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LABOR AND COSTING: THE EMPLOYEES' DILEMMA

Abstract: The paper analyzes the discordant reactions of labor to the introduction of uniform costing in the British printing industry during the early 20th century. The paper reveals that trade unions assisted employers in the quest for a costing-based solution to the inveterate problem of excessive price competition in the printing sector. At the same time, rank-and-file unionists were fearful of the exploitative potential of one element of the prescribed costing solution — time recording. It is shown that labor hostility was sited at the point where costing converged with scientific management in the organization. Evidence is presented which confirms the pertinence of economic-rationalist, labor-process, and Foucauldian approaches to the study of cost accounting history. It is suggested that different paradigms have particular relevance to the analysis of accounting discourses conducted both at the strategic macro-level and at the micro-level of the shop floor.

INTRODUCTION

Cost accounting controls over labor have become in recent years a particularly salient concern for historical research in management accounting. Much of this interest derives from the insights which the study of this sensitive issue can bring to an understanding of the fundamental forces which have influenced the development of business control systems. Not only is the subject significant as a study of practical accounting development in industrialism, it has also provided a focus for debate on accounting historiography and methodology. However, no con-

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sensus has emerged to date on the nature or relative importance of the determinants of accounting change in this context.

Indeed, a range of quite disparate emergencies and motives have been suggested for the implementation of cost accounting systems. Hopper and Armstrong's [1991] labor-process approach emphasized the disciplinary and exploitative potential of accounting controls on labor in industrial capitalism. Miller and O'Leary's [1987] genealogical perspective posited that the use of standard costs during the early 20th century assisted the operationalization of Taylorism and the notions of efficiency propounded by the scientific management school. Hoskin and Macve [1988, 1994] have argued that it was the absorption into business in early 19th century America of an emphasis on the control of the individual, as nurtured in the military academy, which eventually led to the development of accounting controls over labor. In contrast, Tyson [1995] has used archival data from the U.S. men's clothing industry to advance the notion that a purely economic motive lay behind the introduction of labor performance standards during the early 20th century. Tyson [1994] has argued further that not only were controls jointly established by employers and employees, but also that both sides of industry derived benefit therefrom.

The above contributions each identify explanations for cost accounting development founded primarily on a singular (labor-process/Marxist, Foucauldian, or economic-rationalist/Neoclassical) paradigmatic base. Each approach also suggests different potential roles for labor in the process of accounting change. Adherents to the labor-process school suggest the assumption by labor of a stance characterized by resistance or hostility. Foucauldians stress the potential of accounting technologies for the exercise of discipline over the calculable individual. Although this prospect is also likely to be encountered by a defiant work force, less aggressive postures might be adopted where employees recognize the enabling potential of the motivational effects of controls and calculation. A more overtly positive and supportive role for labor is implied by economic rationalists, such as Tyson [1994, 1995].

Some of the most recent contributions to the study of costing development have urged a departure from the seemingly debilitating monocentrism which has conditioned the historical debate. Calls have been made for greater collaboration between the advocates of the principal thematic approaches [Fleischman et al., 1995, 1996]. Increasing plurality is evident in work by

Fleischman and Tyson [1996] where the authors, who have traditionally been associated with the economic-rationalist school, conceded that Foucauldian analysis "enriches" our understanding of the history of inside contracting. In a similar vein, Boyns and Edwards [1996] have criticized the manner in which research on the history of cost and management accounting has been encumbered and narrowed by the determination of the adherents of a particular theoretical exemplar to search out only that which confirms their own paradigm. Boyns and Edwards suggested a broader conception of historical enquiry which captures the diversity of costing development in a variety of locales. They contended that the pursuit of paradigmatic hegemony might be transcended by "a balanced approach which allows all types of history to flourish and contribute to informed discussion between historians with differing viewpoints" [Boyns and Edwards, 1996, p. 57].

It is in this context that the current study attempts to highlight the limitations of adopting and generalizing a single-factor explanation for cost accounting change and labor's responses to it. The paper emphasizes that labor's reactions to change were complex due to the heterogeneity of the work force engaged in a particular industry or individual production site. It is suggested that the attitudes of labor toward the imposition of costing technologies are dynamic and may be conditioned by altering situational factors. The study also underscores the importance of eliciting the reactions of labor to the specific components and practices contained within a "costing system."

It is suggested that the dominant theoretical approaches applied in previous analyses may all have relevance, in varying measure, to understanding practical responses to accounting-based labor controls. This complexity is exemplified here in an illustrative case study of the introduction of a system of uniform (industry-wide) costing in the U.K. printing industry during the first four decades of this century. A key component of the prescribed costing system involved the routine generation of detailed information on direct labor cost through the implementation of "daily docketts" (time sheets) which recorded how each employee had spent his or her work time. Thus, the case study focuses on the specific mechanism by which accounting controls might impinge on the individual employee. At the same time, the nature of the costing technique devised by employers (uniform costing) required the cooperation of organized labor to secure its successful introduction and effective

implementation. The resultant engagement of employer associations and labor organizations in publicized costing discourses reveals the potentially multilayered complexion of employee attitudes. In particular, the case material presented here highlights the divergences between labor's perceptions of the strategic aspirations of costing and its practical impact on the shop floor. The paper analyzes the complex participation of organized labor in the attempt to effect accounting change in the printing industry and reports on the various reactions of workers to that change.

COSTING, CAPITAL, AND LABOR IN BRITISH PRINTING

Solomons [1950, p. 241] wrote that 26 uniform costing schemes had appeared in Britain since 1913 in sectors ranging from tin-box manufacturing to paint and varnish production. Most [1961, p. 12] subsequently contended that the number of such schemes had increased to over 30. The first and most enduring uniform costing system formulated in Britain was that devised for the printing industry. The circumstances which encouraged British printers to develop a scheme of uniform costing during the early 20th century and the subsequent attempt by their trade association to propagate its universal usage have been explored in earlier work [Mitchell and Walker, 1997; Walker and Mitchell, 1996, 1997]. In order to introduce the case, however, it is appropriate to provide a brief résumé of the structure of the printing industry in Britain and the organization of its employers and employees.

In 1911, 176,000 persons were employed as printers and lithographers in the U.K. [*Members Circular*, February 1915, p. 67]. The vast majority of workers in general printing work were engaged in firms which employed fewer than 20 hands [Musson, 1954, p. 93]. Most of the industry's output, however, was produced by a small number of highly capitalized medium and large concerns. Intense price competition among the 7,000 printing firms resulted in falling profit margins [Alford, 1965, pp. 10-11]. Their worsening fortunes encouraged employers to organize in 1901 as the British Federation of Master Printers (BFMP). This association sought a costing-based solution to price cutting.

