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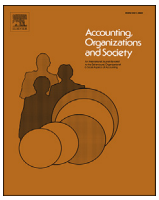

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Accounting for clerks: on the paper work of capitalism.

The classical image of nineteenth century capitalism centers on industrial production, whether in the textile mill, the steel mill, or the coal mine. The industrial revolution started first in England, and then other countries emulated English success, among them the United States. Before too long, the U.S. succeeded England as the world's leading market economy and industrial power. Classical capitalism contained within itself a key axis of social conflict, pitting those who owned the means of production, the capitalists, against those who did not, the workers. The workers performed the manual labor of lifting, placing, turning, shaping, shoveling, loading and unloading physical objects, while the capitalists performed the mental labor of planning production, negotiating transactions, measuring economic activity, and monitoring and evaluating worker performance. The conflict was an uneven one with the capitalists having more power, but the balance could shift. In Accounting for Capitalism: The World the Clerk Made, Michael Zakim proposes to insert a third group, the clerks, between this pair of durable antagonists. A lowly and perhaps even uninspiring occupational category, clerks nevertheless performed critical work that was neither simply physical nor purely mental, for actually it was both. Clerical work consisted of manual labor (literally, involving the use of hands) performed with a pen and ink, and paper. It was paper work (Zakim, 2014), and for those who performed it, capitalism could be extremely tedious: copying out letters by hand, day after day (Strom, 1989, p. 54), or adding up long columns of numbers. Then double-checking the calculation. All this was repeated, day after day. No wonder Bartleby the Scrivener "would prefer not to". I well remember discovering, deep in a Bank of England stock ledger from the early 18th-century, signs of restless boredom: some clerk from three centuries ago had drawn a cartoon figure in the margins of the ledger, which seemed to peer over a wall, looking right at me. Doubtless the clerk's superior would have frowned upon such frivolous embellishment of an important document, but I was amused.

Clerks occupied an intermediate and even contradictory position, as employees of a firm who nevertheless sat and worked in management's offices, not on the factory floor. In the twentieth century, clerks became what is known as "white collar" workers, to be distinguished from their "blue collar" colleagues. Beyond uncomplicated small-scale economic activity, it turns out that planning, measuring, accounting, monitoring and evaluating is mental work best done, at least in part, outside of the capitalist's head. Paper, it seems, is a particularly good medium for thought and calculation, and with the help of their clerical staff, capitalists could comprehend and enact market activity via a type of distributed cognition (Hutchins, 1995). But clerical work was not confined to the private sector of for-profit activity, and so Zakim devotes considerable attention to what clerks accomplished in the sphere of government as well. There, paperwork wasn't done to earn a profit, but rather to help measure and represent the economy itself.

Bursting with ideas and rhetorical flourishes, Michael Zakim's erudite book raises up the humble nineteenth-century clerk and gives him (and clerks were at the time overwhelmingly male) a central role in the creation of modern capitalism. As he says: "This was the world the clerk made" (Zakim, 2018, p. 190). The argument is always stimulating, sometimes exasperating, clever (occasionally too clever), and rendered in lively prose that belies the seemingly stultifying quality of much clerical work. He reminds us that market activity in the U.S. begat a growing class of clerks: young men who worked in offices, banks, retail stores, warehouses, import houses, credit agencies etc., and who performed a special kind of work whose intangibility, at least when compared to industrial and agricultural labor, seemed to suggest that they weren't being truly "productive." What would a labor theory of value make of clerical work? Clerks were not an especially introspective or socially salient group, so Zakim necessarily relies on a (small) set of diaries, "self help" books, accounting texts, business handbooks, newspaper accounts, and hortatory business literature.

Clerks inhabited and animated the informational infrastructure of modern capitalism. The documents they created represented both qualities and quantities. These records authenticated and acknowledged communications between multiple parties. Paperwork created the proverbial "paper trail," a way to retrace steps taken and retrieve institutional memory, and it was given definitional significance in Max Weber's famous discussion of the importance of records for bureaucracy. Calculations done by hand estimated innumerable equivalences and differences, margins, magnitudes and ratios, premia and discounts, common denominators and uncommon enumerations. Paperwork embodied the information that flows through and around market and administrative activity, acting as the paper sinews of visible and invisible hands. It is very much the world of bureaucratic routine, of preprinted forms and boilerplate language, of box-checking and lists and tables, of duplicates and triplicates.

