Developing a socioeconomic measure of the changing occupational status of British accountants in the nineteenth century

Submitted by

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Statement of authorship and sources

I hereby declare that this submission is my own work and that, to my best knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of a university or institute of higher learning, except where due acknowledgement is made in the text.

I also declare that the intellectual content of this thesis is the product of my own work, even though I may have received assistance from others on style, presentation and language expression.

(Signed)……

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Abstract

The history of accountants, accounting firms and their representative bodies has been thoroughly researched and documented. Universally these studies cite nineteenth-century Britain as the birthplace of accounting as a unique occupational classification. As a result, Scotland, England and Wales have been widely recognised as critical sites for the professionalisation of the discipline world-wide.

What is evident from a review of the literature is that studies of the professionalisation of British accounting have been predominantly based on anecdotal or qualitative evidence. Only in recent times have there been attempts made to gather and critique quantifiable evidence of accounting's social evolution. The publication of such studies, based primarily on nineteenth-century census and enumeration data, has often inspired accounting historians to both revisit, and sometimes reassess, their perceptions of accounting's socio-historic journey.

The few quantitative studies that exist tend only to examine specific (and relatively brief) periods of nineteenth-century accounting history. Given the extended temporal nature of the professionalisation process, it is the view of the current study that the development of valid, empirical time-series data would facilitate a more comprehensive analysis, and thus understanding, of the social elevation of accounting as an occupation. However, no such data has been available to accounting historians.

A preliminary investigation has identified a number of empirical metrics that have been developed and applied by sociologists to both conceptualise and measure an occupation's social status. The status measures developed by these studies have proven valuable tools in the investigation of many social phenomenons. Unfortunately these measures have not been developed, or applied, by socio-historians and as a result occupational status data exists only for periods of the twentieth century.

Motivated by the scarcity of nineteenth-century empirical information pertaining to occupational status and encouraged by the potential application

of these status metrics, the present study has sought to identify, adapt and apply an appropriate, comparable measure of occupational status to the nineteenth-century English (and Welsh) occupational hierarchies. The study then uses this data as a means of generating specific measures of the occupational status of accountants as they emerged to form professional accounting bodies in England and Wales.

No accounting study has attempted to develop and validate a retrospective measure of occupational status for the discipline during this formative period of the group's history. More broadly, no sociological study has attempted to develop and validate a retrospective measure of social status using contemporary data for any occupational group during the nineteenth century, in Britain or in any other geographical location. This study has undertaken these onerous tasks. The result of this study is the provision of decennial socioeconomic scores for each of the ten periods from 1821 to 1911 for thirty-six occupational cohorts within the English and Welsh occupational hierarchies.

The socioeconomic scores developed by the present study provide a series of data points that have been used to graphically represent the occupational status for each of the nominated occupational classifications. The study introduces these *Socio-Economic Trend-Lines (or Set-Lines)* to illustrate the evolving social position of both the elite and non-elite cohorts of the accounting discipline during this important period in the discipline's history.

Given the significance of nineteenth-century Britain to scholars of the accounting history (and to social historians in general), the development and validation of these socioeconomic scores (and their subsequent graphical representation) may provide vital insights into the professionalisation of accountants (and other disciplinary groups) during this period. For example, a valid measure of the changing occupational status of the accounting discipline may be applied to a variety of future longitudinal studies.

These potential applications include (but are not limited to):

Event analysis: the socioeconomic score developed as a result of the current study can facilitate the empirical investigation of the impact on the occupational status of accountants of a number of events that have been tra-

ditionally cited as significant to the professionalisation of the accounting discipline. These events include: the establishment of the first (regional and amalgamated) professional accounting bodies; the introduction of influential British commercial and bankruptcy legislation; and substantial capital investment in a number of influential industries such as rail transport.

Inter and intra professional analysis: the scores developed as a result of the current study will facilitate comparative empirical studies of the changing relationships that occurred both within the accounting occupation, and between accountants and other professionals (such as lawyers and engineers) during this formative period.

Cross and intra-national analysis: subsequent studies may replicate the development of the occupational status scores provided by this study across other social and temporal locations and again facilitate comparative empirical studies of the professionalisation process. For example, the scores produced using the method developed by the current study facilitate a means of comparing the magnitude and rate of the changing social status of accountants across nineteenth-century Britain with twentieth-century sites of professionalisation, such as America or Australia. In addition, the method developed by this study could be applied to intra-national data so as to make possible the comparison of those regions within Britain associated with the professionalisation of the discipline during this period.

The view is taken in the current study that the development of occupational status scores provides a much needed alternative perspective on the professionalisation of accountants during the nineteenth-century in Britain and, as such, effectively establishes a new agenda for future research into the history of the accounting discipline.

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1.1.0. Introduction

Runciman asserts that "*(o)ccupations are the mechanism by which the influences of natural endowment, upbringing and education are translated into differences of wealth, power and prestige'* (1968, p.55). Occupations "*locate individuals in a social space, thereby setting the stage for their interactions*" (Treiman, 1977, p.1). The social status of an occupational group provides a differential symbol, indicative of that group's power[i] within a society, and thus its possession of certain privileged social entitlements (for example, Cattell, 1942; Weber, 1947; Dahrendorf, 1959; Caplow, 1964; Bendix and Lipset, 1966; Siegal, 1971; Johnson, 1972; Clegg, 1989). The status of an occupation may be ranked and thus positioned within an occupational hierarchy on the basis of the control it exerts over such entitlements (for example, Nam and Powers, 1983; Coxon and Jones, 1978; Caston, 1989, Ericson and Goldthorpe, 1992). Parkin states that such occupational order represents *"the backbone of the class structure …. of modern western society"* (1979, p.18). The perceived importance of the positioning of a professional discipline within an occupational hierarchy (as a conceptual tool) is confirmed by the long history of its application in a variety of social research settings (for example, Hodge, Seigal and Rossi, 1964; Domanski and Sawinski, 1987; Kunst and Mackenbach, 1994; Marmot, Bobak and Smith, 1995; Jones and MacMillan, 2001; Boyd, 2008).