From 1901 to 1910, the BFMP attempted to improve the costing and pricing practices of its members through the encouragement of collusive behavior and publications such as *Profit for Printers: Or What is Cost?* [1904], *Printers' Costs*

[1909], and *The Printers' Standard Price List* [1909]. These manuals argued the case for improved costing and provided practical guidance on the implementation of full-costing systems. The expectation was that the adverse effects of price competition would be muted as tenders were influenced by full costs [Mitchell and Walker, 1997]. In 1913, a more concerted attempt was made to achieve industry-wide uniformity in costing practice with the launch of *The Printers' Cost-Finding System* at the First British Cost Congress. This development was largely inspired by, and was emulative of, the efforts of the American Printers' Cost Commission and the United Typothetae of America to generate a uniform costing system. In October 1909, an international cost congress had been held in Chicago for master printers and, in 1911, a *Standard Cost-Finding System* had been published in the U.S. [Berk, 1997; Powell, 1926].

The Federation Costing System devised by employing printers in Britain was designed to gather full unit-cost information segmented into direct material, direct labor, and overhead (productive and non-productive). The system required the completion of daily time dockets to capture direct labor cost and link it to specific jobs. From 1913, *The Printers' Cost-Finding System* was promoted extensively by the Costing Committee of the BFMP through a variety of propagandizing techniques [Walker and Mitchell, 1996].

During the opening decades of the 20th century, organized printing labor was dominated by older "craft unions" — the Typographical Association, the London Society of Compositors, the Scottish Typographical Association, and the National Union of Bookbinders and Machine-Rulers (NUBMR). In 1914, these organizations boasted a total membership approaching 50,000 [Child, 1967, pp. 190-191; Clegg et al., 1964, p. 468]. The growth, from the 1890s, of "new" unions representing semi-skilled labor, such as bookfolders, paper cutters, printers' operatives, and warehousemen, contributed to a general expansion of trade-union membership in the printing and allied trades. In 1914, the national organization of printing unions, the Printing and Kindred Trades Federation (PKTF), comprised 17 affiliated associations with a total membership of 68,000 [PKTF, *Annual Report*, 1913].

Because of the industry-wide scope of the costing movement in British printing, the issues surrounding its implementation were discussed in the periodicals of both employers and

employees. These publications provided a base in primary sources for the current study. The national journal of the BFMP, the *Members' Circular*, and the journals of printers' regional alliances reported on the attitudes of labor towards uniform costing. Trade journals such as the *Caxton Magazine* and the *British Printer* commented on issues raised by costing's advocacy, though predominantly from the perspective of employers. The perceptions of printing labor were gleaned mainly from the periodicals of the principal trade unions, such as the *Typographical Circular* (the journal of the Typographical Association), the *London Typographical Journal* (the organ of the London Society of Compositors), trade circulars issued to members of the NUBMR, and the PKTF's *Annual Reports*.

The remainder of the paper focuses on the apparently divergent responses of printing labor to the attempt by the employers' organization to introduce uniform costing. The first section describes the ways in which employees and their representatives were positively inclined towards the costing movement and analyzes the foundations of their expressions of support. The second part of the paper documents the negative reactions of employees to costing and examines the sources of labor hostility.

COMPLIANCE: LABOR, COSTING, AND INDUSTRIAL REGENERATION

I for one hope that the day is not far distant when a new reason will be given by an employee for leaving his employer, viz., that he has not advanced with the times and installed the costing system [*Caxton Magazine*, June 1920, supp., p. 12].

Labor and the Pursuit of a Strategic Costing Solution: During the first decade of the 20th century, the BFMP sought an effective remedy to excessive competition in the printing industry. So far as leading trade unionists in the industry were concerned, competitive behavior not only depressed prices and profits but also restricted the ability of employers to concede to the demands of labor for improved wages and conditions [Mitchell and Walker, 1997]. Accordingly, unionists urged employers to address the fundamental problem of price cutting [*Members' Circular*, December 1901, p. 47].

Costing, through its impact on pricing, was increasingly perceived by the master printers and labor representatives as

the means to increasing printers' profits and, thus, ensuring that both capital and labor were properly recompensed. In 1906, the *London Typographical Journal* [September 1906, pp. 9-10] argued that:

The greatest enemy of the master printer is not the Society man, but the master printer next-door; and when the employers have become as well organized as the men, for the purpose of keeping up prices, there is not likely to be so much unnecessary friction between the two bodies. With this latter phase of their work we have every sympathy — for, given higher prices, the master printer is in a better position to pay good wages and to grant improved conditions of employment all round.

When, in 1911, a concerted endeavor was inaugurated by the BFMP to devise a uniform costing system for the printing industry, a number of trade unionists applauded the attempt to “deal with the question of printers' costs” and “the undercutting which is ruining the trade” [*London Typographical Journal*, September 1912, p. 1]. The subsequent launch by the employers' association of the Federation Costing System in February 1913 was supported by union periodicals due to its potentially advantageous strategic objectives. Printing labor was urged to adopt a cooperative stance [*London Typographical Journal*, February 1913, p. 10]. One contributor requested unions to “give their support to those gentlemen who have spent time and money in an earnest desire to place the printing craft on a sound business basis throughout the United Kingdom” and to encourage their members to give the system “a fair trial” [*London Typographical Journal*, March 1913, p. 4; *Typographical Circular*, March 1913, p. 2].

Subsequently, union leaders not infrequently urged the employers' association to adopt an aggressive approach to the implementation of industry-wide costing solutions and expressed their frustration at the Federation's apparent inability to secure the concordance of its members with centrally negotiated costing and pricing directives [*London Typographical Journal*, September 1913, p. 1; *Members' Circular*, September 1913, pp. 322-323, December 1913, p. 415].