Although commonly disparaged as a necessary but regrettable encumbrance to the real business of the world, paperwork for Zakim has central importance. As he observes (p.14): "The clerk thus only appeared to be producing nothing of value. In fact, he was busily producing the very system of value, arranged into a labile index of prices for coordinating the indeterminable jumble of trades issuing from the inveterate supply and demand of everyone with property rights." The role of paperwork was much more than just representational or reactive. Paperwork was creative: "Facts on paper accordingly replaced facts on the ground as the operative reality in this increasingly immaterial world filling up with goods." (p.15).

Information matters in markets. Governments and rulers have

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understood this for centuries as they tried to give stable meaning to the weights and measures that market participants used to gauge the qualities and quantities of the products they transacted (e.g., Ashworth, 2004, Bowman, 1951, Casson & Lee, 2011, Hoppit, 1993, Messer-Kruse, 2006, Miskimin 1967, Stampa, 1949, Zupko & Edward, 1977).[1] Grand metrological projects, like creation of the metric system, are all about stable and systematic information that possesses universal legibility. In addition to general standards, other types of information are especially important for commercial activity. Buyers and sellers will want to communicate their interests and intentions, at a distance if need be, so that others can understand, and so that such understandings can be retrieved and recalled at some later point. Through expression, they hope to create commercial possibilities which they can later exploit. Even without the legal formality of a contract, those who transact must come to some kind of mutual agreement in the language of words and numbers. And even as information helps to anticipate and shape the commercial future, it is used to preserve and interpret the economic past. By consulting their records, users can determine which transactions have occurred, and which remain incomplete; whether commercial activity was profitable or not; the nature and value of a firm's assets and liabilities, and whether the firm itself is solvent or not. In other words, information spans both space and time, and operates at geographic and temporal distance.

The information rendered by clerks consisted of both words and numbers, and therefore its production and consumption depended on both literacy and numeracy. The creation and interpretation of numbers eventually became the special expertise of bookkeepers and accountants, and although historical studies of accountancy have considered deeply the implications and affordances of quantitative information (e.g., Robson, 1992), the clerks themselves seem largely overlooked in discussions of professional accountants (Cooper & Taylor, 2000, p. 555). Zakim himself doesn't give numerical information *per se* sustained attention, which seems odd given his book title, and so misses an opportunity engage the recent literature on quantification (e.g., Porter, 1992, 1995, 2003; Espeland & Stevens, 2008; Vollmer, Mennicken, & Preda, 2009).

Information matters, and it makes a difference who has it and who doesn't (witness so-called "information asymmetries" and markets for lemons). The materiality of information matters as well. Information is embodied, and has a physical manifestation: it isn't "virtual." As Zakim well realizes, in the nineteenth-century the primary medium for business information was paper, sometimes bound into permanent ledgers, sometimes loose leaf (but eventually to be bundled or filed, and kept), and frequently as loose leaf ephemera, to be used once and discarded. Pages created a form of marginality, among the marginalia, allowing for texts with multiple layers of signification and reflexivity (as when marginalia commented on text). Later on, clever accountants exploited similar dualities as they moved items on and off corporate balance sheets.

Sequentially-numbered, leather-bound volumes, suitable for a permanent ledger, powerfully signaled durability, fidelity, and trustworthiness, all useful qualities if some business matter came to be disputed or if authenticity were a concern (Campbell-Kelly, 1998: 23). Traditionally, paper for commercial use was made out of cotton or linen fiber, but starting mid-century wood pulp provided a much cheaper, albeit less durable, material. Today the corpus of acidic wood fiber paper is disintegrating, realizing in slow motion the premise of Stanislaw Lem's 2003 science fiction apocalypse Memoirs Found in a Bathtub (where human civilization collapses because a blight destroys all paper). It was the very materiality of permanent records which undermined their permanence.

