

# Accountingization, colonization and hybridization in historical perspective

Gebreiter, Florian

DOI:

[10.1108/AAAJ-07-2016-2652](https://doi.org/10.1108/AAAJ-07-2016-2652)

License:

Creative Commons: Attribution-NonCommercial (CC BY-NC)

*Document Version*

Peer reviewed version

*Citation for published version (Harvard):*

Gebreiter, F 2021, 'Accountingization, colonization and hybridization in historical perspective: the relationship between hospital accounting and clinical medicine in late 20th century Britain', *Accounting, Auditing and Accountability Journal*. <https://doi.org/10.1108/AAAJ-07-2016-2652>

[Link to publication on Research at Birmingham portal](#)

## **Publisher Rights Statement:**

This is an accepted manuscript version of an article first published in *Accounting, Auditing and Accountability Journal*. The final version of record is available at <https://doi.org/10.1108/AAAJ-07-2016-2652>

## **General rights**

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

## **Take down policy**

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact [UBIRA@lists.bham.ac.uk](mailto:UBIRA@lists.bham.ac.uk) providing details and we will remove access to the work immediately and investigate.

# **Accountingization, colonization and hybridization in historical perspective: the relationship between hospital accounting and clinical medicine in late 20<sup>th</sup> century Britain**

*Purpose:* This paper examines the historical background of accountingization, colonization and hybridization in the health services by exploring the relationship between hospital accounting and clinical medicine in Britain between the late 1960s and the early 2000s.

*Design/methodology/approach:* The paper draws on an analysis of professional journals, government reports and other documentary sources relating to accounting and medical developments. It is informed by Abbott's sociology of professions and Eyal's sociology of expertise.

*Findings:* The paper shows that not only accountants but also elements within the medical profession sought to make the practice of medicine more visible, calculable and standardised, and that accounting and medical attempts to make medicine calculable interacted in a mutually reinforcing manner. Consequently, it argues that a movement towards clinical forms of quantification within the medical profession made it more open to economic calculation, which underpinned hospital accounting reforms and the accountingization, colonization or hybridization of the health services.

*Originality/value:* The paper demonstrates that a fuller understanding of the relationship between accounting and public sector professions can be developed if we examine their mutual interactions rather than restricting ourselves to analysing accounting's effects on public sector professions. The paper moreover illustrates instances of intra-professional conflict and inter-professional co-operation, and draws on the sociology of expertise to suggest that whilst hospital accounting reforms have curbed the power of medical professionals, they have also enhanced the power of clinical expertise.

*Keywords:* New Public Management, hospital accounting, accounting history, medicine, sociology of professions, sociology of expertise

## **1. Introduction**

As a result of the New Public Management (NPM) reforms introduced since the 1980s, many public service providers have become hybrid organisations in which the historically dominant role of public sector professions is being challenged by an increasing emphasis on commercial rationales and practices (e.g. Grossi et al., 2019; Miller et al., 2008; Polzer et al., 2016). Accounting, which was previously a marginal practice in the public sector, has come to play a central role in the management and organisation of public services in this context (e.g. Hood, 1995; Hopwood, 1984).

Historically dominant public sector professions like medicine, teaching, engineering and the military often resisted NPM reforms in general, and the greater emphasis on accounting they entailed in particular. In consequence, the relationship between accounting and public sector professions became an important focus of accounting

research (e.g. Kurunmaki, 2004; Mueller and Carter, 2007; Ogden, 1995; Skaerbaek and Thorbjornson, 2007).

The public sector accounting literature has significantly enhanced our understanding of this relationship by carefully tracing the often complex and historically contingent nature of public sector accounting practices and highlighting the diverse manners in which they can affect public sector professions. For example, in the health services, which are one of the principal sites of NPM reforms<sup>1</sup> and the empirical focus of this paper, the extant literature has shown that a wide range of factors have affected the historical development and present state of hospital accounting practices. These included the rise of neo-liberalism and patient rights movements (Preston et al., 1992), Victorian notions of moral virtue (Holden et al., 2009), the nationalisation of the British health services (Gebreiter and Ferry, 2016) and the absence of an organised management accounting profession in Finland (Kurunmaki, 2004).

In addition, the public sector accounting literature has provided a rich understanding of the impact of hospital accounting reforms on medicine and medical professionals. Numerous studies have, for example, shown that such accounting reforms have led to the accountingisation, colonisation or hybridisation of the medical profession (e.g. Broadbent et al., 1991; Campanale and Cinquini, 2016; Jacobs, 2005a; Kurunmaki, 2004; Kurunmaki et al., 2003) and to an erosion of its power by making clinical practice more visible, calculable and standardised (e.g. Chua, 1995; Llewellyn and Northcott, 2005; Lowe and Doolin, 1999).<sup>2</sup>

Thus, the extant accounting literature has made significant progress towards exploring the complexities and histories of public sector accounting practices, as well as towards developing a detailed understanding of the effects of public sector accounting reforms on the relationship between accounting and public sector professions. The complexities and histories of public sector professions, meanwhile, have rarely been considered by accounting researchers. Changes within public sector professions, beyond those which arose in direct response to accounting reform, and their potential implications for the relationship between accounting and public sector professions, have similarly attracted little attention from accounting researchers.

As a result, a collective reading of the accounting literature paints a rich and nuanced picture of public sector accounting, whilst public sector professions are often portrayed as homogeneous and ahistorical entities. The relationship between accounting and public sector professions, as depicted by this literature, is a largely one-sided one. It shows a dynamic accounting profession continuously expanding into

---

<sup>1</sup> Bracci et al. (2021), Broadbent and Guthrie (2008), Humphrey and Miller (2012), Hyndman and Liguori (2016) and Lapsley (2008) are examples of helpful overviews of the accounting literature relating to NPM. Please note that whilst the majority of the period investigated by this paper (i.e. late 1960s to early 2000s) overlaps with NPM reforms, the early part of this period precedes the emergence of NPM. The early part of this period is nevertheless relevant to our understanding of NPM reforms since it created some of the conditions of possibility for them, as this paper will argue in relation to hospital accounting reforms in section 4 below.

<sup>2</sup> Whilst this paper focuses on the health services, accountingisation, colonisation and hybridisation in response to NPM-inspired accounting reforms have been observed in many other parts of the public sector. Recent examples include Ahrens et al. (2018), Aleksandrov (2020), Ferry et al. (2021), Kallio et al. (2021) and Schroder et al. (2021).

public services, whilst public sector professions are portrayed as static and passive, as “dependent variables” which, if at all, only change in response to accounting reforms.

In order to move beyond such a partial understanding of the relationship between accounting and public sector professions, we need to attend to the histories and complexities not only of accounting but also of public sector professions. Similarly, we must not restrict our efforts to the analysis of accounting’s impact on the various public sector professions which accounting encounters in the context of NPM reforms, but need to consider how accounting and these public sector professions affect each other. This paper seeks to make a step into this direction.

Drawing on ideas from the sociologies of professions (Abbott, 1988) and expertise (Eyal, 2013) as well as on documentary data collected from professional journals, government reports and other sources, this paper examines the *mutual* relations between accounting and medicine in the British National Health Service (NHS) between the late 1960s and the early 2000s. Based on this historical analysis, it offers three principal conclusions.

First, the paper takes Abbott’s (1988) recommendation to study professions in relation to each other a step further than the extant public sector accounting literature by studying the mutual interactions between hospital accounting and clinical medicine. The paper supports suggestions in the accounting literature that hospital accounting reforms have, in certain respects, challenged the medical jurisdiction (Samuel et al., 2005) and rendered the practice of medicine more visible, calculable and standardised (e.g. Chua, 1995; Llewellyn and Northcott, 2005; Lowe and Doolin, 1999), which in turn resulted in the accountingisation, colonisation or hybridisation of the medical profession (e.g. Broadbent et al., 1991; Campanale and Cinquini, 2016; Jacobs, 2005a; Kurunmaki, 2004; Kurunmaki et al., 2003).

The paper, however, also shows that this is only a partial account of the relationship between accounting and medicine during the period investigated by the present study. It argues that not only hospital accountants were trying to make medicine more visible, calculable and standardised during the final three decades of the 20<sup>th</sup> century, but that there was a growing movement within the medical profession which pursued similar objectives. Specifically, the paper shows that, from the late 1960s onwards, elements within the medical profession sought to replace traditional conceptions of medicine as an implicit and intuitive “art” with a new “science” of clinical medicine which, under the label “evidence-based medicine”, established itself as the medical mainstream by the early 2000s. This new science of clinical medicine, it is argued, was much more susceptible to economic calculation than the historical art of medicine, and it interacted with accounting attempts to make medicine calculable in a mutually reinforcing manner.

Thus, the present study argues that accountingisation, colonisation or hybridisation are not simply the result of NPM-inspired accounting reforms, but also reflect historical developments within the medical profession which cannot be reduced to reactions to accounting reforms. These developments made medicine much more open to economic calculation, and thereby underpinned the increasing adoption of managerialist hospital accounting practices from the 1980s onwards. More generally, the study moreover shows that by studying the mutual relations between professions

rather than restricting ourselves to examining the effects of one profession on another, we can get a richer and more nuanced understanding of inter-professional relations in the context of NPM reforms.

Second, the paper adds to our understanding of Abbott's (1988) system of professions by pointing towards internal differences within professions beyond those identified by Abbott (i.e. status, clients, workplace, career pattern) and highlighting their implications for the system of professions. Specifically, it documents an intra-professional conflict between medical traditionalists and medical reformers focused on the nature of clinical medicine. The paper moreover argues that medical reformers worked together with hospital accountants, health economists and other professionals to establish their vision of a science of clinical medicine in the medical mainstream. Thus, the paper points to a greater role for inter-professional co-operation in the system of professions, which has been largely neglected by Abbott (1988) and most of the accounting literature based on his work.