The abundance of references in both sociological and accounting literature to the *profession* of chartered (or public) accountancy[ii] supports the view that, by the mid-twentieth century, internationally, the accounting discipline had joined those occupations that are accorded very high levels of social recognition and thus heightened status within most occupational hierarchies

(Treiman, 1977). Accounting's current elevated occupational ranking is said to be confirmed by:

> "*the number of people it employs, the size and pervasiveness of its public firms, the extent of its provision and use of educational and research resources, the degree of influence it has in relation to the state …… and economic rewards enjoyed by its members"* (Lee, 1991, p.193).

Nineteenth-century Britain is most often cited as the birthplace of the *modern era* of accounting[iii], and as such, it is identified as a critical period and site for the *professionalisation* of the accounting discipline world-wide (see, for examples, Larson, 1977; Abbott, 1988; Willmott, 1986; Jones 1981; Lee, 1996; McClelland, 1961).

The impact of the process of professionalisation of the British accountant on the occupational status of accounting internationally, is confirmed by both the international accounting literature (Ansari and Bell, 1985; Arpan and Radebaugh, 1985; Choi and Bavishi, 1982; Choi and Mueller, 1978; Gray, 1988; Nair and Frank, 1980[iv]) and local accounting history literature (for Australian examples see, Carnegie, 1993; Carnegie and Edwards, 2001; Chua and Poullaos, 1993, 1998 & 2002; Poullaos, 1993 & 1994; Parker, 1961; for Australian and New Zealand examples see Velayutham and Rahman, 2000).

As a result, the history of accountants, accounting practice and accounting firms in the United Kingdom has been particularly well-documented (see, for example, Brown, 1905; Alludred, 1980; Begbie, Robinson, Cox and Knight, 1937, Garret, 1961; Grace, Darbyshire and Todd, 1957; Hopkins, 1980; Habgood, 1994; Jones, 1981 & 1995; Institute of Chartered Accountants in England and Wales, 1965 & 1980). The large number of studies focusing on this era of accounting history is an acknowledgement that an understanding of the elevation in the social status of the accounting profession in general is contingent on an understanding of the *process* of professionalisation undertaken by accountants in nineteenth-century England and Scotland. As a consequence both critical and functionalist studies have attempted to retrospectively identify and analyse the changing context and sequence of events (including the actions of both individuals and groups) associated with

the social transformation of the accounting discipline within this social and temporal location.

Historical studies cite anecdotal evidence that suggests a small group of individuals, applying, what may now be described as, the *accounting knowledge set*, were accorded the benefits of heightened social recognition from as early as the late eighteenth century in Britain (Cornwell, 1991 & 1993; also see Armstrong, 1985 & 1987; Kedslie, 1990; Walker, 1988 & 1991 & 1993). These studies have linked *gentleman accountants* (the eminent practitioners of the period) to the social, political and economic establishment of both England and Scotland from the early nineteenth century. However these studies also suggest that this elevated social status, was limited to specific individuals and may not be representative of all those who may be (loosely) defined or identified as *accountants* from that period (see for example, Cornwell, 1991; Kedslie, 1990; Brown, 1905; Walker, 1995 & 2002 & 2004; Jones, 1981 & 1995; Woolfe, 1912; Worthington, 1896; Stevens, 1981; Edwards and Walker, 2007).

Accounting historians frequently point to the significant changes (all associated with the British industrial revolution) that occurred to the legal, economic and social environment as providing an incubator for the further empowerment and subsequent expansion of the discipline (see, for example, Barnes and Firman, 2001; McCartney and Arnold, 2002 & 2003; Mitchell and Sikka, 2004; Edwards, Anderson and Chandler, 2005 & 2007; Anderson, Edwards and Chandler, 2005. Appendix 2 of this study contains a more comprehensive discussion of these events). These studies suggest that as a consequence of these environmental changes, and in concert with the actions of those within the discipline, a significant growth in the demand for accounting services occurred in nineteenth-century Britain. With the increasing economic opportunities this changing environment offered, the educated (predominantly sons of the) British middle-class, sought to join the ranks of the accounting discipline thus signalling the elevation of its social standing (Jones, 1981 & 1995).

Initially this unprecedented demand for accountants is reflected in the substantial premiums that could be extracted for accounting (and related

clerical) apprenticeships at that time (Mitchell and Sikka, 2004; Schwarz; 2004). The eventual granting of a *Royal Charter* is most often cited as confirmation of the social success of the discipline and names such as Fredrick Whinney, John and Alexander Young, William Cooper, Samuel Lowell Price (and brother, Charles Price), Edwin Waterhouse, William Welsh Deloitte, and the firms they established, have remained a recognisable presence around the world over a century later.

Accounting history literature however reflects both positive and negative representations of the social standing of the accounting discipline (as a single, identifiable occupational group) and thus confirms it was not universally accorded elevated social status across Britain[v], neither before nor after the attainment of Royal Charter in 1880. For example, throughout the nineteenth century, accounting practitioners were variously described as a *swarm of pettifoggers* that *have no acknowledged status* or *men of small standing*[vi] (Walker, 1995 & 2004) and most notably as *a group of ignorant men called accountants* (Justice Quain's now infamous and much quoted 1875 description of the entire discipline). Even from within the discipline itself eminent practitioners, such as Fredrick Whinney and William Cooper, questioned the validity of comparisons between accounting and the *old professions,* suggesting that accounting was really a *second tier* occupation for the majority of the nineteenth century (Brief, 1954; Jones, 1981).

British census classification schemes throughout the nineteenth century do not group accounting with the then established professions (law, clergy or medicine) and thus appear to confirm the perceptions of Whinney and Cooper, even after the establishment of professional representation and the granting of Royal Charter (Booth, 1886; Routh, 1987; Kirkham and Loft, 1993; Glenn and Feldberg, 1977). Walker states that the discipline was generally considered part of the *commercial*, rather than professional classes for much of this period in British social history (2002).

Yet by the early decades of the twentieth century the *British Registrar General's Scale* (a government measure of occupational status) classifies accounting among the professions, differentiating it from related social functions such management or clerical occupations (Kirkham and Loft, 1993 &

1996). By the second decade of the twentieth century there were even calls for eminent professional accountants to receive knighthoods for their contribution to British society during the First World War (Loft, 1988 & 1990 & 1994).