Information also possesses form, starting with the distinction between qualitative and quantitative. Much can be learned from bureaucratic forms because functions often followed forms. In other words, pre-printed forms organized clerical activity and information flows, and so offer evidence of bureaucratic workflow and process. Once the volume of clerical work increased to the point where standardized language was being repeatedly used, firms commissioned "form letters" and pre-printed documents, with pre-determined space for limited input information (e.g., "Dear your-name-here"). Pre-printed forms embody the categories used to interpret an organization's environment and prompt an organizational response. A user who is given a form and told to check one of several boxes has been presented with a limited menu of possibilities, behind which lies a series of invisible omissions and selections. To escape the constraints of that menu is to "think outside the box," but of course the vast majority of decisions and procedures occur "inside" those very boxes. Forms are a vehicle for the "uncertainty absorption" that allows boundedly-rational decision-makers to filter and simplify information and proceed in the face of otherwise overwhelming complexity and ambiguity (March and Simon 1958: 164–166). Forms also set defaults, the significance of which is well appreciated by cognitive psychologists and behavioral economists (Shafir & LeBoeuf, 2002; Shafir & Thaler, 2006). Significant cognitive work is printed right into the paper forms, even before the blank spaces have been filled in by a clerk.

As paper reality constituted and augmented economic reality, the relationship between the two became problematic. Certainly, the paper version wasn't simply representational, possessing more or less veracity, for it is Zakim's larger point that paperwork is in some sense performative. But it also couldn't simply be that the former created the latter, and thereby ensured a correspondence between them. For one of the chief concerns with paper reality concerned its authenticity, and the dangers of forgery, embezzlement, and counterfeiting. What happens with a claim that isn't worth the paper it is printed on? Indeed, a great deal of clerical practice and procedure focused exactly on this problem: documents had to be signed, sealed, registered, indexed or stamped (or all five) as a testament to their authenticity and in order to make them "official." They were copied multiple times, a particularly tedious task when done by hand, to ensure that all parties knew what was expressed in the "original," and good penmanship, bolstered by good posture, helped to ensure legibility (p.33). Such redundancy made good sense in a world where fragile paper could easily go astray and ink could smudge, and electronic "signatures" take such conventions into today's world of Word files and pdf documents.

As documents grew and multiplied, their linkages to each other had to be numerous and robust enough to create chains of authenticity holding together a self-reinforcing documentary system. Zakim notes that standard protocol in business correspondence dictated that a response should open with direct reference to the date, subject and place of the preceding letter (p.24), which all helped to resolve questions of what did people know, and when did they know it. And the system of documents, particularly those produced by large corporations, had to be legible to multiple persons. One characteristic of paperwork is that it is often done collectively, with documents going through many hands. Thus, entries

[1] Consider that the National Institute of Standards and Technology is currently part of the U.S. Department of Commerce, and on its website declares that: "NIST works to improve the accuracy of measurements, enhance consumer protection, foster fair competition, and facilitate economic growth and trade through technical activities that promote uniformity in national and international legal metrology laws, regulations, standards, test procedures and enforcement." (at https://www.nist.gov/topics/weights-measures, accessed November 11, 2018). Article 1 of the U.S. Constitution grants to Congress the power to set standards for weights and measures. Of course, the National Bureau of Standards, the predecessor of NIST, became involved in setting standards for paper.

and manipulations performed by one person have to be clear in their import to others. One can easily see this in old ledgers, where a change in handwriting signals that the document was in the hands of a new or different clerk.