Labor, Costing, and “Betterment.” In May 1915, a letter appeared in the printing journals which initiated a movement for the betterment of the printing trade in the post-war era [Child,

1967, p. 254]. "Q", James McQuitty, the honorary secretary of the Belfast Printing Trades Employers' Association, argued that the interests of employers and employees in the printing industry were correlative and that the enduring problem of price cutting was deleterious to both sides of the industry [*Members' Circular*, May 1915, pp. 227-228]. Consequently, masters and men should pursue a strategy whereby unionists would insist that the firms in which their members worked operate a costing system. The result of this "mutuality" would be the swift eradication of price cutting, and "proper remuneration could be obtained by printers for their work, and immediately a substantial increase could be given to the workers" [*Members' Circular*, May 1915, pp. 227-228; *Caxton Magazine*, June 1916, p. 348].¹

As it became apparent during World War I that the employers' campaign for the universal adoption of a uniform costing system had met with very limited success, and as there was a significant volume of contemporary concern about the reform of industrial relations and post-war reconstruction, Q's ideas about industrial protection through compulsory costing, enforced by unionized labor, gained increasing support in the printing industry [*Typographical Circular*, October 1916, p. 3, November 1916, p. 3]. During 1917, discussions took place between the federations of printing employers and unions on the subjects of industrial cooperation and the appropriate measures to secure the "betterment of the trade" [Bundock, 1959, p. 191; *Caxton Magazine*, April 1917, supplement]. Attention was focused on "the topic of paramount interest at the moment — the relation of accurate cost-finding to the well-being of the workers" [*Accountant*, June 9, 1917, p. 552]. In October 1917, representatives of the employers' and employees' federations agreed to establish a joint committee to consider a scheme of mutual betterment for the printing industry [*Caxton Magazine*, January 1918, p. 1]. In this venture, the two sides of the printing industry were in accord with the recommendations of the Whitley Committee, established by the Government in October 1916, to investigate means of improving the relations between employers and employed in Britain [Askwith, 1920, pp. 455-

¹It was a matter of some pride within the printing industry that McQuitty's proposals predated the Whitley Reports of 1917 and 1918, and that the craft "pioneered National Joint Councils" [*Caxton Magazine*, January 1922, p. 63]. In a tribute to "Q" in 1922, it was asserted that "Mr. McQuitty was really the parent of the Whitley Councils" [*Caxton Magazine*, July 1922, p. 404].

456; Loft, 1986, p. 148; Whitley Report, 1917, 1918; Wrigley, 1987, pp. 58-59].

Labor, Costing, and the Joint Industrial Council: The work of the "Betterment Committee" in the printing industry culminated in the production of an agreed blueprint for the establishment of an industrial council. This body was to be the "basis for future co-operation for Printing Trade Betterment" [*Caxton Magazine*, January 1919, pp. 7-9]. The Joint Industrial Council (JIC) for the printing trades, comprised of representatives drawn from the BFMP and unions affiliated to the PKTF, met for the first time on July 1, 1919. Its existence heralded a period of comparative tranquility in industrial relations in British printing [Child, 1967, p. 231; Musson, 1954, p. 372]. In congruence with the wartime discourses on the perceived centrality of remunerative pricing and costing to the prosperity of the printing industry, the following was specified as one of the "objects" of the JIC:

5. To assist in the maintenance of such selling prices as will afford reasonable remuneration to both Employers and Employees [*Members' Circular*, January 1919, p. 16].

The constitution of the JIC, which was unanimously endorsed by the organizations of employers and employees, also codified the following "agreed principle" on the subject of "cost finding:"

30. That all Employers should adopt and use for Costing and Estimating a uniform Costing System approved by the National Executive or be guided by any schedule of Hourly Cost Rates issued for their district and approved by the National Executive [*Members' Circular*, January 1919, p. 19; *Master Printers' Annual*, 1921, pp. 35-38].

Clause 30 did not specifically require the usage by employers of the BFMP's uniform costing system. However, in the wake of the disappointing rate of adoption of the Federation Costing System by printers,² together with the resurgence of price cutting from mid-1920 [*Caxton Magazine*, May 1920, p. 458], the employers persuaded the JIC to adopt it as the "offi-

²In February 1920, it was asserted that less than half of all printing firms had been converted to costing [*Caxton Magazine*, February 1920, p. 179; also Walker and Mitchell, 1996, p. 117].

cial" system for the industry in 1921 [*Members' Circular*, October 1921, pp. 331, 339]. In order to achieve this outcome, the Costing Committee of the employers' federation had set about explaining the merits of the costing system to the leaders of the printing unions [Costing Committee, Minutes, February 22, 1921]. The employers appear to have found a receptive audience. The general president of the Typographical Association, the largest printing union, had recently addressed a joint meeting of employers and his members in the following terms:

I confess that I am a convert to the costing system of the Master Printers' Federation. (Hear, hear.) When we have reached that objective we shall know then that our employers will be getting a decent return which will enable them to give a decent wage to their employes [*Caxton Magazine*, February 1921, p. 121].

Many union leaders actively supported the employers' quest for uniform costing during the interwar period. Employee representatives on the JIC suggested that meetings should be arranged at which union executives and shop-floor workers would be instructed in the details of the costing system by experts from the BFMP [*Members' Circular*, October 1921, p. 341]. One eminent master printer was to assert, "There were foolish men among both the Master Printers and the Trade Unionists, and they wanted the employees' panel [of the JIC] to assist them in making Master Printers realize the advantages of the [costing] system" [*Members' Circular*, October 1921, p. 340]. For their part, the employers perceived that their costing propaganda could "be carried on with much greater force now that we have the Trade Unions as well as the Federation advocating the use of proper costing methods" [*Members' Circular*, October 1921, pp. 365, 367].

Despite the expectation that master printers would adopt the Federation Costing System following its approbation by the JIC in 1921, it soon became apparent that the printing industry was only marginally better equipped to encounter the adversities of the slump of the 1930s [Walker and Mitchell, 1996, pp. 118, 122]. The deep and sustained depression in the trade was accompanied by the reappearance of "the panic-stricken price-cutter," who was "a menace to the Printing fraternity, both masters and men" [*Members' Circular*, June 1931, inset]. Once more, employers and employees set about exploring ways of curtailing price competition to restore the fortunes of the industry. Although noises were made by employers about the

merits of costing as a means of securing "economic prices" during the depression, the traditional palliative of wage cuts also resurfaced [*Members' Circular*, February 1932, p. 25]. Confronted with this prospect, the printing unions attempted to shift the focus towards a costing-centered strategy. The *Typographical Circular* argued that price stabilization and proper costing were greater imperatives than proposals which effectively penalized labor for the failures of employers to deal effectively with the problem of excessive competition [September 1932, pp. 193-194, October 1932, p. 220, April 1933, p. 73, May 1933, p. 105].