Third, the paper enriches our understanding of the power relations between accounting and medicine by arguing that NPM-inspired hospital accounting reforms have not only played a part in diminishing the power of medical professionals but also contributed to enhancing the power of clinical expertise. This argument is informed by the work of Eyal (2013), who differentiated between the power of professions, which relies on controlling and restricting access to expertise, and the power of expertise, which increases with the number and range of its users. The present study follows prior literature in arguing that hospital accounting reforms have constrained the power of medical professionals (e.g. Chua, 1995; Llewellyn and Northcott, 2005; Lowe and Doolin, 1999) and highlights that this development was underpinned by the emergence of scientific approaches to clinical medicine and the related decline of the notions like the art of medicine and clinical freedom.

The paper however also argues that hospital accounting and health economics interacted with scientific approaches to clinical medicine to develop hybrid tools (Kurunmaki and Miller, 2008; Miller et al., 2008) like care pathways, costed care pathways and Quality Adjusted Life Years (QALYs), which came to play important parts in British health service policy and management by the end of the 20<sup>th</sup> century. Under the implicit and intuitive art of medicine, clinical expertise could not be separated from medical professionals, and the scope of clinical expertise was restricted to the interaction between individual doctors and their patients. The emergence of explicit, codified and scientific notions of clinical medicine allowed clinical expertise to emancipate itself from medical professionals and made it commensurate with other types of knowledge. It moreover allowed clinical expertise to build a direct presence in financial and managerial tools like care pathways, costed care pathways and QALYs, and consequently to play a much larger role in the organisation and administration of the NHS than previously. As a result, clinical expertise achieved a much greater reach and influence in the health services, and thus became more potent according to Eyal's (2013) conceptualisation of the power of expertise.

The remainder of this paper is structured as follows. The next two sections respectively set out the theoretical framework and methodology employed by this study. The subsequent section examines the relationship between accounting and

clinical medicine between the late 1960s and the early 2000s. A final section discusses the paper's conclusions and implications.

## **2. The sociologies of professions and expertise**

During the last century, professions have become a significant focus of sociological studies in the English-speaking world.<sup>3</sup> Early work in this area adopted functionalist approaches and often focused on exploring the history of individual professions and the extent to which they were “true” professions (e.g. Carr-Saunders and Wilson, 1933). In the 1960s and 1970s, sociologists started to develop more critical perspectives on professions as they emphasised their roles in dominating and monopolising specific fields of expert work (e.g. Larson, 1977).

### *The system of professions*

Abbott (1988) criticised that both functionalist and critical studies of professions tended to focus their analysis on single professions. He argued that individual professions formed part of a wider “system of professions”, at the heart of which lay competition between different professions for jurisdictions. Hence, Abbott (1988) suggested that professions should not be studied one at a time but in relation to each other.

Abbott's (1988) approach has been widely adopted by accounting researchers. Numerous articles have mobilised his ideas regarding jurisdictional challenges and inter-professional competition to inform studies on the relationship between accounting and a wide range of other professions including banking, law, IT and the clergy (e.g. Channuntapipat et al., 2019; Jacobs, 2005b; Kotb et al., 2012; Seal and Croft, 1997; Walker, 2004a, 2004b). Abbott's ideas on inter-professional competition have also been adopted by public sector accounting researchers, particularly in the health sector. Jackson et al. (2014), for example, argued that the inclusion of medicines expenditure in cash limited budgets in Scottish hospitals have resulted in a shrinking medical jurisdiction, whilst Samuel et al. (2005) suggested that the introduction of DRG costing in US hospitals constituted a jurisdictional challenge “based on describing one profession in the categories of another, rather than directly challenging its task jurisdiction” (p. 254).

Whereas most accounting researchers have followed Abbott (1988) in conceptualising inter-professional relationships as competitive, a small number of studies have suggested that relations between professions can take a more varied form. Walker (2004a) argued that although the leaders of the accounting and legal professions fought a fierce jurisdictional battle in the late 19<sup>th</sup> century, accountants and lawyers often co-operated closely with each other in day to day practice. In the health service context, Kurunmaki's (2004) study of hospital accounting reform in Finland moreover

---

<sup>3</sup> The sociology of professions is arguably at least historically a primarily anglophone project and thus some of the ideas discussed in this paper may be less applicable to non-anglophone contexts (Brock and Saks, 2016; Burrage and Torstendahl, 1990a, b). Indeed, the very notion of a profession does not easily translate into many other languages (Sciulli, 2005). The paper is nonetheless argued to have some relevance beyond the anglosphere, not least because, although they originate in anglophone contexts, notions like diagnosis-related groups (DRGs) and evidence-based medicine have been widely adopted across the world.

suggested that professional encounters can take the form of hybridisation as well as competition. Specifically, she argued that Finnish doctors acquired technical accounting skills in response to the introduction of a clinical budgeting system.

Abbott (1988) model has repeatedly been criticised for treating professions as undifferentiated, almost monolithic entities (e.g. Carnegie et al., 2003; Evans and Honold, 2007; Sikka and Willmott, 1995; Walker, 2004a; 2004b). Whilst there is merit to suggestions that Abbott's (1988) framework does not fully account for the heterogeneity of professions, it does recognise that professions have internal differences and that they can have implications for the system of professions. Specifically, Abbott (1988) suggested that professions could diverge according to status, clients, workplace and career patterns, and that these differences can both create and absorb disturbances in the system of professions.

A number of studies have adopted Abbott's (1988) framework to examine conflicts between different groups within the accounting profession, such as between higher and lower status auditors or between financial and management accountants (e.g. Caramanis, 1999; Evans and Honold, 2002; Jeppeson and Loft, 2011; Richardson, 2002). Internal divisions within other professions, and their potential implications for accounting, have received less attention from accounting researchers. In the health service context, Blomgren (2003) and Llewellyn (1998) have however highlighted the heterogeneity of the nursing and medical profession respectively, and shown that elements within these professions reacted to NPM reforms in different ways.

The present study draws on Abbott (1988) to investigate the relationship between hospital accounting and clinical medicine between the late 1960s and the early 2000s. Rather than restricting the scope of analysis to the effects of hospital accounting on medicine or vice versa, this study examines the mutual relations between these two professions. In doing so, it attends to the histories and complexities of both hospital accounting and clinical medicine and remains open-minded to the possibility that the relations between professions can take forms other than competition.

### *The sociology of expertise*

Abbott's (1988) work has been widely debated, used and criticised, not only in accounting but also in other fields (e.g. Adams, 2015; Muzio et al., 2013). Arguably the most innovative contribution to this debate came from Eyal (2013), who suggested that Abbott's sociology of professions needs to be complemented with a sociology of expertise. Eyal, who defined expertise as accomplishing a task better or faster, argued that the sociology of professions was primarily a sociology of experts and had little to say about expertise. More specifically, he argued that the sociology of professions largely treated expertise as reducible to experts, "as an attribution, a quality that the experts possessed by virtue of recognition granted by significant others" (Eyal, 2013: 870). This view of expertise, he argued, was unsatisfactory, not least because expertise can be held by non-professionals, and even professional expertise can to a certain extent emancipate itself from professions through processes like bureaucratisation or commodification.

The sociology of expertise offers a number of different perspectives as compared to the sociology of professions. The most notable thereof in the context of the present

study is its understanding of power. Eyal (2013) argued that the sociology of professions conceives of power in terms of monopoly and autonomy, whereby the former denotes a profession's control of its knowledge base and the supply of its services, and the latter its ability to determine the significance of its knowledge and the demand for its services. Thus, the power of professions manifests itself in restricting and controlling access to expertise.

According to Eyal (2013), the power of expertise is derived from the opposites of monopoly and autonomy, namely *generosity* and *co-production*. Generosity denotes the notion that expertise can become more powerful by taking forms that allows other actors to interact with it, co-operate with it and build on it. Co-production refers to the idea that expertise can gain power by involving rather than excluding other actors in the creation of expert knowledge. Thus, expertise becomes more powerful by opening itself up, extending itself and linking itself with other actors.

Eyal (2013) illustrated his suggestions with the example of autism. During the two decades after autism was first described in the 1940s, child psychiatrists enjoyed full monopoly on and autonomy in the autism jurisdiction. They had complete control over the demand and supply of professional services relating to this jurisdiction. However, partly because this jurisdiction was so tightly guarded by child psychiatrists, autism remained a marginal issue during this period. Whilst psychiatrists were in full control of autism expertise, the reach of this type of expertise was minimal.

Autism only became an issue of wider social significance when a more generous and co-produced notion of autism expertise emerged in the 1970s. Psychologists, occupational therapists, parents and other actors interacted to develop more open and accessible forms of autism expertise that, Eyal (2013) argued, gave rise to the "autism epidemic" in the United States. Whilst child psychiatrists had lost their exclusive jurisdiction of and power over autism expertise, autism expertise itself had become much more powerful in the sense that it had achieved much greater reach, purchase and prominence.

Eyal's (2013) work on the sociology of expertise has informed research in a range of areas including management and sociology (e.g. Anteby et al., 2016; Craciun, 2018), and has recently also started to attract the attention of accounting researchers (e.g. Gibassier et al., 2020; Picard et al., 2020; Pollock and Williams, 2015; Spence et al., 2019; Viale et al., 2017) This paper will draw on the notions of generosity and co-production to argue that whilst the introduction of accounting and other forms of economic calculation into the health services has reduced the power of the medical profession, it also extended the power and reach of clinical expertise.