These contradictions in the perceived social standing of the entire accounting cohort as indicated by the conflicting contemporary commentaries and anecdotal evidence obtained from a variety of sources[vii] have heightened conjecture about the factors influencing the rise of the profession. As a result much academic inquiry has sought to identify both the endogenous and exogenous factors (and therefore also locate the chronological periods) most closely associated with the accounting disciplines' eventual success in acquiring heightened occupational status[viii] (see, for example, Booth and Cocks, 1990; Briloff, 1990; Buckley, 1978; Burns and Haga, 1977; Carey, 1968; Dyckman, 1974; Most, 1993).

For example, both functionalist and critical studies have debated the evolving application of the *accounting knowledge set* with regard to its role in the process of professionalisation. Conflicting studies suggest that its characteristics may have both promoted and constrained the social elevation of the accountant[ix] at different points in the discipline's history (Blau, 1979; Freidson, 1986; Goldstein, 1984; Lee, 1989; Lyotard, 1985; Hines, 1989 & 1991; Baer, 1986. Appendix 1 contains a more comprehensive discussion of the role of accounting knowledge and the professionalisation of accountants).

In addition, several studies have examined relationships between accountants and other disciplinary groups, and within the accounting cohort itself, highlighting the impact these relationships have had on facilitating broad social recognition for *accounting* and *accountants* during the nineteenth century. For example some studies have focused on the relationship between the legal profession and the accounting discipline (Larson, 1977; Willmott, 1986) while others have examined the relationship shared by the *elite* and *non-elite* clerical sub-groups within the accounting cohort (Kirkham and Loft, 1993 & 1996; Anderson, 1976 & 1988).

Alternatively the ongoing social re-evaluation of accounting and accountants has often been linked with a number of socioeconomic events al-

lied to industrialisation and, in particular, the British Industrial Revolution. For example, British studies, at local, regional and national levels, have identified the development of the corporate structure (Hill, 1979; Barnes and Firman, 2001; Dubrois, 1971; Coombs and Edwards, 1996; Morris, 1993; Moore and Gaffikin, 1994); the development of railway companies (Pollins, 1956; Gourvish, 1973 & 1988; McCartney and Arnold, 2002 & 2003; Bryer, 1991); the introduction of corporate and bankruptcy legislation (Pixely, 1896 & 1897; Hein, 1978; Napier and Noke, 1992; Jones and Aiken, 1995; Edey, 1956; Edey and Panitpakdi, 1956; Gower, 1969; Duffy, 1985; Bryer, 1998) and the politics associated with the establishment of professional representation (Mitchell and Sikka, 2004; Edwards, Anderson and Chandler, 2005 & 2007; Anderson, Edwards and Chandler, 2005; Walker, 2004; Willmont, Puxty and Cooper, 1993) as all being pivotal in the social advancement of the accounting discipline. (Appendix 2 of this study contains a more comprehensive discussion of these events).

These studies indicate that the social elevation of accounting occurred over an extended period and that those events and actions cited above may have either accelerated or retarded the changing social standing of the discipline. Importantly, the conflicting perspectives, and therefore competing explanations of the professionalisation process, indicate the discipline's path to enhanced social recognition could not be described as *monotonic*. Hence different studies have identified pivotal periods throughout the nineteenth century through the identification of *intrusive* events (either inter or intra disciplinary or caused by the environment) that have stimulated either an increased or decreased rate of systemic change to the social status of the accounting discipline (see, Jones, 1981; for change analysis discussion, Smith, 1976).

Without a basis upon which to determine the rate at which the occupational status of British accountants changed over the nineteenth century it is virtually impossible to attribute causation (or even levels of association) to these intrusive events and the discipline's emerging professional status. While significant empirical evidence is available for the entire nineteenth century pertaining to factors such as the development of the railways (for example, Hawke and Reed, 1969), corporate expansion (for example, Todd, 1932)

and liquidations and/or insolvency rates (Phelps-Brown, 1936; Shannon, 1933) research is constrained by the limited empirical data available about the social attributes of the accounting discipline for this period. Napier (1989, p.241; also see Napier, 1998), for example, originally identified the problems in understanding the development of accounting and the accounting profession "*that result from the scarcity of quantitative evidence*".

A review of the current literature confirms that our understanding of this pivotal period of disciplinary history has been dependent upon the development and application of only limited empirical data sets. As a result most accounting histories have been based on anecdotal or qualitative evidence obtained from a variety of primary and secondary sources. These archival sources include accounting firm histories (for example, Cooper, 1921; Institute of Chartered Accountants in Scotland, 1954; Jones, 1981; Howitt, 1966; Kettle, 1982; Letts, 1980; Cooper and Robinson, 2007; Edwards, 1986 & 1989); London and regional trade directories (for example, Goss, 1932; Edwards, Edwards and Matthews, 1997, Norton, 1950); British Government Parliamentary proceedings and reports (for example, Markham-Lester, 1995; Bryer, 1998; Hein, 1978) and the historic records maintained by representative accounting bodies throughout the United Kingdom (for example, Boys, 2004; Institute of Chartered Accountants in England and Wales, 1965 & 1980).

As little other quantifiable data exists much reliance has been placed upon the data derived from accounting firm histories (Jones, 1981; Matthews, Anderson and Edwards, 1998). These provide some (relatively) complete empirical, time-series data (earning/profit, numbers of employees etc) and when applied in conjunction with the incomplete data available from the surviving records of other individual practitioners (for example, Cornwell, 1991; Walker, 1993) a basic interpretation of the changing social status of these elite accountants can be ascertained. However these data are not representative of the whole accounting discipline and as Sobek reminds and warns us:

> "*historical records rarely present researchers with precisely the evidence they desire. This is particularly true for social historian and like-minded scholars, whose subjects left precious few signs of their passing. Con-*

sequently, certain data have borne a disproportionate evidentiary load in socio-historic research" (1996, p.169).

