetus, with Government linking waste collection to improved public health. This was backed by better scientific understanding and viewed as a need in Irish society as other cities had already enacted the legislation. While the public health reasons for waste collection from all houses were to the fore, the Corporation were aware of the monetary costs of service provision and requested the proposal be costed. As revealed earlier, the cost did not appear to be substantial, and the Corporation proceeded to provide the service itself and acquire the necessary equipment and infrastructure. The accounting data from 1889 also suggests that the costs increased. However, these costs were likely covered by an increase in annual rates charged to citizens. However, some poorer citizens may not have paid annual rates as normally rates were charged on properties above a certain rateable valuation. This lack of contribution towards domestic waste collection from poorer citizens was not a matter of apparent debate, given the greater health benefits to society.

On the process of economization, while public health science/techniques and a material infrastructure featured (see Figure 2), accounting and its concepts and techniques were also apparent in the introduction of waste collection. The Corporation operated within a legal framework which required approval for expenditure, and thus any new services would have to be properly costed and borrowings approved. To this end, the proposal was costed as described

before its approval. Indeed, the knowledge of Denis Donovan on cost concepts – including relevant costs – suggests accounting concepts were common in public health circles. The accounting records also noted costs of the Sanitary Fund separately, allowing for accounting to be utilized as a cost control mechanism. Any resulting benefits to public health (and associated cost savings on health expenditure) were not calculated, but were emphasized by Denis Donovan in essence being a counter-account (Vinnari and Laine 2017) to any cost concerns¹⁰. Quinn and Feeney (2020, 2129) noted how in more recent times the “Irish government, over time, chose a market mechanism for domestic waste collection for reasons of cost efficiency”, implying the role of accounting (specifically, profit and costs) was more prevalent, with public health considerations taken for granted. In contrast, in 1880s Cork city, while profit was not a feature, income streams from waste residues or leftovers (i.e., manure) were noted – in essence what we today term the circular economy¹¹ (e.g. Abou Taleb and Al Farooque 2021). Additionally, while costs of waste collection were considered, any consideration appears to have been in the context of tracking costs for control purposes. Interestingly, the 1878 Act allowed for cities and towns to contract for waste collection services, but as Quinn and Feeney (2020) noted it was over a century later before contractors were involved to reduce costs. To summarize, while accounting concepts/techniques are apparent in the Corporation’s decision on domestic waste collection, they feature in a different way to that reported by Quinn and Feeney (2020). In this historic case, while the accounting concept of cost features in domestic waste collection appears in the various documents and reports mentioned here, they are in terms of the substantivist meaning of economic i.e. the costs

¹⁰A counter account is an “alternative representation of particular organizations, practices, or governance regimes by conveying information about their social, economic and environmental impacts” (Vinnari and Laine 2017, 3).

¹¹ Per the European Parliament, the circular economy “is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible” – see <https://www.europarl.europa.eu/topics/en/article/20151201STO05603/circular-economy-definition-importance-and-benefits>.

of mechanisms by which the Corporation can deliver such a service. In contrast, the concept of cost noted by Quinn and Feeney (2020) was predominantly in a formalist meaning of economic, referring to how individuals could reduce cost/increase wealth through recycling and/or waste reduction, or even choose to move to new (lower priced) waste collection company in some areas. Also, in the present-day context described by Quinn and Feeney (2020), public health is taken for granted. In the historic context of the Corporation, waste collection was a means to improve public health (i.e. a mechanism to achieve improved public health, aligning with a substantivist meaning of economic). The citizens of Cork could not at the period of this study choose from alternatives as regards waste collection, the decision was in essence made for them by the Corporation's decision to regularly collect waste. Thus, the formalist meaning of economic was not at play. This, we suggest, highlights the complex nature of economization as proposed by Çalışkan and Callon (2009), showing the relative importance of the formalist and substantivist may be linked to historic context.

There are some limitations to this paper. While every effort has been made to recount events in detail, it is limited by available archival records. Having said that, the available records are clear and provide good details. A second limitation is that the paper examines a single case, and thus may not be representative of events at other local authorities. Finally, the theoretical lens utilized typically also considers individual actions and decisions to meet needs i.e., the formalist view of 'economic'. Using this view in the historic setting this paper has been restricted. On future research, as revealed earlier research on accounting history in local authorities appears scarce. County and city authorities have no doubt made multitudinous decisions over time on the types and levels of services provided. Here, just one example of waste collection is given. To this, similar research on water, sewage, transport, gas, public lighting and other services could be added. Such research could stem from many countries,

offering comparative international histories (Carnegie and Napier 2000) and contribute to contemporary debates on such issues.

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