### **3. Methods**

Like the works of Abbott (1988) and Eyal (2013), this paper is informed by a historical study. Specifically, the analysis of the mutual interactions between hospital accounting and clinical medicine in the British NHS developed by this paper is focused on the period between the late 1960s and the early 2000s. The starting point of this timeframe was selected because it marked the emergence of interest in clinical costing and scientific approaches towards clinical medicine in Britain. The end point



of the timeframe coincided with the introduction of Payment by Results (DoH, 2002), a major reform to the costing and funding mechanisms of the NHS.

The principal data source for the present study were articles collected from professional journals. These journals have historically served members of professions and other interested parties as an important platform on which they discussed issues relevant to their practice. As such, these journals can provide rich insights into medical and hospital accounting debates during the period investigated by this study.

The journals studied for the purposes of this paper included *The Accountant* (until it went out of print in 1984), *Public Finance and Accountancy* (which changed its name to *Public Finance* in 1995), the *British Medical Journal*, *The Lancet* and *The Hospital* (which changed its name to *Hospital and Health Service Review* in 1972, and again to *Health Services Management* in 1988, before it went out of print in 1994). The first two of these journals were closely associated with accounting professionals and the next two with medical professionals. *The Hospital* and its successor titles were the journal of the Institute of Hospital Administrators. This journal was included because it was also a significant outlet for debates on hospital accounting during the period investigated by this paper.

From these journals, articles which touched on issues relating to hospital accounting or the changing nature of clinical medicine were collected. In the case of *The Accountant*, *Public Finance and Accountancy* and *The Hospital*, this was done by going through every issue of these journals and identifying relevant articles by reading the headlines and subheadings of individual articles. The archives of the *British Medical Journal* and *The Lancet* have been fully digitalised, as a result of which relevant articles could be identified electronically by means of keyword searches. In total, more than 600 articles were collected from these journals. In addition, a range of relevant books, government reports and other documents were identified by following up references in the professional journal articles. The textual materials thus collected were subjected to a qualitative content analysis, whose results are presented in the following section.

#### **4. The relationship between hospital accounting and clinical medicine**

The history of accounting in the British health services pre-dates the late 1960s. A number of studies have traced this history from the 18<sup>th</sup> century to Burdett's (1893) uniform system of hospital accounts and the introduction of a departmental costing system into the nationalised health service in 1957 (Berry, 1997; Gebreiter, 2015; Gebreiter and Ferry, 2016; Jackson, 2012; Jones and Mellett, 2007; Roberts, 2003). Whilst the various accounting and costing systems used prior to the late 1960s differed in many respects, they shared one characteristic in that they were concerned with the administrative rather than medical aspects of hospital efficiency. Burdett's uniform system, for example, measured the daily cost of keeping a patient in hospital, whilst the departmental costing system calculated unit costs for various administrative and hotel services like kitchens and laundry. Indeed, Gebreiter (2016) has shown that the application of cost accounting to the medical domain was deemed inconceivable by hospital accountants and administrators in the 1950s due to concerns regarding clinical freedom and the perceived immeasurability of the quality of clinical care. He argued that these concerns reflected contemporary conceptions of clinical expertise as

an implicit and experience-based art, which was not accessible to non-medical professionals. The art of medicine was, in Eyal's (2013) terms, neither generous nor open to co-production, and thus not susceptible to the calculations of cost accountants.

### *Clinical costing*

It was only from the late 1960s onwards that accountants started to apply cost calculations to the medical functions of hospitals. Two developments in the fields of health economics and hospital administration respectively prompted accountants to expand into the clinical domain. The first was the publication of a book entitled "Economic analysis for health service efficiency" (Feldstein, 1967), which coined the term "casemix" and provided statistical evidence for its impact on hospital costs. Feldstein (1967) suggested that traditional hospital costing approaches, which compared hospitals according to their cost per "inpatient-day", had assumed that casemix differences between hospitals are "either not substantial or have little influence on costs" (p. 15). His analysis of 177 large acute hospitals confounded these assumptions and showed that casemix differences explained 27.5 per cent of inter-hospital variation of "overall ward costs per case" and 37.6 per cent of "medical costs per case" (p. 23). Having demonstrated that hospital costliness was driven by medical as well as administrative considerations, Feldstein (1967) moreover suggested that hospital costing systems ought to calculate costs per "case" rather than costs per "inpatient-day" as he considered the former the "natural output unit" of hospitals (p. 24).

The second development which prompted accountants to turn their attention towards the clinical domain was the emergence of suggestions that doctors ought to play a greater role in the management of hospitals. At the heart of this development was the "Report of the joint working party on the organisation of medical work" (MoH, 1967), which called upon the medical profession to play a "leading part" in the management of hospitals:

Constant awareness of the effect of one action on others is essential for efficient management. Any scheme of administration is likely to be inefficient if it fails to provide the means for mobilising the full consciousness of clinicians about the effect of their individual actions on others than the patient. Since medical factors play a decisive role in a very high proportion of all important general policy decisions, clinicians must be enabled to play a continuous and leading part in the management arrangements for the complex of hospital and associated institutions, which provide the comprehensive medical service for the population. (MoH, 1967: 8)

This call for doctors to play a central role in hospital management was echoed by numerous commentators in the late 1960s (e.g. *The Hospital*, 1967). It was also occasionally paired with suggestions that medical decisions largely determined hospital costs and that, as a result, doctors ought to be responsible for them. Phalp (1969), for example, suggested that "medical decisions [...] determined the pace and the intensity of hospital work" and that "hospital doctors should look again at their way of working to see how better they might make use of their resources".

Against the background of Feldstein's (1967) findings that health expenditure was determined by medical as well as administrative considerations and emerging suggestions that doctors were ultimately responsible for hospital costs, accountants started to apply cost calculations to the clinical functions of hospitals. From the early 1970s onwards, costing experiments were conducted in a small number of hospitals across Britain which did not limit their scope to the administrative aspects of hospital work but aimed to measure the efficiency with which medical work was performed (Babson, 1971, 1973; King's Fund, 1973; Magee et al., 1974; Russell, 1974). To this end, clinical costing experiments sought to relate cost information to medical categories like diseases (e.g. Babson, 1973) or groups of diseases (e.g. King's Fund, 1973) and calculate the cost of treating a patient falling into these categories (i.e. the "case").

Early ambitions to develop "standard costs" (Babson, 1971: 110) for these medical categories did not prove workable. Given the absence of standards in what was still widely considered the art of medicine (Armstrong, 1977; Gebreiter, 2016), no one could say how exactly a group of patients should be treated or how much it should cost. Thus, the early clinical costing experiments focussed on collecting records of past medical practice, costing them, and relating them to their medical category of choice. In this manner, they calculated how much, on average, it had cost to treat a patient suffering from a specific disease or group of diseases in the past (e.g. Babson, 1973; Russell, 1974).

Reflecting emerging suggestions that medical decisions determined the resource consumption of hospitals, the information created by the early clinical costing experiments were above all aimed at medical professionals. Russell's (1974) clinical costing study, for example, suggested that its "prime purpose [...] was to allow patient-based comparisons of use of resources so that clinicians would know the financial implications of various patterns of care in different patients or disease groups" (p. 6). The focus on the resource implications of medical decisions, together with the emergence of clinical costing approaches, led to the creation of clinical budgets, which aimed to give doctors greater information on, and control over, the cost of their practice. An early study by Coles et al. (1976) suggested that the introduction of clinical budgets into seven wards at Westminster Hospital led to savings worth £82,200 and significant changes in medical practice. Further clinical budgeting studies were conducted in the late 1970s but struggled to replicate these results (e.g. Wickings, 1978).

Whilst a number of clinical costing and budgeting studies were conducted in the 1970s, they never went beyond the experimental stage and their scope remained restricted to a relatively small number of hospitals. Medical staff were approached with great caution and their participation in such studies was voluntary. The government showed interest in clinical costing (e.g. DHSS, 1978) but did not pursue it with great vigour.

This changed dramatically from the 1980s onwards, when clinical costing emerged as a central component of a series of high profile NHS reforms including Management Budgeting (DHSS, 1983), Resource Management (DHSS, 1986), the Internal Market (DoH, 1989), Costing for Contracting (NHS Executive, 1993), Reference Costing (NHS Executive, 1998) and Payment by Results (DoH, 2002). The principles

underlying clinical costing remained roughly the same throughout the succession of reforms between 1983 and 2002. Like in the 1970s, clinical costing sought to make the practice of medicine calculable in financial terms by attaching cost information to records of past medical practice and relating them to medically meaningful categories. What did change was the medically meaningful category of choice. Following the introduction of a DRG-based prospective payment system in the USA, the DRG came to be seen as the preferred clinical costing category in Britain in the mid-1980s (e.g. Bardsley et al., 1987). In the early 1990s, a localised version of DRGs called Healthcare Resource Groups (HRGs) was introduced (e.g. Sanderson, 1992), which formed the basis of the Costing for Contracting, Reference Costing and Payment by Results initiatives.

Another significant change was the ultimate objective of clinical costing. In the context of Management Budgeting and Resource Management, their aim was to make clinicians cost-conscious and aware of the financial implications of their work. As widely documented, this objective was rarely achieved (e.g. DHSS, 1986). Under the Internal Market (DoH, 1989), the aims of clinical costing were expanded to include supporting transactions between providers (i.e. hospitals) and purchasers (i.e. health authorities) of health care. Again, these objectives were only partially met as doctors decoupled their practice from clinical costing systems (e.g. NCO, 1997). The New Labour government temporarily abolished the Internal Market after gaining power in 1997, but continued to invest in clinical costing and extended HRGs across the entire acute sector. It established a National Reference Cost Index in 1998, which benchmarked individual hospital costs for various HRGs against the national average (NHS Executive, 1998). Under Payment by Results, which was announced in 2002, national average costs per HRG became the basis for a prospective reimbursement system (DoH, 2002). Unlike earlier reforms, which had little effect on the medical profession, the clinical costing systems introduced by New Labour started to have a significant impact on medical practice. Llewellyn and Northcott's (2005), for example, suggested that they made the practice of medicine "more standardised" (p. 557) as well as increasing its "visibility" and "comparability" (p. 572).