The printing unions, recognizing the difficulties confronting employers in pursuing alternatives to wage reductions due to their less than complete organization, offered their cooperation [*Typographical Circular*, October 1932, p. 220]. In July 1932, the *employees'* representatives on the JIC requested that the Costing Committee of the Council, which had not met since October 1921, be resurrected [Economic Prices Sub-Committee, Minutes, July 13, 1932]. The subsequent deliberations of this Costing Committee showed that the union representatives tended towards a more radical approach to a costing solution than the employers. In February 1933, representatives of labor on the Costing Committee suggested that the two sides should act in concert to encourage usage of the prescribed costing system, determine fair prices and wages, and outlaw price cutters [JIC Minutes, April 12, 1933].

The Costing Committee of the JIC concluded that before progress could be made in this direction, "two test questions" had to be answered:

- (1) Whether the employers' organizations would limit their membership to those who acted upon the Costing System; and
- (2) whether the Trade Unions would agree to withdraw all their members from those firms who would not conform [JIC Minutes, July 12, 1933].

The main craft unions had long been positive about playing their part in a plan of costing "compulsion" [*Typographical Circular*, May 1933, p. 106]. During the 1930s, it was the members of the employers' federation who were to reject the assistance of labor in securing the universal adoption of uniform costing. The BFMP considered that coercion in costing, organization, and price control was impracticable and alien to its voluntarist ideal [*Magazine of the Midland Master Printers Alliance*, March

1935, pp. 5-6]. Accordingly, in the winter of 1935-1936, and much to the annoyance of the employees' panel on the JIC, master printers emphatically rejected the idea of compulsion [*Members' Circular*, January 1936, p. 37; JIC Minutes, January 8, 1936, April 8, 1936].

Progressing the Complicity of Printing Labor: It is clear from the foregoing that most sections of organized printing labor appear to have concurred with the strategic objectives of the uniform costing movement. At times, trade unionists were more fervent advocates of the costing cause than the employers themselves [*British Printer*, May-June 1933, pp. 8-9]. However, the concordance of labor was not purely founded on the prospect of higher wages as costing promoted the regeneration of the printing industry. Employees' attitudes were also fashioned by the efforts of the employers' organization to instruct labor in the benefits of the costing movement [Walker and Mitchell, 1996]. It was recognized by the BFMP at an early stage that explaining the aims and objectives of the uniform costing system to employees would meet their objections, allay mistrust, and detract workers from erecting obstacles to its implementation [*London Typographical Journal*, March 1913, p. 4; *Report of the First British Cost Congress*, 1913, p. 33].

Accordingly, it was argued at successive cost congresses of master printers that the costing cause was as much in the interests of labor as the employing class and that workers should assist in its advancement [*Accountant*, June 9, 1917, p. 552; *Members' Circular*, April 1913, pp. 108-109; *Report of the First British Cost Congress*, 1913, p. 21]. Testimonials from employers, attesting that increased rates of employment and wages and reductions in working hours would follow the advent of costing, gave added credence to these messages [*Members Circular*, June 1913, p. 201]. The BFMP also recognized the persuasive potential of expressions of support for costing made by trade-union officials [*Members Circular*, February 1914, p. 67]. Such "propaganda among the workers" was not without effect. The *London Typographical Journal* [May 1915, p. 6] declared that "COSTITIS is spreading."

The centripetal nature of union organization also ensured that efforts were made from an early stage by master printers to educate powerful union leaders in the merits of the costing system. The employers' organization skillfully directed propaganda to specific groups within the functional and status hier-

archy of printing labor. Their primary targets were the managers, overseers, and foremen, the "medium of communication between the employers and their men" [*Caxton Magazine*, September 1906, p. 96, July 1914, p. 4; *Members' Circular*, June 1913, pp. 212-213, October 1913, p. 352].

During the 1920s and 1930s, printing labor was included in a general attempt by the BFMP to educate a younger generation of employees in the virtues of costing [*Members' Circular*, July 1937, p. 256; Walker and Mitchell, 1996, pp. 111-112]. It was assumed that enlightened labor might persuade reluctant employers to install the uniform costing system [*Caxton Magazine*, 1920, supp., p. 12]. In the 1930s, the employers' federation noted the increasing enrollment of employees in its costing courses [Cost Accountant's Report, September-November 1937, Costing Committee, Minutes, BFMP].

RESISTANCE: LABOR, SCIENTIFIC MANAGEMENT, AND TIME SHEETS

Modern industry . . . cannot get on without the Time Bill — that is established beyond question [*Caxton Magazine*, February 1921, p. 636].

Although the propaganda distributed by the employers' organization helped facilitate the support of trade unionists for the strategic objectives of the costing system, it was not as effective in dispelling labor's fears with regard to the motives behind one central component of its practical implementation — time recording. It was at the junction where costing converged with scientific management that the attitudes of printing labor towards uniform costing were transformed from compliance and enthusiasm to objection and resistance.

The "Gospel of Scientific Management" in British Printing: From the early years of the 20th century, master printers in Britain displayed an increasing interest in scientific management. Their curiosity was ignited by the voguish application of Taylorism to the printing craft and was fuelled by efforts to improve profits at a time when competition, both national and international, was keen and labor was successful in reducing the number of hours worked. Progressive printers were urged not to "hold aloof from systematizing movements" [*Caxton Magazine*, October 1909, p. 655]. Many became captivated by its promise for the elimination of "leakages" and wasted labor and materials. "Systematization" was heavily advocated in the trade

press, as were the labor-saving devices and practical methods which could enhance organizational efficiency [*Caxton Magazine*, February 1906, p. 326, January 1907, p. 219, August 1908, p. 48, September 1908, p. 78, May 1910, pp. 927-928]. Given that printing labor was "invariably the largest item in the cost of production" [*Caxton Magazine*, September 1908, p. 65], the time-waged employee came under the particular scrutiny of the "modernizing" employer.

The printing unions were alert to the threat posed by the "Systematizer." During the 1900s and 1910s, the journals of the typographical associations warned members about the prevailing epidemic of "system mania" which was becoming "more widespread than influenza, and is almost as desolating in its effects" [*London Typographical Journal*, June 1908, p. 4, November 1910, p. 10]. The employment of an efficiency expert, who was uninstructed in the customs of the craft and the conditions of work in printing offices, was met by active trade unionists with a mixture of revulsion and cynicism [*Typographical Circular*, December 1912, p. 7]. The application of efficiency engineering in printing firms was also considered offensive because it relegated the skilled employee to the status of "a mere piece of machinery" [*Typographical Circular*, June 1912, p. 3]. Union periodicals contrasted the humane, ethical, and responsible master of old with the employer who introduced soul-destroying and "dehumanizing" methods, such as clocks and electric bells in the machine-driven factory [*London Typographical Journal*, June 1908, p. 4; PKTF, *Annual Report*, 1912, p. 21; *Typographical Circular*, May 1914, p. 1].