Clerks would probably not have appreciated the august role that Zakim attributes to them. Many, he argues in chapter three, embraced the ideology of the self-made man, and might have taken business classes from a private commercial school or used a mercantile library as a way to improve themselves. They would not have understood their own larger significance and, as Zakim puts it: "… were generally uninterested in the epistemological implications of their employment." (p.47). Mind you, I have a hard time thinking of many other occupational groups with such interests, with the possible exception of epistemologists. But the geographic mobility and social openness of the U.S. in the 19th-century (see Long & Joseph, 2013, Hall & Ruggles, 2004) would have given young white men a strong sense of future possibilities that they might seize. Zakim (pp.87,97) suggests that rural-to-urban migration involved both a physical and a social relocation, meaning that older agrarian understandings of work and self-worth were increasingly discarded. But paperwork, personal and commercial, undergirded the construction of these new selves and the new economy: "Paperwork thus proved as relevant to making persons as to making profits, which is also why the two great production projects of the day — the making of the self and the making of the market — became so closely intertwined, formalized in the two most significant neologisms of the age, individualism and capitalism." (pp.120–121). Young clerical bodies bore the brunt of all this paperwork, and weren't sufficiently fortified by the virtuous effects of outdoor physical labor. Zakim devotes chapter four to a discussion of "desk diseases" like dyspepsia and constipation.

Chapter five shifts to the world of government, where clerical activities were devoted to much counting and measurement. Zakim focuses particularly on the U.S. census, which by law enumerated people every ten years in a massive clerical exercise leading to the reapportionment of political power in the House of Representatives as state populations grew. It soon expanded its scope to include the economy as well, measuring economic activity and counting business establishments. Zakim accurately characterizes some of what could be done with public statistics in the 19th-century: distill the "flux of events" into their "constituent parts," and then reconfigure and rearrange these into "more useful patterns of causal chains and tabular sequences." (p.161). This sounds very much like Jack Goody (1977, 1986) discussing what can be done with rows and columns in written arrays: information on a page created new analytical possibilities; numbers could be dislodged from their original contexts and arranged to reveal temporal patterns or underlying trends. I do wish Zakim had engaged Goody's work more thoroughly here (see also Hull 2012).

But other federal bureaucracies were equally if not more active in the generation of paper and the enactment of paperwork. And they did so continuously rather than only intermittently (the census happened only once every ten years). Who really put the paper in paperwork? The answer is contained in the Cockerell Report (U.S. Senate 1888: 4–25), which described in stunning detail (the description itself required over 20 pages of text) the paperwork needed by the U.S. Treasury Department to purchase the paper stationary used for its own paperwork! There were no less than six separate stages to the process: estimate, appropriation, appropriation warrant, purchase and delivery of the stationary, payment, and settlement of accounts. At each stage, paperwork was variously generated, scrutinized, duplicated, dated, initialed, signed and countersigned, sent and received, endorsed, numbered, authenticated, extracted, indexed and registered. As the paper ebbed and flowed, accounts were opened and closed, checked and double-checked. And all this work was done by a veritable army of clerks, auditors, book-keepers, messengers and secretaries. Such paperwork could be sclerotic in the extreme and fully lived up to its bad reputation. The Census is a fine choice to consider paperwork outside of the for-profit sphere, but one does wonder about all the paperwork done by the rest of the executive branch.

If clerks made the world (p.190), then what social world(s) helped to make the clerks? Zakim's various discussions suggest clerks were largely city-dwelling young (white) men who aspired to become "self-made". Their numbers were large and growing fast in the mid-19th-century. Furthermore, male clerks were the literate and numerate employees of many private firms. They probably acquired specialized business skills in a private business schools, and participated in an internal U.S. migration pattern going from rural to urban areas. Finally, it seems that they mostly lived and worked in Northern cities, at a time when the Northeast of the U.S. was the leading industrial and economic region.

Reality was a bit more complicated, of course. If we consider evidence about public school curricula, we see that at the end of the 19th-century more than half (56.3%) of all high school students were taking algebra, and almost half (42.1%) were taking English. These two classes alone would have taken care of the "reading, writing and arithmetic" core that supplied basic literacy and numeracy to people who had taken some high school. Furthermore, knowledge of simple numerical recipes, like the ever-useful "rule of three," seems to have been widespread (Rosenthal, 2017). But courses specializing in clerical skills were less common. As late as 1921, only 12.6% of high school students were enrolled in a bookkeeping class, while only slightly more (13.1%) were in a typing class (Carter 2006, Table Bc115–145). Even given commercial schools and libraries, it is hard to know how widespread were the skills that clerical work required.