The above history of clinical costing in the UK shows that, similar to other parts of the public sector (e.g. McSweeney, 1994; Rosenberg et al., 1982), the role of accounting and accountants has changed dramatically in the NHS during the last three decades of the 20<sup>th</sup> century. Until the late 1960s, the application of accounting practices was largely restricted to the administrative and hotel functions of hospitals. In the 1970s, a number of tentative, small-scale clinical costing experiments were conducted, and it was only from the 1980s onwards that increasingly managerialist and elaborate clinical costing practices were widely introduced into the NHS.

In many respects, the above history moreover supports earlier accounts of NPM reforms in the health services. It shows that after a number of set-backs in the 1980s and 1990s (e.g. Bourn & Ezzamel, 1986; Jones & Dewing, 1997; Preston et al., 1992), clinical costing tools started to render the practice of medicine more visible, calculable and standardised in the early 21<sup>st</sup> century (Llewellyn & Northcott, 2005; see Chua, 1995 and Lowe & Doolin, 1999 for similar arguments relating to hospital accounting reforms in other countries). From a sociology of professions perspective, the findings moreover support Samuel et al.'s (2005) account of the emerging relationship between accounting and the medical profession. It would appear that in

the UK, just like in the USA, clinical costing approaches could “enfold medical practice within the domain of the economic” by translating medical practices into the more abstract language of money and “representing [them] as economic and financial events” (Samuel et al., 2005: 254). Thus, clinical costing represented a challenge “based on describing one profession in the categories of another, rather than directly challenging its task jurisdiction” (ibid).

In addition to providing the above-discussed support to prior literature, the paper can also offer some further reflections. First, it highlights that all of the costing initiatives used in the NHS from the late 1960s onwards (including DRG/HRG costing) reflected clinical expertise only indirectly and to a very limited extent. Since the art of medicine was implicit, incommensurate and tightly guarded by the medical profession, it was not possible for hospital accountants to base their calculations directly on clinical expertise. In order to sidestep the art of medicine’s lack of generosity and co-production (Eyal, 2013), hospital accountants created representations of clinical practice based on those artefacts of medical expertise that were readily accessible to non-clinicians (i.e. medical records and classifications of diseases or medical specialties) and used them to calculate the historical average costs of treating different groups of diseases (i.e. specialties/DRGs/HRGs). These historical average costs came to serve as “standards” for hospital funding and costing tools, which were used to curtail the power and autonomy of doctors (e.g. Chua, 1995; Llewellyn and Northcott, 2005; Lowe and Doolin, 1999) and resulted in the accountingisation, colonisation or hybridisation of the medical profession (e.g. Broadbent et al., 1991; Campanale and Cinquini, 2016; Jacobs, 2005a; Kurunmaki, 2004; Kurunmaki et al., 2003). As they were based on historical average costs, these “standards” however had little operational meaning and they could not account for what was perceived as the most important aspect of clinical care amongst medical professionals, namely its quality and outcomes (e.g. Hucklesby, 1985; NHS Executive, 1998; Sanderson, 1992). Their inability to do so has frequently been cited as an important reason for the opposition of many doctors to costing tools in the UK (e.g. Pollitt et al., 1988).

Second, the above account of the historical relationship between accounting and clinical medicine, similar to most other accounting studies in this area, treats the medical profession and medical expertise as largely monolithic and passive entities, which only change in response to accounting reforms. It does not account for complexity or change within these entities, nor for their potential implications for attempts by hospital accountants to make medicine calculable. The following subsection addresses these issues.

### *Clinical medicine*

Consistent with Abbott’s (1988) call to study professions in relation to each other, this paper complements the above examination of developments in hospital accounting and their effects on medicine with a similarly detailed investigation of developments in medicine and their implications for hospital accounting. The following paragraphs show that the medical profession was engaged in an intra-professional conflict which focussed on the very nature of clinical expertise. The subsequent subsection then explores the implications of these developments for hospital accounting and other types of economic calculation.

Since the 19<sup>th</sup> century, medicine had become increasingly grounded in biomedical sciences like physiology, biochemistry and pharmacology. Yet, its practice, its application to individual patients was conceived of as an art informed by clinical intuition and experience (Armstrong, 1977; Gebreiter, 2016; Lawrence, 1985). From the late 1960s onwards, an initially small number of clinicians not only suggested that the practice of medicine itself could be a scientific activity but also articulated formal and explicit models of clinical practice to support such claims (e.g. Dudley, 1968, 1970; Feinstein, 1967; Hall, 1967; Lusted, 1968). Their writings described how a number of ideas and tools borrowed from other professions like statistics, epidemiology, psychology and economics (e.g. Bayes' theorem, game theory, decision trees, flow charts) could be adopted to make clinical medicine more explicit, calculable and standardised. These descriptions were frequently accompanied by criticisms of traditional notions of clinical medicine as an intuitive and experience-based art. Hall's (1967) article on the application of Bayes' theorem to clinical diagnosis, for example, argued that "the advantage of using Bayes' formula rather than guesswork is the greater accuracy obtained" and that "an understanding of mathematical models of diagnosis throws much light on the obscure and intuitive thinking which we engage in when undertaking this difficult and fascinating task" (p. 557).

Arguably the most influential proponent of scientific approaches towards the practice of medicine and, indeed, the fiercest critic of artistic notions of clinical medicine, was Archie Cochrane. Cochrane (1972) developed a hierarchy of clinical evidence, at the bottom of which he placed clinical opinion or experience, the type of evidence which underpinned notions of clinical medicine as an art. At the top of this hierarchy were randomised controlled trials (RCTs),<sup>4</sup> which Cochrane (1972) described as the "key to a rational health service" (p. 11). Cochrane (1972) moreover drew on evidence from RCTs to show that a number of medical interventions, which were widely practiced and well-supported by clinical opinion, were in fact ineffective. He concluded that RCT evidence, rather than clinical opinion and experience, should underpin all medical practice.

The proponents of scientific approaches to clinical medicine challenged not only conceptions of clinical medicine as an art, but also the related notion of clinical freedom. Cochrane (1972), for example, suggested that the increasing prominence of RCTs would result in a "probable decrease in clinical and administrative freedom". Specifically, he suggested that the "indications for prescriptions, diagnostic tests, admission, length of stay in hospital, etc., will get more and more clearly defined and a sort of 'par of the course' associated with each group of signs and symptoms will be established, and those doctors with too many 'strokes' above or below 'par' will be asked to justify themselves before their peers" (Cochrane, 1972: 81-82). An editorial in *The Lancet* (1975), meanwhile, referred to clinical freedom as "the freedom to be wrong" as it called for "a scientific foundation for admission and discharge policies

---

<sup>4</sup> RCTs are experiments which seek to assess the effectiveness of clinical interventions by randomly allocating patients into treatment and control groups. First conducted in 1948, RCTs were initially highly controversial and their use was largely restricted to evaluating pharmaceuticals. From the late 1960s onwards, RCTs were used to evaluate a wider range of clinical questions including the relative effectiveness of inpatient and outpatient treatment, the effectiveness of surgical procedures and the effects of varying lengths of stay (Cochrane, 1972).

and proof of efficacy in surgical practices, medical treatments, and all aspects of medical care” (p. 1127).

Scientific approaches to clinical medicine and the related criticism of clinical freedom, as brought forward by a small but growing number of medical reformers, were met with strong disapproval by more traditional doctors who saw the practice of medicine as an art. Arguably the most comprehensive rejection of reformist ideas was articulated by the British Medical Association (1977), which suggested that they were built on “fallacious assumptions” (p. 401). One such assumption was that “there is a ‘right’ pattern of management for each condition”, which was rejected on grounds that “the art of medicine involves the application of a high degree of technical knowledge of the infinitely varying patterns of disease presenting in the infinitely varying circumstances of the individual patient” (p. 401). Another supposedly fallacious assumption was “that patterns of medical care can be standardised”, which was dismissed on grounds that “doctors, like patients, are individuals and the application of a great body of medical knowledge, which is common to each, to an individual patient depends on an enormously varying combination of training, experience, personality, and philosophy, which cannot be standardised” (p. 401).

The intra-professional conflict between medical traditionalist and reformers accelerated in the 1980s and 1990s. Traditional notions of clinical freedom and medical practice as an art were further challenged by a series of increasingly ambitious tools and techniques which aimed to make clinical medicine more visible, calculable and standardised. An important step in this context was the creation of Chalmers et al.’s (1986) “Oxford Database of Perinatal Trials”, which consisted of over 2500 published trials in the fields of obstetrics and neonatology. This database formed the basis of meta-analyses and substantive reviews which synthesised evidence from RCTs to classify a large number of obstetric interventions into categories like “established benefit”, “promising but requiring further investigation”, “speculative” and “should be abandoned” (Chalmers et al., 1989: 1478). This approach was subsequently institutionalised and extended to all other medical specialties with the creation of the Cochrane Centre (Chalmers et al., 1992).

In parallel with these developments, medical reformers started to construct clinical guidelines, which set out how patients suffering from particular diseases ought to be treated (e.g. O’Dowd and Wilson, 1991; Timothy et al., 1988). Timothy et al. (1988), for example, called for the “development of guidelines for optimal patient care” in the treatment of cancer and suggested that such guidelines “should be based on the outcomes of carefully planned and well controlled clinical trials” (p. 471). Later sources suggested that the systematic reviews of RCTs published by the Cochrane Centre could provide the ideal foundation for clinical guidelines and ensure that they are “based on the best available evidence” (Haines and Feder, 1992: 786).