Scientific management was most obviously actualized in the larger, mechanized printing office by the introduction of time-recording techniques. During the 1900s, master printers were constantly reminded how the "time question" was central to the fortunes of the industry [*Caxton Magazine*, September 1908, p. 66] and how time recording was essential to the identification and elimination of waste [*Caxton Magazine*, April 1906, p. 380; Miller and O'Leary, 1987]. Makers of time-recording devices boasted in printing journals how usage of their products not only characterized an office as "modern" but also ensured that "minutes turned to gold" [*Caxton Magazine*, January 1911, p. vii].

Mechanical clocks were less common in the printing works than manual time sheets or docketts. These documents, which were described as "a way to efficiency and time saving" [*Caxton*

Magazine, May 1920, pp. 469-470], also comprised the foundation of the uniform costing system devised by the BFMP [*Caxton Magazine*, Costing Campaign supp., p. iii, October 1922, pp. 582-590; *Magazine of the Midland Master Printers Alliance*, September 1964, p. 18]. It was asserted that, "the accurate keeping of the daily time docket is of paramount importance because it lies at the basis of the system" [*Caxton Magazine*, April 1913, p. 290]. In 1922, a senior member of the employers' federation confirmed that "the essence of costing was time" [*Caxton Magazine*, 1922, supp., p. 14].

The situation was exacerbated by an enduring advocacy of the new costing system as an extension from cost ascertainment for pricing to a cost-control device. In this respect, it impinged directly on the sensitivities of labor. Its use as a means of identifying opportunities for cost reduction was regularly highlighted by employers as one of its major advantages [*Accountant*, December 10, 1927, pp. 783-784; *British Printer*, July 1935-1936, pp. 40-41; *Members' Circular*, April 1925, pp. 116-117].

Printed dockets and mechanical time-recording devices often elicited strong adverse reactions from printing unionists. The costing secretary of the BFMP recalled that when the uniform costing system was first introduced, there was much friction with trade unions over the issue of dockets and suspicions over the real motives of employers in introducing them [*Members' Circular*, July 1934, p. 228]. The most vehement objections to time sheets were expressed by officials of the binders' union. During the 1910s, dockets were variously described in the *Trade Circular* of the NUBMR as "unfair," "annoying," and "irritating" or as "pernicious," "obnoxious," "offensive," "outrageous," and an "injustice to the workers."

Unions and Dockets: The use of time sheets and mechanical recording devices predated the issuance of a uniform costing scheme by the BFMP in February 1913 [see, for example, *British Printer*, June-July 1907, pp. 120-121]. However, when the cost-finding system was formally launched for universal and expeditious adoption in the printing trade, the profile and usage of dockets was raised almost overnight. Keeping a detailed and complete record of a workman's time was an essential element of the costing system [*The Printers Cost-Finding System*, 1913, specimen forms; *Members' Circular*, January 1913, p. 19]. The chief executive of the NUBMR was to reflect in 1915:

As is well known, the timing of work has long been a vexed question with our members; recently, however, it has assumed unlooked-for proportions, owing to the energetic propaganda promoted by the Federation of Master Printers and Allied Trades of Great Britain and Ireland in favour of a uniform costing system, the introduction of which, in some instances, has resulted in the victimization of our members who have refused to fill up the time docketts which are part of the system, while in many other cases, even where members have successfully opposed their introduction, a continual state of friction has been engendered [NUBMR, *Trade Circular*, Vol. 2, No. 5, 1915, p. 339].

Opposition to time sheets surfaced from the printing unions following the cost congress of the BFMP in February 1913. The Typographical Association had previously agreed to the imposition of docketts provided that their object was not to exploit its members. However, the *Typographical Circular* [March 1913, p. 2] expressed concerns about the elaborate and potentially sinister daily docketts then proposed by the employers [see also *Annual Report*, 1912, pp. 20-21; *London Typographical Journal*, February 1913, p. 1]. In March 1913, the PKTF determined that time recording was prejudicial to employees and that it would offer support to unions which resisted its implementation.

Despite concerted attempts by the employers' association to allay the fears of workers by denying any exploitative intent [*Members' Circular*, March 1913, pp. 78-80, April 1913, pp. 108-109], trade unionists continued to object to time sheets in several printing centers during 1913. Shortly after the launch of uniform costing, it was conceded that "there are, undoubtedly, signs of a serious misunderstanding on the part of some of the employes in regard to certain aspects of the Costing System, more particularly in relation to time docketts and clocking jobs" [*Caxton Magazine*, April 1913, p. 289]. At the second cost congress of the BFMP in February 1914, it was acknowledged that, "there is rather a feeling of distrust among our workpeople that we are trying to impose something upon them which will be to their detriment" [*Caxton Magazine*, February 1914, supp., p. iii].

It was also in February 1914 that a "largely attended" conference of printing unions was held to consider the question of time recording [PKTF, *Annual Report*, 1913, p. 9]. Thirteen printing unions were represented at the gathering, and their delegates agreed to enter into discussions with the employers

with a view to arriving at a national agreement on the issue [NUBMR, Vol. 1, No. 16, 1914, p. 1050]. During 1914-1915, conferences were held between the printing unions and the BFMP in order to explore the possibility of formulating an acceptable form of docket for general use [*Members' Circular*, May 1914, pp. 155-156]. Negotiations were protracted as it became clear that although union leaders acknowledged the necessity for dockets, most members were suspicious of their employers' motives [*Members' Circular*, May 1915, pp. 168, 177-178; Costing Committee, Minutes, May 6, 1915]. However, by September 1915, the secretary of the PKTF was able to inform the BFMP that a revised and simplified time sheet was now acceptable to the typographic and lithographic unions [*Members' Circular*, September 1915, p. 379]. In its *Annual Report* for 1915 [p. 6], the PKTF reported that agreement had been reached, but only on the use of dockets for legitimate purposes:

For some years friction has arisen through the introduction of time dockets of an objectionable character, and time-checking generally has been imposed under conditions which have proved irritating. To some extent this was due to the fact that no standard docket was in existence, and the introduction of a docket was never looked upon as other than a means to exercise further pressure upon the workman. Agreement having been arrived at with the Federation of Employers as to what is a reasonable form of time-checking for costing purposes, societies will be well advised to judge all time dockets by this standard, and to decline to recognize the right of any employer to introduce devices for time-checking of a more stringent character.