In more recent studies, British census and enumeration data in concert with alternative methods of investigation have been used to extend the quantitative approach to the description of the social evolution of the British accountant (for example, Walker, 2002). However the majority of these data relate only to the second half the nineteenth century and have been predominantly descriptive in their application. Irrespective of its limitations, the combination of firm and census data has provided a strong base from which accounting historians have been able to interpret and describe the context and process of accounting professionalisation. However, while the search for new historical information continues, the reformulation and re-evaluation of existing primary and secondary data, using different sources and techniques of analysis (often used by other disciplines) provides significant scope for furthering our understanding of the professionalisation process.

To enhance our understanding of the social emergence of the accounting discipline we should seek to examine both the existing and any emerging data through a variety of disciplinary *lenses*. Over a decade ago, Miller, et al., argued that accounting historians needed to continually draw upon techniques from a wide *"variety of disciplines including anthropology, economics, history of science, organisational theory and sociology"* to further develop their understanding of the emergence of professional accounting and accountants (1991, p.396). Similarly, Freidson emphasised the need to identify "*the empirical instances of individual occupations*" (rather than just the construction of a general meta-theory) to truly assist in the analysis of the social standings of all occupational groups (1983, p.26).

What is evident from a review of the accounting history literature is that it is only recently that attempts have been made to gather and critique quantifiable evidence of the changing social status of accountants in Britain during the nineteenth century and there is still a need to subject it to some form of empirical analysis. Social sciences, such as sociology and anthropology, have long histories of developing and applying empirical research methods to the study of occupational status within populations (Counts, 1925; Reiss, 1957;

Duncan, 1961; Featherman and Hauser, 1976; Blua and Duncan, 1967; Treiman, 1977; Nam and Powers, 1983; Coxon and Jones, 1978; Caston, 1989, Ericson and Goldthorpe, 1992), yet these techniques have not been applied to the accounting profession.

The current study was motivated by an observed gap in the analysis of existing data available to explain the emergence of the accounting profession in nineteenth-century Britain and seeks to identify, adapt and apply relevant conceptual tools, used by social scientists, to measure the occupational status of accountants as an aid to facilitating greater understanding of the elevation of accounting's occupational status.

While wishing to provide a holistic benchmark of the social standing of accountancy, the current study accepts Walker's view that geographic differences "*render inaccurate general assertions concerning the occupational status of British accountants*" (1988, p.52). As a consequence, this study seeks to develop status measures for English and Welsh accountants, and thus omits both Scottish and Irish representation from its results. In addition, while also acknowledging the confounding effect of the spatial differences observed between regional cohorts across England and Wales on the representativeness of a *generic* measure of accounting's social standing, the current study is based upon a combination of metropolitan and provincial occupational data.

The underlying rationale for the usage of aggregate English and Welsh data as representative of British data resides in the study's desire to provide a series of empirical reference-points that reflect the evolving societal standing of all those within the broader accounting populace who were socially impacted upon by accounting events, such as the afore-mentioned enactment of English commercial and bankruptcy legislation and the eventual formation of a unified *Institute of Chartered Accountants in England and Wales* (ICAEW). This study contends that the initial provision of an *aggregate English* measure will offer a series of benchmarks from which longitudinal and contextual comparisons maybe made with future measures of status obtained for individual regions within Britain and across collective national cohorts and is thus a conceptually important, albeit initial, step in this process. As a result

the provision of time-series data for Scotland, Ireland and the regional deconstruction of the English and Welsh data must await future research.

It must be noted that it is not the goal of this study to provide another detailed history of the professionalisation of the *British* accountant, nor is it concerned with the resolution of the underlying ambiguities that are said to persist in the characterisations of professions in general[x] (Abbott, 1988, pps.3-9), and nor does it purport to reconcile the alternative and often competing perspectives of the events that occurred during this era in accounting history[xi]. The continuing conjecture about the factors influencing professional recognition, in concert with the acknowledged success of English and Welsh accountants in acquiring a heightened occupational status, has provided and will continue to provide the stimulus for ongoing research into both the context and processes involved in the occupation's social elevation. Hence there will be a continued demand for both new data and alternative methods to better inform any future academic inquiry. Therefore the major goal, and contribution, of this thesis is to identify, adapt and apply an appropriate metric that can be used to explain the evolving occupational status of English and Welsh accountants across the nineteenth century. This will provide an additional source of understanding to accounting historians when they undertake longitudinal studies of the development of the accounting profession in Britain.

1.1.1. This study

A preliminary investigation identified a number of empirical metrics that had been developed by sociologists during the twentieth century to conceptualise and measure an occupation's social status (For example, Reiss, 1957; Duncan, 1961; Featherman and Hauser, 1976; Nam and Powers, 1983).

This study will seek to retrospectively adapt and employ the most appropriate of these measures to the accounting discipline to develop specific measures that could provide insight for and assistance to those researchers wishing to further examine the emergence of '*professional*' accountants within the context of nineteenth-century Britain.

The research questions addressed by this study are as follows*:*

Given the limitations imposed by the incomplete nature of the primary and secondary archival dataset available, the following questions are posed for study:

- *Can a valid measure of the relative occupational status of the accounting discipline within the temporal and social location of nineteenth-century Britain (England and Wales) be identified?*

If such a measure can be identified:

- *Can the measure identified be adapted to quantify the changing occupational status of the accounting discipline within the temporal and social location of nineteenth-century Britain (England and Wales) through the construction of a sequence of occupational status measures?*

Given the significance of nineteenth-century Britain, specifically England and Wales, to the professionalisation of the accounting discipline:

- *Can the resultant sequence of occupational status scores be applied to demonstrate and explain both the relative rate of change and the magnitude of the changes that occurred to the occupational status of the accounting discipline within the temporal and social location of nineteenth-century England and Wales?*

The outcomes of this study will be:

- The construction of a sequence of valid occupational status scores for English and Welsh accountants based upon each of the decennial census dates throughout this formative period of accounting history;

- To provide justification for the occupational status scores of the English and Welsh accounting discipline;

- To quantify both the rate and magnitude of any incremental changes in the occupational status of the emerging English and Welsh accounting discipline during the nineteenth century;

- To recognise and discuss the limitations inherent in the retrospective development and application of occupational status scores;

- To identify potential future studies where such occupational status scores may be applied;

1.2.0. Occupational status

Different occupational roles are socially defined by particular attributes (see for example, Durkheim 1893 & 1904; Dahrendorf, 1959; Rueschemeyer, 1983; Reader, 1966; Parsons, 1937 & 1951 & 1964; Millerson, 1964; Mautz, 1983 & 1984; Loeb, 1978; Greenwood, 1957; Krause, 1971). Social and economic structures, inherent in complex societies, facilitate a collective consciousness shared by all social participants that enable them to differentiate and rank the social status of diverse occupational roles on the basis of the inequalities of these attributes (see, for example, Counts, 1925; Warner, 1960; North and Hatt, 1947; Mills, 1959; Hodge, 1981; Runciman, 1968; Klatzky and Hodge, 1971; Featherman, Jones and Hauser, 1975; Jencks, Perlman and Rainwater, 1988; Rytina, 1992; Hatman, 1979; Hatt and Reiss, 1957; Hatt, 1950; Hall, 1968, Johnson, 1986; Oldman and Illisely, 1966).