In the early 1990s the term “evidence-based medicine” emerged as an umbrella notion for the various scientific approaches to clinical practice developed over the previous 25 years (e.g. EBMWG, 1992; Rosenberg and Donald, 1995). Under this label, scientific approaches to clinical medicine achieved increasing prominence in the medical arena. University courses were designed (Perrett et al., 1994), journals were founded (Davidoff et al., 1995; Miles, 1995) and textbooks were written (Sackett et al., 1996). With the election of the New Labour government in 1997, evidence-based

medicine also moved to the heart of health policy, as it played a central role in both the government's NHS White Paper (DoH, 1997) and its NHS Plan (DoH, 2000).

Against the background of this proliferation of scientific approaches to clinical medicine in the 1980s and 1990s, their proponents launched further attacks on clinical freedom and artistic notions of medical practice. Hampton (1983) argued that these concepts were "at best [...] a cloak for ignorance and at worst an excuse for quackery" (p. 1238). Garner (1992) similarly labelled these notions as an "excuse for idiosyncratic practice" (p. 848), whilst Robertson (1995) described doctors who were unwilling "to curb their taste for unfettered clinical judgement with the discipline of evidence-based medicine" as "backwoodsmen" (p. 1577).

The proponents of more traditional notions of clinical medicine responded to the rise of evidence-based medicine by suggesting that "quality cannot always be quantified" (Smith, 1995: 258) and that evidence-based guidelines were not always applicable to individual patients (Jones and Sagar, 1995). However, against the background of high-profile medical malpractice scandals involving Dr Harold Shipman and the Bristol Royal Infirmary, the proponents of artistic notions of clinical medicine found themselves increasingly marginalised within the medical profession (e.g. Ham and Alberti, 2002).

#### *The mutual interactions between hospital accounting and clinical medicine*

The above paragraphs show that medicine was far from a homogeneous, passive and static profession between the late 1960s and the early 2000s, but a complex profession engaged in an intra-professional conflict. The battle lines of this conflict were not drawn along the lines of internal stratification or workplace and client differentiation, as suggested by Abbott (1988) and observed by various studies of the accounting profession (e.g. Evans and Honold, 2002; Jeppeson and Loft, 2011; Richardson, 2002), but according to doctors' differing visions of what the practice of medicine ought to be like. One set of doctors subscribed to the traditional model of clinical medicine, which saw medical practice as an art reliant on experience and intuition, whilst the other set of doctors saw clinical medicine as a probabilistic science. The latter set promoted more visible, calculable and standardised approaches to clinical medicine by means of clinical rather than financial calculation. Their tools included RCTs, decision trees and flow charts rather than DRGs and clinical budgets.

The evidence presented above does not indicate that the emergence of scientific approaches to clinical medicine was the result of a jurisdictional challenge by hospital accountants or another profession. Instead, it suggests that the advent of scientific notions of clinical expertise was driven by doctors interacting with ideas, tools and people from a range of other professions, including epidemiology, statistics and psychology. Unlike in Kurunmaki's (2004) case, the adoption of new ideas and tools by clinicians was not a defensive response to NPM-inspired accounting reforms. On the contrary, it was a pro-active step undertaken by an initially small element of a dynamic and diverse medical profession with the aim of making the health services more rational and effective.

From a sociology of expertise perspective (Eyal, 2013), "artistic" and "scientific" approaches to clinical medicine had very different characteristics. The implicit and



intuitive art of medicine was only accessible and comprehensible by medical professionals and not commensurate with other types of knowledge or reasoning (Espeland and Stevens, 1998). Scientific approaches to clinical medicine, on the other hand, promoted a much more “generous” conception of clinical expertise (Eyal, 2013). Under this paradigm, clinical knowledge was open, accessible, and could readily interact with other types of expertise.

Moreover, whilst the art of clinical medicine was the exclusive preserve of medical professionals, the new science of clinical medicine was “co-produced” (Eyal, 2013). Unlike traditional notions of clinical medicine, which sought to exclude non-medical professionals, the proponents of scientific medicine sought to involve a wide range of parties in developing this type of expertise. As discussed above, they engaged with ideas, tools and people from epidemiology, statistics, psychology and other disciplines in developing the new science of clinical medicine.

The generous nature of this new type of “scientific” medical expertise, and its openness to co-production, also enabled co-operation with various types of economic calculation. This co-operation could take a very direct, explicit and deliberate form, as it did in the case of health economics. From the mid-1970s onwards, medical reformers teamed up with health economists to publish books under titles like “Clinical practice and economics” (Phillips and Wolfe, 1977) or “Cost, risk and benefits of surgery” (Bunker et al., 1977). The more generous nature of scientific medicine moreover allowed for the development of cost-benefit analysis (e.g. Piachaud and Weddell, 1972; Russell et al., 1977)<sup>5</sup> and Quality Adjusted Life Years or QALYs (e.g. Maynard, 1987; Williams, 1985), which went on to become institutionalised in bodies like the National Institute for Clinical Excellence and came to play important roles in health service policy and administration (DoH, 1998). Both of these tools directly incorporated clinical expertise into their calculations and thus extended the scope, application and power of this type of expertise (Eyal, 2013).

The co-operation between this new type of medical expertise and economic calculation could also take a more indirect and accidental shape, as was the case with hospital accounting. Unlike health economics, hospital accounting did not directly interact with emerging scientific approaches to clinical medicine in the 1970s. Yet indirectly, this development was of great significance for hospital accounting, for it started to challenge assumptions regarding the sanctity of clinical freedom and the immeasurable nature of the quality of clinical practice that had hitherto rendered the application of cost accounting to the clinical domain unthinkable (Gebreiter, 2016). Thus, the emergence of scientific approaches to clinical medicine, and the corresponding decline of notions like clinical freedom and the art of medicine, formed part of the conditions of possibility for the wider adoption of clinical costing approaches from the mid-1980s onwards (e.g. DHSS, 1983).<sup>6</sup>

The shared interest in promoting more visible, calculable and standardised approaches in clinical medicine led to further interaction between hospital accounting and

---

<sup>5</sup> The cost data used by these cost-benefit studies was usually put together by ad-hoc investigations which included cost estimates as well as data from work studies and hospital costing returns.

<sup>6</sup> Preston et al. (1992) have previously pointed to the rise of neo-liberalism and the emancipation of patients as other factors in this context.

scientific medicine. The more aggressive pursuit of accounting reforms from the mid-1980s onwards prompted a number of doctors, nurses and other professionals to develop standardised, hospital-level models of medical practice (Lamb and Davis, 1985; Mosley and Fairbanks, 1992; see also Gebreiter, 2017). Although these models were initially intended to support clinical costing, the proponents of scientific approaches to clinical medicine discovered them as a means of implementing abstract, evidence-based clinical guidelines at the local, hospital level (e.g. Campbell et al., 1998). Under the label “care pathways”, such standardised models of clinical practice came to play important roles in the management and operation of the NHS from the start of the 21<sup>st</sup> century onwards (Currie and Scrivener, 2002). Similar to cost-benefit analysis and QALYs, care pathways were directly informed by clinical expertise, and thus their widespread adoption increased the reach and power of this type of expertise (Eyal, 2013).

The proliferation of evidence-based care pathways, in turn, created new opportunities for hospital accountants. Evidence-based medicine in general, and care pathways in particular, no longer represented the practice of medicine as an implicit and intuitive art which was not accessible to accountants and incommensurate with cost calculations. On the contrary, evidence-based care pathways reflected a more explicit and generous (Eyal, 2013) conception of clinical expertise, which was susceptible to the calculations of cost accountants. Indeed, hospital accountants suggested that “[c]are pathways have a structure that is entirely consistent with standard costing techniques” (Jones et al., 1999: 11) and started to relate cost information to such pathways to produce what they argued to be “true standard costs” for treating specific types of patients (Jones, 2001: 38). Since such care pathway costs were based on evidence-based clinical guidelines rather than the average costs of past medical practice, they allowed for clinical expertise to be directly reflected in the calculations of hospital accountants and therefore represented another example of the broadening scope, application and power of clinical expertise (Eyal, 2013). The circumstance that care pathway costs were based on evidence-based clinical guidelines moreover allowed their proponents to argue that this costing approach accounted for the quality of clinical care (Jones, 2001; Jones et al., 1999), a property that had consistently eluded other hospital accounting approaches like DRGs and HRGs (e.g. Hucklesby, 1985; NHS Executive, 1998; Sanderson, 1992). Thus, the efforts of hospital accountants and medical reformers to make clinical medicine more visible, calculable and standardised interacted in a mutually reinforcing manner.

## **5. Conclusions and implications**

Building on Abbott’s (1988) call to study professions in relation to each other, this paper has examined the relationship between hospital accounting and clinical medicine from the late 1960s to the early 2000s. Similar to earlier accounting studies (e.g. Kurunmaki, 2004; Preston, 1992; Samuel et al., 2005), it has carefully investigated the historical development of hospital accounting practices and their effects on the medical profession. The results of this examination were broadly supportive of earlier studies in the field, which suggested that clinical costing systems constituted a jurisdictional challenge “based on describing one profession in the categories of another, rather than directly challenging its task jurisdiction” (Samuel et al., 2005: 254), and that they curtailed the power of the medical profession by

rendered the practice of medicine more visible, calculable and standardised (e.g. Chua, 1995; Llewellyn and Northcott, 2005; Lowe and Doolin, 1999).