It was clear from the subsequent debate on dockets at the annual conference of the PKTF in February 1916 that there remained considerable antipathy among rank-and-file unionists to the use of time recording. It was conceded by the executive of the Federation that the agreement with employers did not encompass all of the affiliated societies [PKTF, *Annual Report*, 1915, pp. 25-27]. The binders' union was to prove particularly resistant to the use of dockets.

The binders considered that the advancement of formalized time recording was a sinister and exploitative development. In May 1912, the NUBMR had incorporated within its general rules a provision that, "members are to strongly object to the introduction of time sheets" [NUBMR, *Special Trade Circular*, Vol. 1, No. 8, 1912, pp. 500-502]. In August 1914, the General

Council of the union voted unanimously in favor of a resolution which instructed members to refuse to accept or fill in day docket [NUBMR, *Special Trade Circular*, Vol. 2, No. 2, 1914, p. 124]. This rule became a "prolific source of trouble" between binders and their employers [NUBMR, *Special Trade Circular*, Vol. 2, No. 2, 1914, p. 77]. However, the revelation that 60% of its members were completing time sheets [NUBMR, *Trade Circular*, Vol. 2, No. 4, 1915, p. 218] despite the union rules encouraged the executive of the NUBMR to negotiate with the BFMP a modified docket it thought "harmless" [NUBMR, *Trade Circular*, Vol. 2, No. 5, 1915, p. 341]. In October 1915, the union membership voted (2,567 to 2,163) to sanction this course. The central executive of the binders' union recognized that this narrow majority meant "that a very large proportion of our members cannot reconcile themselves to a general acceptance of time docket" [NUBMR, *Trade Circular*, Vol. 2, No. 6, 1915, p. 381].

In March 1916, representatives of the NUBMR and the BFMP formulated a simplified docket [*Members' Circular*, February 1916, p. 75]. The union's executive recommended that its members now agree to the revised docket and reminded them that time sheets were common "in almost every trade in the country" [NUBMR, *Special Trade Circular*, Vol. 2, No. 9, 1916, p. 538]. The executive was to be disappointed. In May 1916, the rank and file voted 1,704 for and 2,687 against adoption of the docket [NUBMR, *Trade Circular*, Vol. 2, No. 11, 1916, p. 703], and resolutions calling for the enforcement of the NUBMR's general rule outlawing time sheets were tabled at subsequent union meetings [NUBMR, *Trade Circular*, Vol. 2, No. 11, 1916, p. 757].

A renewed attempt to seek agreement with employers on an even simpler time sheet took place in autumn 1918 following "serious trouble in several branches" of the binders' union [NUBMR, *Trade Circular*, Vol. 3, No. 8, 1919, p. 437]. Despite assurances from the employers that no hardship or injustice would result from time sheets and a recommendation from the union executive to vote in favor of adopting a revised docket [NUBMR, *Trade Circular*, Vol. 3, No. 8, 1919, pp. 437-439], the members convincingly negated the proposal by an even greater majority. At a subsequent meeting of the General Council of the NUBMR, a resolution was carried, much to the annoyance of the union's national executive, to the effect that steps be taken to eliminate time sheets from the trade [NUBMR, *Trade Circular*, Vol. 3, No. 11, 1919, pp. 761-762].

The executive of the binders' union now sought the direct assistance of the employers' federation in an attempt to encourage a less aggressive stance towards dockets by its members [Costing Committee, Minutes, January 19, 1920]. During 1920, local meetings were arranged at which binders were addressed by representatives of the BFMP on the need for and advantages of proper costing [*Members' Circular*, April 1920, p. 101]. This attrition-based approach to persuading rank-and-file binders proved more effective, and in 1921, some branches of the union voted to use dockets [Costing Committee, Minutes, January 12, 1921, February 22, 1921; *Members' Circular*, July 1921, pp. 234-235]. Following the decision of the JIC to adopt the costing system of the BFMP in October 1921, and after much lobbying by employers and union executives, the second largest and recalcitrant Manchester branch of the NUBMR also agreed that its members should complete dockets for a trial period [*Members' Circular*, June 1922, p. 205, October 1922, p. 258].

Despite the attempted erosion of labor resistance to the application of dockets, unease about their use persisted among printing workers during the interwar years. For example, in addition to continuing objections by binders [*British Printer*, May 1934-1935, p. 264], several cases of difficulty over dockets among compositors were reported in London in 1925-1926 [*Members' Circular*, February 1925, p. 41]. Once union acceptance of written dockets was secured, there also remained the thorny question of the use of mechanical time-recording devices. At its annual meeting in 1923, these issues were considered by the PKTF to comprise an "atrocious and outrageous" imposition on labor [PKTF, *Annual Report*, 1922, pp. 29-30].

"Labour's Simple Story, Briefly Told:" Objections to Dockets: Employers often appeared perplexed by the apparent contrariness of trade-union attitudes towards costing. One commentator in 1913 asked, "why should compositors, who have urged employers to charge more, now characterize costing as speeding up" [*Caxton Magazine*, November 1913, p. 161]? The cause of negativity among printing labor was rooted in the relationship between costing and "systematization."

The principal objection to dockets concerned the opportunities they offered employers to exploit labor. The information recorded on time sheets enabled the pursuit of "the insane craze for speed and cheapness" associated with scientific management. It was feared that, armed with time-task data printing

graphical Journal, November 1910, p. 10; *Typographical Circular*, June 1912, p. 3].