The discipline of sociology has developed a number of conceptual measures and scales that can be employed to represent the social status of occupations and occupational groupings (these metrics will be discussed in the following section). In sociology, the measurement and ranking of *occupational status* has become a core sociological tool with a long history of application across a variety of social settings (Alexander, 1972; Blaikie, 1977; Kahl, 1957; Reiss, et al., 1961; Congalton, 1962; Hodge, Seigal and Rossi, 1964; Slocum, 1966; Spaeth, 1979; Blishen, 1958 & 1967; Domanski and Sawinski, 1987; Boyd, 2008).

The resultant occupational status scores and indices have been widely used in the analysis of many social phenomena involving occupational groups and occupational structures (Davis and Olesen, 1968; Seigal, 1970; Broom, Duncan-Jones, Jones and McDonnell, 1977; Powers and Holmberg, 1978; Mutcher and Poston, 1983; Friedlander, Schellekens, Ben-Moshe and Kaysar, 1985; Ganzeboome, Treiman and Ultee, 1991; Erikson and Goldthorpe, 1992; Kunst and Mackenbach, 1994; Marmot, Bobak and Smith, 1995; Jones and MacMillan, 2001, also note Grusky and Van Rompaey, 1992; Townsend, Davidson and Whitehead, 1990).

Within the sociology literature, two dominant and highly correlated approaches have emerged to quantify the status of occupations within a nominated social setting. Each measure has been widely accepted as reliable, valid and highly indicative of this social construct (Featherman and Hauser, 1976).

The first approach conceptualises status as the subjective perception of social participants and provides a measure based on inequalities of the perceived *prestige* of an occupation (Counts, 1925; Goldthorpe and Hope, 1972 & 1974; Daniel, 1983; Congalton, 1966; Treiman, 1977; Bose and Rossi, 1983; Caston, 1989; Coxon and Jones, 1978; Haller and Bills, 1979).

The second approach conceptualises relative status as the reflection of inequalities in the *socioeconomic* standing of an occupational group and provides a measure based on the receipt of scarce social and economic resources (Edwards, 1933; Duncan, Featherman and Duncan, 1972; Hauser and Warren, 1997; Blishen, 1967; Mueller and Parcel, 1981; Boyd, 2008; also see Carchedi, 1977 re: economic attributes of social class).

As both *prestige* and *socioeconomic* measures have been widely accepted as valid indicators of the social status of an occupational group, the following sections assess the individual strengths and weaknesses of both measures within the context of their application to this study.

1.2.1. Prestige scales

Measures of perceived or subjective *occupational prestige* are ascertained by directly surveying individuals according to their own perceptions of the relative social status of an occupation. Respondents are simply asked to rank or rate occupations (from a predetermined list) according to their perception of the incumbent's social standing. Hodge states that *occupational prestige* measures are well-defined and have an established history of usage within social stratification theory, thus allowing researchers to apply such scores with high levels of confidence[xii] (1981). Examples of the application of occupational prestige measures are abundant throughout the study of sociology (Inkeles and Rossi, 1956; Krause, Schild and Hodge, 1978; Lauman, 1966; Seigal, 1970). The results generated by these studies indicate that individuals from a number of national and cultural locations can rank or rate a large cross-section of occupations into a consistently uniform hierarchy (Treiman, 1977).

From a general perspective, Sobek points to the problematic retrospective usage of survey-based *prestige* data in historic studies, particularly suggesting that the selection of respondents and the questions asked has often impaired the method's utility in terms of its comparability to subsequent survey data. He states that while "*there are legitimate reasons to prefer prestige for some purposes; unfortunately, no one in the past thought to ask the right questions"* (1996, p.175; also see Smith, 1943).

As the objective of this study is to retrospectively attribute an occupational status measure to elements of the British accounting discipline *prestige* scoring must be assessed as to its appropriateness for this specific task.

An examination of past studies using measures of occupational prestige survey data reveals a long history. Treiman notes that:

> *"in the three decades since World War Two, there have been some eighty-five published studies of occupational prestige[xiii], ranging from the highly industrialized places such as the USA to traditional societies such as India, Thailand, Nigeria and New Guinea"* (1976, p.285).

Counts' US study based on data collected during the third decade of the twentieth century appears to be the first recorded application of a prestige survey-based approach to attributing occupational status (1925). Thus, irrespective of the benefits and limitations of measuring perceived or subjective occupational prestige, survey data unfortunately does not extend to nineteenth-century England or Wales, and given the retrospective nature of this study, employing prestige measures cannot be a viable approach to take.

Limitations caused by the incompleteness of survey data and the lack of retrospective data and thus the resultant difficulties associated with comparability (both cross-sectional and longitudinal) led to the development of the second, socioeconomic approach to assessing the relative social status of occupations.

1.2.2. Socioeconomic indices

The second approach provides a measure of social status based on an occupation's proportional receipt of social and economic resources. The ranking of occupations is based on the inequality of their *socioeconomic* standing when compared to other occupational groups (Stevens and Featherman, 1981; Stevens and Cho, 1985; Nakeo and Treas, 1992; Powers, 1982; Nam and Powers, 1968; Duncan, Daly, MacDonough and William, 2002).