Zakim refers repeatedly to Bartleby the Scrivener (and who can blame him?), from Herman Melville's famous short story about a Wall Street clerk, published in the early 1850s. If this decade can serve as a convenient marker, what do we know about employment, education and residence that would have created this distinctive group? To begin, in 1860 less than 20% of the U.S. population lived in urban areas. The U.S. was still an overwhelmingly rural society (Carter 2006, Table Aa36-92). Among white males aged 5–19 years old in 1860, 62% were enrolled in school, ensuring, it seems, an ample supply of young men with at least some formal education. At the same time, school enrollment rates among young white women were almost as high (57.2%), which suggests that the female population possessed comparable educational qualifications and could perform clerical work, if given the opportunity (Carter 2006, Table Bc438–446). Furthermore, the proportion of private commercial school students who were female rose from 4% in 1871 to 28% in 1890, suggesting that women were increasingly interested in becoming qualified to join the clerical workforce (Weiss, 1981, p. 411).

Making the world is heavy labor, so how many clerks were there to shoulder the burden? Certainly there were quite a few on the island of Manhattan in 1855 (Luskey, 2004, p. 681), but New York City was extremely atypical. Looking further afield we might expect to find lots of clerks in the wholesale and retail trades. How big were these sectors of the economy? Nationally, they employed roughly 885,000 people in 1869, although only around 400,000 of those were actually employees rather than business proprietors (Carter 2006, Table De1-13). If we look at employment among white males aged 16 or older, in 1860, 44,880 were classified as clerical workers, or less than 1% of that demographic group. By contrast, over 37% of the white male population were still farmers. Clerks may have been a common male occupation in Manhattan, but they were very rare across the entire U.S. economy (Carter

2006, Table Ba1075-1088). Indeed, farmers were more numerous than clerks until 1960. And there were many more professionals, proprietors, craft workers, operatives and laborers than there were clerks. A more detailed classification (Carter 2006, Table Ba2002-2238) reveals in 1860 few accountants, auditors, credit men, bookkeepers, cashiers, shipping and receiving clerks, or other occupations that might do the clerical work Zakim discusses. Of course, over time all this changed, and clerical workers became much more common. By 1910, for example, there are more than a million white male clerical workers. But by this time, two other big changes also occurred that complicate Zakim's portrayal: offices and clerical work became mechanized, and they were feminized.

Various new arts of mechanical reproduction and storage helped to automate some of the clerical work operating on words and numbers (Yates, 1989). Clerks spent a great deal of time making copies and writing out text by hand. The typewriter was quickly adopted by offices as it made possible the rapid mechanical production of highly legible text. The Mercantile Agency, predecessor of R.G. Dun, immediately perceived the value of typewriters for paperwork and placed an initial order for 100. Soon it owned 1500 of these "writing machines" (Foulke, 1941, p. 374, Wiman, 1893, pp. 162–63). Many other firms with high volumes of clerical work recognized the virtues of the typewriter and acquired their own (Wootton & Kemmerer, 2007, p. 98). Generally speaking, U.S. firms were more aggressive adopters of new office technology than their English counterparts (Broadberry & Ghosal, 2002), and embraced duplicators, copypresses, stenotypes, paper cutters, letter folders, letter openers and other devices the better able to create and process paper records. Adding and subtracting numbers is tedious and painstaking work, and so offices also enthusiastically welcomed comptometers and other types of adding machines (Wootton & Kemmerer, 2007, p. 100). Finally, offices shifted away from bound volumes and toward loose leaf paper that could be placed into vertical files, and organized and stored in various ways. This created the possibility to achieve on a larger scale what the tabular array could do on a single page: extract information from its original context and recombine to achieve some analytical or organizational purpose (Robertson, 2017, p. 958). It turns that filing and paper-shuffling can be a form of cognition, too.