Printing unions had long nurtured an aversion to the imposition of work practices and payment regimes which conflicted with their principal objectives of securing the maximum employment rate among members and a fair rate of pay for a fair day's work [Child, 1967, pp. 140-141]. Wage structures which resulted in the displacement of labor, prevented an equitable distribution of available work, or encouraged a competitive spirit among workers were resisted in printing during the late 19th and early 20th centuries. Union rules outlawed the implementation of bonus systems and task work, which were perceived as attempts by employers to "race," "slog," or "sweat" printing workers [see also Fleischman and Tyson, 1996, p. 63]. Piecework was similarly distrusted [*Caxton Magazine*, March 1918, p. 121; Musson, 1954, pp. 198, 498]. The objectives of printing trade unions were most achievable under the "stab" system whereby wages were based on time (usually weekly) rates [Gray, 1976, pp. 34-36, 48; Howe, 1947, p. 441; Musson, 1954, pp. 45, 200, 1974, pp. 97-98]. However, from the 1890s, progress in printing technology and increased investment in advanced machinery encouraged employers, particularly those in medium and large-scale concerns, to seek greater productivity from time-paid workers and to mount an assault on slacking [*Caxton Magazine*, 1919, pp. 427-428]. During the early 20th century, disputes between unions and employers' organizations over the introduction of mechanisms and procedures to measure the output and time use of individual workers were frequent [Musson, 1954, pp. 225, 229, 246-248]. In 1905, for example, in what was described by employers as "A Strike Against Correct Accounts," the London Society of Compositors instructed its members to refuse to complete the work tickets or use the registering clocks which had been recently installed in the large firm of Hazell, Watson, and Viney [*Members' Circular*, November 1905, pp. 228-230].

The costing campaign of the employers' federation from 1913 added a new dimension to the resistance of labor to time recording due to the centrality of the docket to the uniform costing system. The docket was perceived by many printing unionists as part of an industry-wide effort by employers to monitor the output of workers within a prescribed time as a prelude to task work, test work, and general "sweating" [Howe and Child, 1952, p. 254; *Members Circular*, March 1913, p. 79;

NUBMR, *Special Trade Circular*, Vol. 2, No. 2, 1914, p. 12, No. 4, 1916, p. 538]. For this reason, the whole costing system was often deemed "synonymous with 'speeding up'" [*London Typographical Journal*, 1913, p. 9; *Typographical Circular*, March 1913, p. 2] and with "the pace that kills" [*British Printer*, July-August 1927-1928, p. 62] on the shop floor. In their attempts to encourage master printers to adopt the Federation Costing System, senior members of the BFMP often appeared to confirm an exploitative intent by advocating costing as an aid to efficiency by identifying "leaks," idle time, and unnecessary hands [*Caxton Magazine*, March 1920, p. 223; *Magazine of the Midland Master Printers Alliance*, April 1921, p. 10; *Members' Circular*, December 1912, p. 339; see also Berk, 1997, p. 244].

Although some printing workers considered dockets to offer a means of "self-protection" [PKTF, *Annual Report*, 1914, p. 14], greater numbers feared that the revelations provided by dockets and mechanical time devices might be used by overseers and managers to chastise individual workers. It was recognized that time information "affords the means of investigating the efficiency of *each man*" [*British Printer*, June-July 1915, p. 73, emphasis added]. Recorders and clocks were feared as a form of "espionage" or "spying" in the workplace [*Members Circular*, May 1915, p. 228]. The detailed disclosures made on manual dockets, pertaining to the time taken to perform each class of work or production process and the output achieved, stood in stark contrast to traditional notions of the invisibility of the printing worker under the time-wage system [Musson, 1954, p. 249].

There was a widespread perception among printing labor that the encroachment of time-checking surveillance under the uniform costing system would be used to identify "slackers" [*Typographical Circular*, May 1914, p. 1], permit "the employer to pick out the slow men from the quick ones" [NUBMR, *Special Trade Circular*, Vol. 2, No. 9, 1916, p. 571], and result in the intimidation and victimization of those so revealed [NUBMR, *Special Trade Circular*, Vol. 1, No. 1, 1912, p. 501]. Due to its role in the scrutiny and distribution of daily dockets, time recording was also perceived as enhancing the relative power of managers, overseers, and foremen over printing operatives. The "shifty" and bullying foreman, whose responsibility it was to see "that every minute of time is accounted for" [*Caxton Magazine*, September 1906, p. 96], was provided data which could be used to legitimize abhorrent behavior and "to take undue ad-

vantage of those under them" [*Typographical Circular*, December 1912, p. 8]. Time sheets permitted the identification of productive workers who might receive privileged treatment from the foreman, thereby encouraging submissive behavior [NUBMR, *Special Trade Circular*, Vol. 1, No. 8, 1912, pp. 500-502].

Such outcomes which pitted men against each other served to discourage fraternity, weakening organized labor [*Members' Circular*, March 1913, p. 78]. The object of time docket "was to set one man against another, and to show that he was much more clever than another" [NUBMR, *Special Trade Circular*, Vol. 1, No. 8, 1912, p. 500; *London Typographical Journal*, October 1913, p. 9]. Competition between workers engendered friction and disharmony in the workplace [*Typographical Circular*, May 1914, p. 1]. It was also feared that the data contained on time sheets might be used against the printing unions in trade disputes and wage negotiations, as well as to negate hard-fought advances in wages [*Typographical Circular*, August 1921, p. 7]. During economic depressions printing firms tended to pursue wage cuts in order to protect profits. The printing unions feared that docket information about labor performance might enable employers to shift the onus of responsibility for industry problems to its work force. This would divert employers from addressing the root cause of the industry's problems which they had patently failed to remedy; that is, the prevailing and destructive price competition among themselves [*Typographical Circular*, September 1932, p. 194, October 1932, p. 220].

The particularly "obnoxious" docket of the employers' Federation Costing System was also initially rejected by many printing unionists because it was considered insulting to the skilled and dignified artisan. The disclosure of operational times to the nearest 10-15 minutes on early versions of the prescribed time sheet was deemed an affront to the craftsman's customary control over the planning and pacing of his own work routines. This had been a cause of industrial action during the 1900s, including the aforementioned "Strike Against Correct Accounts" in 1905 [*Caxton Magazine*, December 1905, p. 243; *Members' Circular*, November 1905, p. 229].

The identification and classification on early dockets of work tasks as either "chargeable" (to individual jobs) or "non-chargeable" also implied that some activities were degraded as non-productive and encouraged the usage of nomenclatures

such as "chargeable worker" and "non-chargeable worker" [*Printers' Cost-Finding System*, 1913, form 8].³ So far as unionists were concerned, this classification was another attempt at sweating, "the object seems to be that gradually, but surely, this 'non-chargeable time' will be done away with altogether, and the men will be expected to do jobs or try to do them, at tremendously high pressure" [*Typographical Circular*, June 1912, p. 3].