Unlike earlier accounting studies, this paper has supplemented the historical examination of hospital accounting with a similarly detailed investigation of developments within the medical profession between the late 1960s and the early 2000s. This investigation showed that medicine was not a homogeneous, passive and static profession as it is often implicitly portrayed by the accounting literature, but a complex profession engaged in an intra-professional conflict. This intra-professional conflict did not focus on issues like internal stratification or on workplace and client differentiation, as suggested by Abbott (1988) and observed by various studies of the accounting profession (e.g. Evans and Honold, 2002; Jeppeson and Loft, 2011; Richardson, 2002), but on the very nature of clinical expertise. The traditional notion of clinical medicine as an art came to be challenged by medical reformers, who promoted scientific notions of clinical expertise and sought to make medicine more visible, calculable and standardised.

This development was not the result of a jurisdictional challenge by accountants, nor did it involve tools like DRGs or clinical budgets. Instead, from the late 1960s onwards, an initially small number of doctors engaged with ideas, tools and people from professions like statistics, epidemiology and psychology with the aim of making the art of medicine more rational and effective. By the start of the 21<sup>st</sup> century, these scientific notions of clinical expertise had established themselves as the medical mainstream under the label evidence-based medicine.

Finally, this paper has argued that accounting and medical attempts to render the practice of medicine more visible, calculable and standardised interacted with each other in a mutually reinforcing manner. Specifically, it has suggested that the emergence of scientific and mathematical approaches towards clinical medicine formed part of the conditions of possibility for the wider adoption of clinical costing systems in the 1980s, which in turn reinforced interest in scientific approaches to clinical medicine and led to the creation of evidence-based care pathways. These care pathways, in turn, became the basis for costed care pathways, a hospital costing approach which, unlike earlier costing approaches, could account for the quality of clinical care (Jones, 2001; Jones et al., 1999).

The findings of this paper extend prior literature in three respects. First, they have implications for the public sector accounting literature, which has provided great insights into NPM-inspired accounting reforms and their effects on public sector professions (e.g. Kurunmaki, 2004; Mueller and Carter, 2007; Ogden, 1995; Skaerbaek and Thorbjornson, 2007). Yet, for all their contributions, a collective reading of this literature paints a somewhat one-sided picture of the relationship between accounting and public sector professions. Accounting is usually portrayed as a vibrant profession continuously expanding into public services, whilst public sector professions are often depicted as passive and homogeneous entities which, if at all, change only in response to accounting reform. This paper has shown that public sector professions are also potentially dynamic and heterogeneous institutions, which can affect accounting practices as much as they are affected by them. Thus, as accounting researchers, we should not restrict ourselves to analysing accounting reforms and their effects on public sector professions. Instead, in order to fully realise the benefits of

studying professions in relation to each other (Abbott, 1988), we need to investigate the histories and complexities of accounting and public sector professions alongside each other and consider their mutual interactions.

The present paper has illustrated the benefits of this approach with reference to the relationship between accounting and medicine. It has argued that the advent of a science of clinical medicine had significant implications for the emergence and proliferation of clinical costing approaches and the associated accountingisation, colonisation or hybridisation of health services (e.g. Broadbent et al., 1991; Campanale and Cinquini, 2016; Jacobs, 2005a; Kurunmaki, 2004; Kurunmaki et al., 2003). As Gebreiter (2016) has shown, traditional notions of clinical medicine as an art had historically posed three seemingly insurmountable obstacles to the application of accounting to the practice of medicine, namely the variable and incomparable nature of clinical practice, the impossibility of assessing the quality of clinical practice, and the concept of clinical freedom. The emergence of a science of clinical medicine, as described in the present paper, addressed all three of these perceived obstacles. With the help of tools like clinical guidelines and randomised controlled trials, the science of medicine established a much more standardised, comparable and assessable conception of clinical practice and severely constricted the scope of clinical freedom. Unlike the traditional art of medicine, this new science of clinical medicine was commensurate with economic calculation (Espeland and Stevens, 1998) and susceptible to the work of hospital accountants.

As a result, this paper has argued that the accountingisation, colonisation or hybridisation of the medical profession (e.g. Broadbent et al., 1991; Campanale and Cinquini, 2016; Jacobs, 2005a; Kurunmaki, 2004; Kurunmaki et al., 2003; Power and Laughlin, 1992) were not simply the result of NPM-inspired hospital accounting reforms but also reflected profound changes within the medical profession, which made clinical medicine much more open to accountingisation, colonisation or hybridisation. These changes underpinned the proliferation of managerialist clinical costing practices from the 1980s onwards as well as the emergence of hybrid tools like QALYs, care pathways and costed care pathways, which have come to play an important role in the organisation and management of the NHS (Kurunmaki and Miller, 2008; Miller et al., 2008).

Second, the findings of this paper extend our understanding of Abbott's (1988) system of professions by pointing towards internal differences within professions beyond those identified by Abbott and highlighting their implications for the system of professions. Regarding internal differences, the paper has shown that from the late 1960s onwards a conflict proliferated between two factions of the medical profession, which were not divided according to their status, clients or workplaces (Abbott, 1988; Llewellyn, 1997) but according to their conceptions of the nature of clinical medicine. One side embraced emerging scientific approaches towards the practice of medicine, whilst the other persisted with traditional notions of clinical medicine as an implicit and experience-based art. Regarding their impact on the system of professions, the paper has documented that medical reformers collaborated in various forms with professions like health economics and hospital accounting who shared their interest in quantitative methods and their vision of a more rational and effective health service. With their help, medical reformers succeeded in establishing evidence-based medicine as the mainstream conception of clinical practice, which in turn provided new

opportunities for professions like hospital accounting to apply their calculations to the practice of medicine. Thus, the paper highlights the role of inter-professional co-operation as opposed to competition within the system of professions, which has been largely neglected by Abbott (1988) himself and, with few exceptions (e.g. Walker, 2004a), the accounting literature informed by his framework.

Third, the findings of the paper have implications for our understanding of the power relations between accounting and clinical medicine. Prior studies have suggested that NPM-inspired hospital accounting reforms have curtailed the power of the medical profession (e.g. Chua, 1995; Llewellyn and Northcott, 2005; Lowe and Doolin, 1999), which is supported by the present study. Drawing on the work of Eyal (2013), who emphasised the need to treat professions and expertise as separate analytical entities, the paper however also suggested that the increased application of accounting and other forms of economic calculation in the health services has contributed to an increase in the power of clinical expertise.

Historically, clinical medicine was perceived as an implicit and intuitive art. Clinical expertise was jealously guarded by doctors and could not be separated from medical professionals. The new science of clinical medicine that emerged in the 1960s and came to dominate medicine around the turn of the millennium, promoted a more open, generous and co-produced conception of clinical expertise (Eyal, 2013), which invited co-operation with ideas, tools and people from a wide range of other professional backgrounds, including health economics and hospital accounting. The interactions between this new, more generous and co-produced science of clinical medicine and various types of economic calculation led to the creation of hybrid tools like care pathways, costed care pathways and QALYs, which directly reflected clinical expertise and came to play important roles in the organisation and management of the health services. As a result, the scope of clinical expertise was no longer restricted to encounters between individual doctors and their patients. Instead, the development of more generous and co-produced notions of clinical expertise, and its interactions with economic calculation, allowed clinical expertise to emancipate itself from medical professionals and build a direct presence in a range of hybrid tools which have come to play important parts in the organisation and administration of the NHS (see Kurunmaki and Miller, 2008; Miller et al., 2008). With the help of hospital accounting and health economics, clinical expertise came to take on a much broader, more prominent and widespread role in the health services, and thus became more potent according to Eyal's (2013) conceptualisation of the power of expertise. Hence, the paper concludes by arguing that NPM-inspired hospital accounting reforms have not only diminished the power of medical professionals (e.g. Chua, 1995; Llewellyn and Northcott, 2005; Lowe and Doolin, 1999) but also increased the power of clinical expertise.

## References:

- Abbott, A. (1988). *The system of professions. An essay on the division of expert labour*. Chicago: University of Chicago Press.
- Adams, T. (2015). Sociology of professions: international divergencies and research directors. *Work, Employment and Society*, 29(1), 154-165.
- Ahrens, T., Ferry, L. and Khalifa, R. (2018). The hybridising of financial and service expertise in English local authority budget control: a practical perspective. *Qualitative Research in Accounting and Management*, 15(3), 341-357.
- Aleksandrov, E. (2020). Actors' reflexivity and engagement in the formation of new accounting tools during university hybridization. *Qualitative Research in Accounting and Management*, 17(1), 51-81.
- Anteby, M., Chan, C. and DiBenigno, J. (2016). Three lenses on occupations and professions in organizations: becoming, doing, and relating. *Academy of Management Annals*, 10(1), 183-244.
- Armstrong, D. (1977). Clinical sense and clinical science. *Social Science and Medicine*, 11(11-13), 599-601.
- Babson, J. (1971). Hospital costing in Great Britain. *The Hospital*, April.
- Babson, J. (1973). *Disease costing*. Manchester: University Press.
- Bardsley, M., Coles, J. and Jenkins, L. (1987). *DRGs and health care: the management of case mix*. London: King's Fund.
- Berry, A. (1997). 'Balancing the books': funding provincial hospitals in eighteenth-century England. *Accounting, Business and Financial History*, 7(1), 1-30.
- Blomgren, M. (2003). Ordering a profession: Swedish nurses encounter New Public Management reforms. *Financial Accountability and Management*, 19(1), 45-71.
- Bracci, E., Saliterer, I., Sicilia, M. and Steccolini, I. (2021). Accounting for (public) value(s): reconsidering publicness in accounting research and practice. *Accounting, Auditing and Accountability Journal*, in press.
- Burrage, M. and Torstendahl, R. (1990a). *Professions in theory and history: rethinking the study of professions*. London: Sage Publications.
- Burrage, M. and Torstendahl, R. (1990b). *The formation of professions: knowledge, state and strategy*. London: Sage Publications.
- Campanale, C. and Cinquini, L. (2016). Emerging pathways of colonization in healthcare from participative approaches to management accounting. *Critical Perspectives on Accounting*, 39, 59-74.
- Campbell, H., Hotchkiss, R., Bradshaw, N. and Porteous, M. (1998). Integrated care pathways. *British Medical Journal*, 316, p. 133.
- Caramanis, C. (1999). International accounting firms versus indigenous auditors: intra-professional conflict in the Greek auditing profession 1990-1993. *Critical Perspectives on Accounting*, 10(2), 1153-196.
- Carnegie, G., Edwards, J. and West, B. (2003). Understanding the dynamics of the Australian accounting profession. *Accounting, Auditing and Accountability Journal*, 16(5), 790-820.
- Carr-Saunders, A. and Wilson, P. (1933). *The Professions*. Oxford: Oxford University Press.
- Chalmers, I., Dickersin, K. and Chalmers, T. (1992). Getting to grips with Archie Cochrane's agenda. *British Medical Journal*, 3<sup>rd</sup> October.
- Chalmers, I., Enkin, M. and Keirse, M. (1989). *Effective Care in Pregnancy and Childbirth*. Oxford: University Press.