Education was identified as a major indicator of the social status of an occupation's membership, while *earnings* data provided a key indicator of an occupation's '*economic status'* (Fogler and Nam, 1964; Stevens and Featherman, 1981). A variety of objective proxies for an occupation's social and economic attributes have been identified in the retrospective attribution of social status (for example, *mean wealth level* was used by Blumin, 1968; *imputed skills* was used by Griffen, 1972, also see Katz, 1972, and for accounting, see Walker, 2002).

Socioeconomic-based occupational status scores are usually derived from the weighted sum of a measure of educational attainment and a measure of income to give a composite measurement. Hodge questions the presumed uni-dimensionality (or *uncritical reductionism*[xiv]) of simply combining the two different constructs into a single socioeconomic measure of occupational status (1981). Loehr and Powelson, defend the use of these composite measures suggesting that if all the components of a phenomenon such as occupational status are independently measurable and are functionally related, as is the case with education and income, it becomes possible to construct a single value for any possible combined weighting of these individual components (1981). Loehr and Powelson, suggest that studies based upon such composite measures provide valid comparisons and thus rankings for individual occupations and that in circumstances where different occupational groups display different scores for both income and educational measures but yield the same composite value, the resultant socioeconomic score indicates equal socioeconomic status (1981).

Importantly for this study, the development of the socioeconomic method initially arose from the need to compensate for the incompleteness of prestige survey data. Reiss, et al., examined the *National Occupational Research Centre* prestige scales to ascertain their correspondence to certain socioeconomic variables (1961). The results indicated very high correlations between occupational prestige ratings and socioeconomic measures of occupational income and educational attainment[xv].

Duncan also developed an index that combined social and economic status in a way he believed could provide a substitute for *perceived* prestige ratings for the scores of missing occupations from past US census information (1961). Duncan's study provided the initial conceptual foundation upon which a number of hybrid prestige-based socioeconomic scales have since been developed (see for example, Stevens and Cho, 1985; Nakao and Treas; 1992). This approach combines measures based on occupational educational level, occupational income level and a weighting of each based on the known prestige standing of an occupation. Duncan used income and educational attainment levels to provide the regression estimates (derived from known occupational prestige survey results[xvi]) for the prestige weightings of those occupations not covered by available census data (1961).

Duncan's approach has proved to be a valuable analytical tool that provides occupational rankings for those occupations that were not included in the surveys from which prestige scales had been developed and thus has been used to develop complete datasets for comparative studies (see, Hollingshead, 1957, and for a counterview Sorensen, 1979; Nakao and Treas, 1992). As a consequence the method has been widely employed in the analysis of occupational stratification, differentiation and particularly occupational mobility (Blau and Duncan, 1967; Featherman and Hauser, 1976 & 1997; Treas and Tyree, 1979).

Duncan acknowledges that the original index could be improved for different research applications (1984). As a result it has been subsequently updated and modified on a number of occasions (Hauser and Featherman, 1977; Stevens and Featherman, 1981; Stevens and Cho, 1985; Nakao and Treas, 1992).

As no occupational prestige survey data exist for Britian in the nineteenth century the use of a Duncan-derived hybrid prestige/socioeconomic measure is not possible. However the high degree of correspondence between measures based on occupational income and education levels alone and perceived prestige identified by Reiss, et al., (1961) led to the development of purely socioeconomic indices using only measures of income and educational attainment. Such an approach provides a viable method for use in the present study.

Jencks provides a comprehensive analysis that differentiates pure socioeconomic indices from prestige-based scales (1990). He provides a framework for evaluating the debate about the extent to which pure socioeconomic occupational status measures can be regarded as valid proxies for prestige measures (also see, Featherman and Hauser, 1976; Hodge, 1981; Duncan, 1961). Conflicting views emerge because, while there appears to be a strong positive correlation between prestige and income as well as prestige and education across all occupations, there are discrepancies between the measures in the cases of individual occupations, which contradict any simplistic equating of *prestige* with income or education, or both combined (Hodge, 1981).

It appears that both measures of income and education are connected to the perceived social value of an occupation, but neither by itself reflects a subjective perception of prestige (Goldthorpe and Hope, 1972). For example, certain occupations are highly remunerated but only perceived as socially-valued by a relatively small and elite subsection of society and are thus not generally regarded as prestigious (For examples, the actuarial discipline is highly paid, but is not widely recognised as a prestigious occupation by those outside the upper echelons of the occupational hierarchy). Certain other groups with very high relative levels of education are also not universally recognised as socially valuable. (For example, university lecturers within certain disciplines and some classifications of scientists have high levels of education but disproportional low levels of perceived prestige). Alternatively, some occupational classifications with relatively elevated levels of prestige are not

universally well-remunerated or highly-educated, such as actors and other performers, who are outside the *star* category.

Goldthorpe and Hope suggest that respondents to surveys on prestige appear to assess occupations by their desirability (which is often a function of income levels and education attainment) and that resultant prestige scores are merely indicative of the generic status of occupations. They conclude that in studies of occupational mobility and related processes of status attainment:

> *"socioeconomic dimensions and socioeconomic scores for occupations are more central, and therefore are preferable over prestige scores"* (1974, p.220).

Featherman and Hauser agree, describing prestige survey results as "*error prone*" estimates of the underlying socioeconomic attributes of an occupation and should be used accordingly (1976, p.411).

Alternatively, Hodge questions the absolute meaning of the term *socio-economic*, its analytical status and application (1981). He suggests it is both vague and imprecise in its relationship to other concepts within stratification theory such as *class*, *status*, and *power*, arguing that *socioeconomic status* is a concept contrived for convenience. He however acknowledges that:

> "*whatever socioeconomic scales of occupational status measure more nearly governs the process of intergenerational occupational mobility and the entire process of status attainment than do the occupational differences in prestige scales"* (1981, p.410).

Krieger, et al., suggest that while both measures appear highly correlated in their resultant scores it should be remembered that each measures different aspects of an occupation's social status (1997). Their study stresses that the measures derived are associational not causal (Krieger, et al., 1997).

While socioeconomic scales constructed for the determination of occupational status have limitations, as is the case with all such measures, Warren, Sheridan and Hauser highlight the utility of socioeconomic measures cit-

ing their wide usage in published research (1998, p.5). Mueller and Parcel in reviewing the literature on socioeconomic status measures conclude that:

> "*there is considerable agreement that occupational based measures of socioeconomic status represent the most reliable and valid single measure of an individual's position on the economic, power and prestige dimensions*" (1981, p.15).