Dockets were also deemed objectionable by printing labor due to the selective nature of the disclosures required on them. The information about the time taken on each work process and the potential use of the data to improve labor efficiency took no account of the conditions under which the tasks were performed. These conditions could vary over time and on different jobs [*Typographical Circular*, December 1912, p. 8]. Recording systems did not capture factors which impacted on the time taken to complete work, such as atmospheric conditions, the quality of materials used, or the tools available to the worker [NUBMR, *Special Trade Circular*, Vol. 2, No. 9, 1916; PKTF, *Annual Report*, 1912, p. 20].

Close monitoring of time usage also carried with it the assumption that employees were potentially irresponsible, time wasting, and not trustworthy [NUBMR, *Special Trade Circular*, Vol. 2, No. 2, 1914, p. 77]. The use of dockets and the subsequent "rushing" and cheapening of jobs were also perceived as stress-inducing and compromising the craftsman's pride in the quality of his work [*Caxton Magazine*, April 1919, p. 271; *London Typographical Journal*, October 1913, p. 9]. Time recording and the attendant "speeding up" of workers was considered to comprise an important element of the "dehumanization" of labor and a soul-destroying bondage to the machine [PKTF, *Annual Report*, 1912, p. 21]. Individual craftsmen lost their identity and personality within the organization. Their presence came to be represented instead by entries on "The Time Sheet:"

... labour's simple story, briefly told.

Sheet follows sheet — how gently glide the days

Life's span is short in Time's unceasing flight;

The end is reached at last, the parting of the ways,

Our time-sheet filled, we pass into the night.

[*London Typographical Journal*, July 1925, p. 12].

³The same terminology was employed in the *Standard Cost-Finding System* of American printers [see Berk, 1997, p. 241].

CONCLUSIONS

In 1913, the BFMP launched a concerted campaign to persuade each of its members to implement a uniform costing system in his works. This sector-wide endeavor to regenerate the fortunes of the industry through costing resulted in an unusually conspicuous dialogue concerning the perceived effects of accounting technology on employees. The documentary sources suggest that the attitudes of printing labor toward uniform costing were multifaceted. A number of conclusions can be drawn from the absence of a singular reaction.

The prescribed costing system and its component parts posed a dilemma for printing labor. At the national level, the ethereal promise of the strategic impact of uniform costing on pricing and the consequent lifting of the fortunes of the whole industry offered much to trade unionists and served to convince them of the merits of a costing solution. The prospect of improvements in profitability and advances in wages encouraged the positive support of labor officials and precipitated the mutual pursuit of the costing project with the employers. However, a central feature of the costing system was a technique for the detailed measurement and analysis of labor-time. At this juncture, the reaction of printing workers was characterized by suspicion and hostility. On the shop floor in particular, this specific component of the costing system engendered fear and misgivings about employers' motives. The extent to which master printers had been attracted to the emergent time-based, scientific management movement, with its attendant assurances of reductions in labor cost during the early years of the 20th century, fuelled the concerns of workers about the use and purpose of time docketts.

A study of employees in British printing demonstrates the limitations of generalizing from one theoretical perspective on the reactions of labor to accounting change and confirms the utility of recent calls for paradigmatic pluralization in management accounting history research. The direct participation of labor organizations in progressing strategic costing development was motivated by economic rationalism. There is considerable support for the notion that employees viewed accounting as a contrivance which might bring economic benefit by tending to improve both their job security and remuneration. The printing case thus provides an example of mutualism and of behavior described by Tyson [1995, p. 29] as "the co-operative arrangements that often evolve when competing parties realise

that sacrifices must be made and co-operative endeavours must take place."

Conversely, there is evidence that the demand for cost information extended beyond its usage for pricing decisions and cost control. The association of dockets with speeding up, with labor efficiency and cost reduction, the assault on craft control, the degradation of the skilled artisan, and the enhancement of the power of those who engaged and could exploit labor lends support to the labor-process paradigm. Employees clearly recognized and feared the exploitative potential of time recording and, in some instances, were prepared to take industrial action to resist its introduction. Despite the existence of some propagandist pronouncements by the employers' organization and a few isolated examples of overt exploitation in practice, there is, however, little evidence to suggest that the uniform costing system or its specific time-docket element was advocated as "part of the search for new methods of control" over labor [Hopper and Armstrong, 1991, p. 433].

The printing industry case also provides evidence which adds credence to Foucauldian-based analyses. Employees recognized that the docket comprised a technique for watching, measuring, and monitoring performance. Time recording was perceived as a device which enabled surveillance and permitted comparisons between efficient and inefficient craftsmen. Dockets supplied information which permitted the governance of the activity of the individual worker and the exercise of discipline over the employee. The responses of labor to this prospect were, however, mainly characterized by fear and resistance as opposed to perceiving the enabling potential of calculation for employee advancement. Further, as mentioned in an earlier paper, the construction of a supranational organization by the trade association to monitor the implementation of the uniform costing system also introduced a mechanism for observing and admonishing the employer who resisted the costing movement [Walker and Mitchell, 1996].

Generalizations about the employees' support or opposition to accounting-based labor controls are not therefore warranted in the case presented in this study. It can be concluded that the responses of printing employees to costing were mixed, seemingly contradictory, and changeable. Their views and reactions reflect both the rational-economic motive, as well as reservations about managerial exploitation and the threat of scientific management techniques. Clearly, the complex and fragmentary

nature of the reaction of printing labor to uniform costing, as illustrated above, lends weight to the notion that no single theoretical perspective can provide an adequate explanation of its development.

The printing industry case illustrates the existence of factors which encouraged heterogeneity in the responses of labor to costing. Perceptions of the merits or demerits of costing systems changed over time in response to periods of recession or military crisis when both employer and employee organizations urged cooperation in the quest for economic improvement or "betterment." The paper has revealed the contrasting perspectives of union leaders and rank-and-file printing workers on the potentialities and threats posed by a costing "system" in its totality and in its particular aspects. It is suggested that such perceptions were conditioned variously by the radicalism or conservatism of the union leaders and their members (contrast old and new unions) and by the proximity of labor and its representatives to employers under different production processes and bargaining regimes (compare craft with mass production). For example, the tenacity of the binders on the question of dockets was reflective of "the adaptation of an old craft to skilled operations within a factory system of rationalized mass production" [Gray, 1976, p. 36] and an aggressive union. Moreover, the paper suggests that human behavior in a business context is, typically, complex, and this complexity can be more realistically mirrored in the multiple dimensions which different theories of cost accounting change can encapsulate.

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