- Chalmers, I., Hetherington, J., Newdick, M., Mutch, L., Grant, A., Enkin, M., Enkin, E. and Dickersin, K. (1986). The Oxford database of perinatal trials: developing a register of published controlled trials. *Controlled Clinical Trials*, 7.
- Channuntapipat, C., Samsonova-Taddei, A. and Turley, S. (2019). Variation in sustainability assurance practice: an analysis of accounting versus non-accounting providers. *British Accounting Review*, 52(2), 1-17.
- Chua, W. (1995). Experts, networks and inscriptions in the fabrication of accounting images: a study of the representation of three public hospitals. *Accounting, Organizations and Society*, 20(2-3), 111-145.
- Cochrane, A. (1972). *Effectiveness and efficiency: random reflections on the health services*. London: Nuffield Provincial Hospitals Trust.
- Coles, J., Davison, A. and Wickings, I. (1976). Allocating budgets to wards. *Hospital and Health Services Review*, September.
- Craciun, M. (2018). Emotions and knowledge in expert work: a comparison of two psychotherapies. *American Journal of Sociology*, 123(4), 959-1003.
- Currie, V. and Scrivener, R. (2002). Tracking care pathway activity across the UK National Health Service. *Journal of Clinical Excellence*, 4, 231-234.
- Davidoff, F., Haynes, B., Sackett, D. and Smith, R. (1995). Evidence Based Medicine. *British Medical Journal*, 29<sup>th</sup> October.
- Dent, J. (1991). Accounting and organizational cultures: a field study of the emergence of a new organizational reality. *Accounting, Organizations and Society*, 16(8), 705-742.
- Dudley, H. (1968). Pay-off, heuristics, and pattern recognition in the diagnostic process. *The Lancet*, 28<sup>th</sup> September.
- Dudley, H. (1970). The clinical task. *The Lancet*, 26<sup>th</sup> December.
- DHSS (1978). *Hospital costing and the clinician*. London: HMSO.
- DHSS (1983). *NHS management inquiry*. London: HMSO.
- DHSS (1986). *Resource management (management budgeting) in health authorities*. London: HMSO.
- DoH (1989). *Working for Patients*. London: HMSO.
- DoH (1997). *The new NHS: modern, dependable*. London: HMSO.
- DoH (1998). *A first class service: quality in the new NHS*. London: HMSO.
- DoH (2002). *Payment by results*. London: HMSO.
- EBMWG (1992). Evidence-based medicine: a new approach to teaching the practice of medicine. *Journal of the American Medical Association*, 268: 2420.
- Edwards, G. and Guthrie, S. (1967). A controlled trial of inpatient and outpatient treatment of alcohol dependency. *The Lancet*, 11<sup>th</sup> March.
- Espeland, W. and Stevens, M. (1998). Commensuration as a social process. *Annual Review of Sociology*, 24, 313-343.
- Evans, L. and Honold, K. (2007). The division of expert labour in the European audit market: the case of Germany. *Critical Perspectives on Accounting*, 18, 61-86.
- Eyal, G. (2013). For a sociology of expertise: the social origins of the autism epidemic. *American Journal of Sociology*, 118(4), 863-907.
- Feinstein, A. (1967). *Clinical judgment*. Baltimore: Williams and Wilkins.
- Feldstein, M. (1967). *Economic analysis for health service efficiency*. Amsterdam: North Holland Publishing Company.
- Ferry, L., Haslam, J., Green, S., Adegbite, E. and Gebreiter, F. (2021). Accounting colonization, emancipation and instrumental compliance in Nigeria. *Critical Perspectives on Accounting*, in press.
- Garner, P. (1992). Learning from the South. *British Medical Journal*, 10<sup>th</sup> October.

- Gebreiter, F. (2015). Hospital accounting and the history of health-care rationing. *Accounting History Review*, 25(3), 183-199.
- Gebreiter, F. (2016). 'Comparing the incomparable': Hospital costing and the art of medicine in post-war Britain. *British Accounting Review*, 48(2), 257-268.
- Gebreiter, F. (2017). Accounting and the emergence of care pathways in the National Health Service. *Financial Accountability and Management*, 33, 299-310.
- Gebreiter, F. and Ferry, L. (2016). Accounting and the "insoluble" problem of health-care costs. *European Accounting Review*, 25(4), 719-733.
- Gibassier, D., El Omari, S., and Naccache, P. (2020). Institutional work in the birth of a carbon accounting profession. *Accounting, Auditing and Accountability Journal*, in press.
- Grossi, G., Kallio, K., Sargiacomo, M. and Skoog, M. (2019). Accounting, performance management systems and accountability changes in knowledge-intensive public organizations. A literature review and research agenda. *Accounting, Auditing and Accountability Journal*, 33(1), 256-280.
- Hall, G. (1967). The clinical application of Bayes' theorem. *The Lancet*, 9<sup>th</sup> September.
- Ham, C. and Alberti, G. (2002). The medical profession, the public and the government. *British Medical Journal*, 6<sup>th</sup> April.
- Hampton, J. (1983). The end of clinical freedom. *British Medical Journal*, 287, 1237-1238.
- Haines, A. and Feder, G. (1992). Clinical guidelines. *British Medical Journal*, 3<sup>rd</sup> October.
- Holden, A., Funnell, W. and Oldroyd, D. (2009). Accounting and the moral economy of illness in Victorian England: the Newcastle Infirmary. *Accounting, Auditing and Accountability Journal*, 16(1), 525-552.
- Hood, C. (1995). The "new public management" in the 1980s: variations on a theme. *Accounting, Organizations and Society*, 20(2-3), 93-109.
- Hopwood, A. (1984). Accounting and the pursuit of efficiency. in: Hopwood, A. and Tomkins, C. (eds.). *Issues in public sector accounting*. Deddington: Philip Allan.
- Hucklesby, D. (1985). Management budgeting: an aid to clinical management or to financial control? *Public Finance and Accountancy*, 8<sup>th</sup> November.
- Humphrey, C. and Miller, P. (2012). Rethinking impact and responsibility: the parameters and coordinates of accounting and public sector reforms. *Accounting, Auditing and Accountability Journal*, 25(2), 295-327.
- Hyndman, N. and Liguori, M. (2016). Public sector reforms: changing contours on an NPM landscape. *Financial Accountability and Management*, 32(1), 5-32.
- Jackson, W. (2012). The collectors will call: controlling philanthropy through the annual reports of the Edinburgh Royal Infirmary of Edinburgh. *Accounting History Review*, 22(1), 47-72.
- Jackson, W., Paterson, A., Pong C. and Scarparo, S. (2014). "Cash Limits, Hospital Prescribing and Shrinking Medical Jurisdiction." *Financial Accountability and Management*, 30(4): 403-429.
- Jacobs, K. (2005a). Hybridisation or polarisation: doctors and accounting in the UK, Germany and Italy. *Financial Accountability and Management*, 21(2), 135-162.
- Jacobs, K. (2005b). The sacred and the secular: examining the role of accounting in the religious context. *Accounting, Auditing and Accountability Journal*, 18(2), 189-210.