They confirm that sociology research has relied on, and continues to rely on, measures of socioeconomic status and its indicative relationship with occupational status.

Consensus has started to emerge in the stratification literature which confirms that composite measures of socioeconomic standing are now increasingly preferred over prestige scales for the purpose of ranking the social status of occupational categories where appropriate data is available (Featherman, Jones and Hauser, 1975; Featherman and Hauser, 1976; Treas and Tyree, 1979; Featherman and Stevens, 1982). The present study accepts that the application of socioeconomic scales to the measurement of occupational prestige before the mid-twentieth century will never be more than inferential. However, measures based on changing socioeconomic indicators (derived from both income and education data from the relevant period) should increase the ability of future researchers to draw valid inferences about the changing prestige of an occupational group, as the two constructs applied, income and education, are related to prestige (Sobek, 1995 & 1996).

Hauser and Warren suggest that the measure of socioeconomic status "*has the practical advantage because past as well as current occupations can be ascertained reliably, even by proxy"* (1997, p.178). The widespread use of socioeconomic scales (or derivations of them based on the availability, or more importantly, the unavailability of data) reflects the desires of socio-historians to *"convert census based data into a continuous variable suitable for ordinary regression"* (Sobek, 1996, p.175).

Sobek states that:

> "*it is not surprising that one of the sociologist's favourite tools, socioeconomic scores, is now percolating through the* [social history] *literature*…..[but warns of the dangers that face] *enterprising scholars* [who] *have attached modern socioeconomic scores to occupations in historical data* (1996, p.172)

He suggests that although such scores are "*powerful analytical tools"* it must be remembered that there has been insufficient empirical work undertaken to validate their application retrospectively to the turn of the twentieth century and earlier (1996, p.173; also see, Perlmann, 1985 & 1988; Model, 1988 & 1993; Landale and Guest, 1990; Chiswick, 1991; Abrams, 1982).

Cognisant of Sobek's (1996) warning, the major objective of this study is to create appropriate socioeconomic measures for the accounting occupation from data that is contemporaneous with the period under observation rather than retrospectively apply occupational status measures from later periods to the disciplinary groups of the nineteenth century. The present study adopts the position that, given the stated objectives of this study and the constraints introduced by the limited availability of contemporary data, socioeconomic scaling can provide a valid measure of the changing occupational status of the accounting discipline in England and Wales during the nineteenth century.

1.2.3. Nam-Powers measures of socioeconomic standing

To overcome the limitations of the aforementioned approaches, socio-economic scores developed using a method primarily developed by Nam (1963), [that were eventually called *Nam-Powers* scores], have become widely-used measure of occupational status (for example, Nam, Powers and Glick, 1964; Nam and Powers, 1965; Nam, LaRocque, Powers and Holmberg, 1975; Powers and Holmberg, 1978; Nam, Terrie and Schmertmann, 1994).

Nam, Terrie and Schmertmann briefly describe the *Nam-Powers* method stating that the occupational socioeconomic scores are originally obtained by:

> "*arraying the detailed list of census occupations for the labour force according to the median educational levels of the incumbents; arraying the same occupations separately according to the median income level of the incumbents; using the number of persons engaged in each occupation, determining the cumulative interval of the persons in each occupation for each of the two arrays, beginning with the lowest ranked occupation; and averaging the midpoints of the two cumulative intervals of occupants and dividing the total of persons in all occupations"* (1994, p.9).

The *Nam-Powers* method rates occupations on the basis of the average percentile of their members in the cumulative distribution of workers, when occupations are ranked by median education level and by median income level.

The *Nam-Powers* method is based solely on socioeconomic measures[xvii] obtained predominantly from census data. While the Duncan (1961) method uses regression to produce a prestige factor from survey data that is used as a weighting factor for income and education measures, the *Nam-Powers* approach arbitrarily assigns weightings to each variable equally. Although not dependent on any conceptualisation of prestige, when tested using relevant census data the resultant *Nam-Powers* scores correlate highly with the scales derived by applying the Duncan method (Nakao and Treas, 1992; Nakao, 1992).

Table 1.2.3. provides an example of the technique used to derive a *Nam-Powers* score. The score developed is assigned to the *typical* member of an occupation not any specific members. The *Nam-Powers'* measure gives an approximation of the percentage of a workforce who have combined levels of education and income below that of a particular occupation. Thus Table 1.2.3. indicates 86.5 per cent of persons in the workforce have educational and income levels below occupation 'B' (Nam and Boyd, 2004, pps. 330-331).

Table 1.2.3.: Notional calculation of *Nam-Powers* socioeconomic score

Occupation	Number of occupied persons	Median educational level cumulative interval	Educational Mid-point	Median income level cumulative interval	Income mid-point	Average mid-point	Socioeconomic score (average ÷ total population x 100
A	2	49-50	49.5	26-38	32	40.75	81.5
B	13	36-48	42	39-50	44.5	43.25	86.5
C	20	16-35	25.5	1-10	5.5	15.5	31.0
D	15	1-15	8	11-25	18	13.0	26.0
Total	50						

Hauser and Warren in critiquing the *Nam-Powers*' approach, focus on the issue of the arbitrary weighting of the two attributes, income and education.[xviii]. They caution that resultant scores *"are purely relative measures of standing that have no specific functional relationship to the actual levels of schooling or income in occupations"* (1997, p.193). However they do suggest that as such, *Nam-Powers* scores may prove to have advantages over alternative approaches when it is a '*relative*' score of socioeconomic status that is being sought[xix]. Advocates of this approach suggest that the inherently *relative* nature of this measure of socioeconomic status is a significant attribute of the *Nam-Powers* method in that, when applied appropriately, it yields socioeconomic measures that are more comparable across both time and occupational classifications (Haug, 1977; Powers, 1982).