Starting at about the same time that offices were mechanized, they became increasingly feminized as well. Self-making men were supplanted by large numbers of young women, who soon came to dominate particular office-based occupations, like typist, stenographer, and secretary. The division of labor within offices became more differentiated, and with automation some tasks were "de-skilled." This engendered a pattern whereby office management positions were assumed by men, and women employees (often unmarried by virtue of marriage bars) dominated lower office positions (Strom, 1989). The total of clerical positions grew dramatically between 1870 and 1940, but equally dramatic was the growing proportion of female clerks (England & Boyer, 2009: Fig. 1). For only a brief time was clerical work "man's work."

Zakim's clerks look and act like northerners, which makes sense given that in the post-bellum period the victorious Union was politically and economically dominant. Southern cities were smaller, the south in general was more rural, and the regional economy had been shattered by the Civil War and abolition of slavery. Yet Rosenthal's (2018) recent book suggests that a great deal of clerical accounting work occurred in the ante-bellum South, as part of the organization and management of large-scale slave-based production of cotton and sugar. She argues, in particular, that plantation managers were able to develop sophisticated accounting concepts in the context of slave production, well in advance of northern industrialists and merchants, with detailed measures of productivity, value, and capital depreciation (Rosenthal, 2018, pp. 50, 94, 127, 155). Southern plantations relied on elaborate sets of accounting books and pre-printed forms, and this enabled absentee owners to observe, at a distance, how production fared. An inclusion of the slave South, or the post-bellum Southern debt peonage system, would both broaden and complicate Zakim's analysis of clerical work.

Zakim's emphasis is placed on the textual and visual information that can be put on paper. And indeed, that is the primary medium for most clerical work. But recently, scholars have noted the importance of the oral-aural medium, and how it differs from visual information, whether textual or not (Bento da Silva, Llewellyn, & Anderson-Gough, 2017; Quattrone, 2009). The trails that paper creates are a mixed blessing, especially when things go wrong and someone is potentially liable. Hence, attitudes toward written records could be distinctly ambivalent. Nineteenth-century mercantile agencies, for example, created large clerical operations to produce credit reports and ratings on a national scale, and were very mindful of the difference between written and oral communication, even though they were massively dependent on paper records. R.G. Dun, perhaps the foremost such firm, encouraged its customers, to whom it supplied credit ratings and reports, to visit its offices in person for a verbal report about a firm of interest (Lauer, 2008, p. 319). Oral communication left no durable trace, and Dun was less likely to be sued for libel or defamation by those unhappy with the content of the credit report (Cohen, 2012, pp. 75–77). Later, as Dun sought financial information directly from the firms it was rating, it pressured them for written statements, preferring these to verbal self-reports made by a firm's proprietor (Cohen, 2012, pp. 52–3, 312, 582, Madison, 1974, p. 172). This example reminds us that some critical clerical tasks involved word-of-mouth rather than paper communication, and that the development of business methods did not simply engineer an oral-to-written transition. Word-of-mouth remained a useful way to administer capitalism.

I offer these extensions and qualifications not to criticize Zakim's book, but to suggest ways in which his provocative analysis might be developed further. There is an important gender angle to clerical work, and the same process of mechanization that raised productivity in the steel mill also had its effect on business information processing. Zakim's core insight is an important one: clerks and other similar people, laboring in obscurity in back offices, perform critical work that enables the modern market economy to function. They are not heroic captains of industry, nor do they fit popular images of "productive" or "valuable" labor. Mostly, their impersonal activities are mocked as creating the "red tape" that obstructs decisive action. But in fact, clerical work, or paper work, creates the connective tissue that holds together much larger collective enterprises. The information they fashion guides decisions and makes a complex economy interpretable and tractable, not in an absolute sense, but in a pragmatic one. Paper work allows others to proceed, knowing that some part of the social world has been made predictable and knowable, with i's dotted, t's crossed, and in triplicate.

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Bruce G. Carruthers[a,b]
[a] Swedish Collegium for Advanced Study, Sweden
[b] Department of Sociology, Northwestern University, USA
E-mail address: b-carruthers@northwestern.edu.

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