- Jeppeson, K. and Loft, A. (2011). Regulating audit in Europe: the case of the implementation of the EU Eighth Directive in Denmark 1984-2006. *European Accounting Review*, 20(2), 321-354.
- Jones, G. and Sagar, S. (1995). No guidance is provided for situations for which evidence is lacking. *British Medical Journal*, 22<sup>nd</sup> July.
- Jones, T. (2001). *Developing reference costs*. London: The Chartered Accountants Educational Trust.
- Jones, T., De Luc, K. and Coyne, H. (1999). *Managing care pathways: the quality and resources of hospital care*. London: The Chartered Accountants Educational Trust.
- Jones, C. and Dewing, I. (1997). The attitudes of NHS clinicians and medical managers towards changes in accounting controls. *Financial Accountability and Management*, 13(3), 261-280.
- Jones, M. and Mellett, H. (2007). Determinants of changes in accounting practices: accounting and the UK health service. *Critical Perspectives on Accounting*, 18(1), 91-121.
- Kallio, K., Kallio, T., Grossi, G. and Engblom, J. (2021). Institutional logics and scholars' reactions to performance measurement in universities. *Accounting, Auditing and Accountability Journal*, in press.
- Kotb, A., Roberts, C. and Sian, S. (2012). E-business audit: advisory jurisdiction or occupational invasion? *Critical Perspectives on Accounting*, 23, 468-482.
- Kincaid-Smith, P. and Fairley, K. (1969). Controlled trial comparing effect of two and six weeks treatment in recurrent urinary tract infection. *British Medical Journal*, 19<sup>th</sup> April.
- Kurunmaki, L. (2004). A hybrid profession – the acquisition of management accounting expertise by medical professionals. *Accounting, Organizations and Society*, 29(3-4), 327-347.
- Kurunmaki, L. and Miller, P. (2008). Counting the costs: the risks of regulating and accounting for health care provision. *Health, Risk and Society*, 10(1), 9-21.
- Kurunmaki, L., Lapsley, I. and Melia, K. (2003). Accountingization v. legitimation: a comparative study of the use of accounting information in intensive care. *Management Accounting Research*, 14(2), 112-139.
- Lamb, S. and David, T. (1985). Playing with fire: an experiment in clinical budgeting. *British Medical Journal*, 23<sup>rd</sup> February.
- Lapsley, I. (2008). The NPM agenda: back to the future. *Financial Accountability and Management*, 24(1), 77-96.
- Larson, M. (1977). *The rise of professionalism: a sociological analysis*. Berkeley: University of California Press.
- Lawrence, C. (1985). Incommunicable knowledge: science, technology and the clinical art in Britain 1850-1914. *Journal of Contemporary History*, 20(4), 503-520.
- Llewellyn, S. (1997). Purchasing power and polarized professionalism in British medicine. *Accounting, Auditing and Accountability Journal*, 10(1), 31-59.
- Llewellyn, S. and Northcott, D. (2005). The average hospital. *Accounting, Organizations and Society*, 30(6), 555-583.
- Lowe, A. and Doolin, B. (1999). Casemix accounting systems: new spaces for action. *Management Accounting Research*, 10(3), 181-201.
- Lusted, L. (1968). *Introduction to medical decision making*. Springfield: Charles C. Thomas.

- Magee, C., Edwards, J., Connies-Laing, P. and Richards, M. (1974). *Report on costing cervical cytology*. Cardiff: University College.
- Magee, C. and Osmolski, R. (1978). *A comprehensive system of management information for financial planning and control in the hospital*. Cardiff: University College.
- Maynard, A. (1987). Logic in medicine: an economic perspective. *British Medical Journal*, 12<sup>th</sup> December.
- McFarland, J. and Gow, J. (1967). Trial of gastric cooling for haematemesis. *British Medical Journal*, 30<sup>th</sup> September.
- McSweeney, B. (1994). Management by accounting. in: Hopwood, A. and Miller, P. (eds.) *Accounting as social and institutional practice*, 237-269. Cambridge: Cambridge University Press.
- Miles, A. (1995). Journal of Evaluation in Clinical Practice will start publication in September. *British Medical Journal*, 22<sup>nd</sup> June.
- MoH (1967). *First report of the Joint Working Party on the Organisation of Medical Work*. London: HMSO.
- Mosley, J. and Fairbanks, R. (1992). Using audit in a district-wide management system. *Health Services Management*, July/August.
- Mueller, F. and Carter, C. (2007). We are all managers now: managerialism and professional engineering in UK electricity utilities. *Accounting, Organizations and Society*, 32(1-2), 181-195.
- Muzio, D., Brock, D. and Suddaby, R. (2013). Professions and institutional change: towards an institutional sociology of the professions. *Journal of Management Studies*, 50(5), 699-721.
- NCO (National Casemix Office). 1997. *Uses and users of healthcare resource groups*. Winchester: National Casemix Office.
- NHS Executive (1993). *Costing for contracting manual*. Leeds: NHS Management Executive.
- NHS Executive (1998). *The new NHS: 1998 Reference costs*. Leeds: NHS Management Executive.
- O'Dowd, T. and Wilson, A. (1991). Set menus and clinical freedom. *British Medical Journal*, 24<sup>th</sup> August.
- Ogden, S. (1995). Transforming frameworks of accountability: the case of water privatisation. *Accounting, Organizations and Society*, 20(2-3), 193-218.
- Perrett, K., Silcocks, P., Dixon, R. and Munro, J. (1994). Teaching evidence based medicine in Sheffield. *British Medical Journal*.
- Perrin, J. (1978). *Management of financial resources in the National Health Service*. London: HMSO.
- Phalp, G. (1969). Medicine. *The Hospital*, July.
- Phillips, C. and Wolfe, J. (1977). *Clinical practice and economics*. Turnbridge Wells: Pitman Medical.
- Piachaud, D. and Weddell, J. (1972). Cost of treating varicose veins. *The Lancet*, 2<sup>nd</sup> December, 1191-1192
- Picard, C., Durocher, S. and Gendron, Y. (2020). Office design processes, strategizing and time intermingling: an agenda to shape spaces and minds on public accounting firms. *Accounting, Auditing and Accountability Journal*, 33(5), 1143-1167.
- Pollitt, C., Harrison, S., Hunter, D. and Marnoch, G. (1988). The reluctant managers: clinicians and budgets in the NHS. *Financial Accountability and Management*, 4(3), 213-233.

- Pollock, N. and Williams, R. (2015). Industry analysts – how to conceptualise the distinctive forms of IT market expertise? *Accounting, Auditing and Accountability Journal*, 28(8), 1373-1399.
- Polzer, T., Meyer, R., Hollerer, M. and Seiwald, J. (2016). Institutional hybridity in public sector reform: Replacement, blending, or layering of administrative paradigms. *Research in the Sociology of Organizations*, 48(B), 69-99.
- Power, M. and Laughlin, R. (1992). Critical Theory and Accounting. in: Alveson, N. and Willmott, H. (eds), *Critical Management Studies*, 115-135. London: Sage.
- Preston, A. (1992). The birth of clinical accounting: a study of the emergence and transformations of discourses on the costs and practices of accounting in US hospitals. *Accounting, Organizations and Society*, 17(1), 63-100.
- Preston, A., Cooper, D. and Coombs, R. (1992). Fabricating budgets: a study of the production of management budgeting in the National Health Service. *Accounting, Organizations and Society*, 17(6), 561-593.
- Richardson, A. (2002). Professional dominance: the relationship between financial accounting and management accounting, 1926-1986. *Accounting Historians Journal*, 29(2), 91-121.
- Robertson, I. (1995). No mana for the shaman. *British Medical Journal*, 9<sup>th</sup> December.
- Robson, N. (2003). From voluntary to state control and the emergence of the department in UK hospital accounting. *Accounting, Business and Financial History*, 13(2), 99-123.
- Rosenberg, W. and Donald, A. (1995). Evidence based medicine: an approach to clinical problem-solving. *British Medical Journal*, 29<sup>th</sup> April.
- Russell, E. (1974). *Patient costing study*. Edinburgh: Scottish Home and Health Department.
- Russell, I., Devlin, H., Fell, M. Glass, N. and Newell, D. (1977). Day-case surgery for hernias and haemorrhoids. *The Lancet*, 844.
- Sackett, D., Rosenberg, W., Muir Gray, J., Haynes, R. and Richardson, W. (1996). *Evidence based medicine: how to practice and teach EBM*. Edinburgh: Churchill Livingstone.
- Samuel, S., Dirsmith, M. and McElroy, B. (2005). Monetised medicine: from the physical to the fiscal. *Accounting, Organizations and Society*, 30(3), 249-278.
- Sanderson, H. (1992). Measuring case mix. *British Medical Journal*, 25<sup>th</sup> April.
- Schroder, I., Cederberg, E, and Hauge, A. (2021). What is good work in a hybrid organization? On the efforts of sequencing registers of valuation. *Accounting, Auditing and Accountability Journal*, in press.
- Sciulli, D. (2005). Continental sociology of professions today: conceptual contributions. *Current Sociology*, 53(6), 915-942.
- Seal, W. and Croft, L. (1997). Professional rivalry and changing management control approaches in UK clearing banks. *Accounting, Auditing and Accountability Journal*, 10(1), 60-84.
- Sikka, P. and Willmott, H. (1995). The power of independence: defending and extending the jurisdiction of accounting in the United Kingdom. *Accounting, Organizations and Society*, 20(6), 547-581.
- Skaerbaek, P. and Thorbjornsen, S. (2007). The commodification of the Danish defence forces and the troubled identities of its officers. *Financial Accountability and Management*, 23(3), 45-71.
- Smith, B. (1995). Quality cannot always be quantified. *British Medical Journal*, 22<sup>nd</sup> July.

- Spence, C., Aleksanyan, M., Millo, Y., Imam, S. and Abhayawansa, S. (2019). Earning the “write to speak”: sell-side analysts and their struggle to be heard. *Contemporary Accounting Research*, 36(4), 2635-2662.
- The Hospital (1967). Doctors and management. *The Hospital*, January
- Timothy, A., Brewin, T., Chamberlain, J. et al. (1988). Cost versus benefit in non-surgical patients with cancer. *British Medical Journal*, 13<sup>th</sup> August.
- Viale, T., Gendron, Y. and Suddaby, R. (2017). From mad men to math men. The rise of expertise in digital measurement and the shaping of online consumer freedom. *Accounting, Auditing and Accountability Journal*, 30(2), 270-305.
- Walker, S. P. (2004a). Conflict, collaboration, fuzzy jurisdictions and partial settlements. Accountants, lawyers and insolvency practice during the late 19<sup>th</sup> century. *Accounting and Business Research*, 34(3), 247-265.
- Walker, S. P. (2004b). The genesis of professional organisation in English accountancy. *Accounting, Organizations and Society*, 29, 127-156.
- Wickings, I. (1978). Incentives, budgets and planning agreements for clinicians. in: DHSS. *Hospital costing and the clinician*. London: HMSO.
- Williams, A. (1985). Economics of coronary artery bypass grafting. *British Medical Journal*, 3<sup>rd</sup> August.