Hauser and Warren point to variants of the *Nam-Powers* method that have been subsequently developed in response to variations in the datasets available to researchers in different social settings (1997). As a result of its inherent flexibility, this method or derivations of it have been widely employed

across a variety of spatial and temporal settings (Nam, Powers and Glick, 1964; Nam, La Rocque, Powers and Holmeberg, 1975; Powers and Holmeberg, 1978; Stafford and Fossett, 1991).

The *Nam-Powers* approach is applicable to the present study as the objective here is to determine the relative (rather than absolute) occupation status of the English and welsh accounting discipline over multiple decennial census periods and then compare the discipline's standing relative to other occupations across the nineteenth century to identify those periods during which the relative social standing of the accounting discipline changed. The comparability of socioeconomic scores provided using the *Nam-Powers* approach becomes an important advantage in achieving this objective. In addition, given the limitations imposed on this thesis by the retrospective and incomplete nature of the datasets available for nineteenth-century England and Wales, the flexibility offered by the *Nam-Powers* method again confirms its status as the one viable method for achieving this study's objective.

1.2.4. Temporal stability of occupation status

Sociological and economic studies spanning multiple census periods indicate that there is a high degree of stability in the relative status of disciplinary groups within the occupational hierarchies of a wide variety of nominated social locations[xx] over extended periods, irrespective of which measure of occupational status is employed (Davies, 1952; Kahl, 1957; Reiss, et al., 1961; Blau and Duncan, 1967; Goldner and Ritti, 1967; also see Penn, 1975; Stewart and Blackburn, 1975; Tyree and Smith, 1978).

Duncan suggests that *prestige* measures may be more stable over time than purely *income based* measures, which could be more susceptible to fluctuating market forces (1968, p.677). Treiman agrees but suggests also that the educational attainment measure (regardless of how it is obtained) is less volatile over time (and across locations) and therefore tends to dampen any change caused by any short-term volatility of income (1976, p.298). Treiman's view appears confirmed by the combined income and education measures of status (determined using the *Nam-Powers* method) display similar levels of stability to Duncan's *prestige* scores as time periods (Hauser and Warren, 1997, p.196).

In addition, Hodge found little change in the status of 118 occupations between 1940 and 1950 (1981). Hodge, Seigal and Rossi compared 90 occupations using census data from 1947 and 1963 and also confirmed that "*the overriding conclusion must be that the structure of occupational prestige is remarkably stable through time as well as space*" (1964, p.301). Nam and Powers examined the stability of the socioeconomic status of US workers involved in 500 occupations using Duncan's index between 1950 and 1960 (1968). Their study again found a high degree of overall stability and further confirmed the results of the earlier studies.

Treiman, in a landmark study, undertook a comparative analysis of occupational hierarchies from approximately 60 countries (1977). The data used reflected both contemporary and historic perceptions of the relative social value of various occupations. The results Trieman obtained indicated that all complex societies have fundamentally similar occupational hierarchies and

suggested that *occupational prestige* (as a measure of occupational status) was a major, stable, (often invariant) construct between different societies (1977, pps.1-5). While not the focus of the study, Treiman's results also supported the view that occupational structure remained relatively stable across time (1977)[xxi].

Sharlin in a review of Treiman's work challenged the assertion that occupational status was essentially invariant in nature (1980). He acknowledges the strong *gross* correlations between prestige scales over time and social location but questions whether they are due to strong relationships *at the extremes*. He states:

> "*in somewhat crude terms, doctors, ambassadors, and judges are always at the top, while ditch diggers, day labourers, and peddlers are near the bottom*" ..... *"unskilled jobs usually fall at the bottom* [of the occupational hierarchy] *while the difference between clerks and highly skilled artisans often varies*" across both time and social location (1980, p.119).

While acknowledging Treiman's attempts to address this issue [by finding the mean correlations between pairs of *blue* and *white collar* occupations in various social locations and at points in time] Sharlin suggests an alternative, more informative approach. He states "*one solution is to eliminate occupations simultaneously from both ends of the prestige hierarchy*" (1980, p.120). He then removes up to twenty-five percent of both the top and bottom ranked occupations, thus leaving the middle fifty-percent of occupations. He finds the correlations between countries across time drops significantly, depending upon location and time[xxii] (1980, p.120).

The studies mentioned above, although comparing census data from multiple surveys, do not appear to span sufficient periods to capture any significant change in the status of either an individual occupation or that of the overall occupational hierarchy. Slocum presented anecdotal evidence to support the view that significant changes to the status of certain specific occupations must occur, but over substantial periods of time, and suggested that stability of occupational status could not be assumed to be universal, citing changes in the perceived status of scientific occupations as evidence (1966).

Duncan, agreeing with Slocum, suggested that changes in occupational status do occur but only at *glacial speeds* (1968, p.677; also see Walsh and Buckholdt, 1970).

Even Treiman acknowledges that occupational status over substantial periods of time (one hundred years) cannot be claimed as absolutely invariant as: "*it is obvious that the contrary is the case. The relative status of particular occupations does shift substantially"* (1976, p.299). For example he suggests [even within the context of the limited occupational sample drawn from his application of a standardized scaling procedure] that the relative status of the medical and legal professions changed from the nineteenth century to the late twentieth century in the USA. He importantly notes (for the purposes of this study) that while this is a minor change in the context of studying the social mobility of an individual practitioner (as both occupational groups remained high status across the period) it is of significant importance in the study of those occupations themselves.

Sobek notes that US census data did indicate that from the later decades of the nineteenth century those occupations with large populations were relatively stable in terms of earnings but certain select, less populated occupations did *"change in economic status and require special considerations from researchers"* (1996, p.170).

Nam and Powers found that of the very small number of those occupations that changed slightly in social status between 1950 and 1960 the majority declined in social status (1968). They looked at the socioeconomic changes that underpin any occupational status revision and found that in each case these occupations had been affected by relatively smaller increases in both median education levels and income levels than other occupations. Conversely, of the few occupations that enjoyed relative increases in status, one had experienced a substantial increase in income only, two had enjoyed increases in education levels only, while the remaining occupation had enjoyed increases in both relative income and education levels (1968, p.164).

If we focus on the nineteenth century we find only limited attempts have been made to measure or determine the changing social status of occupa-

tions. One approach developed by Hershberg, et al., often referred to as the *Five Cities Study,* relied on the evaluation of occupational status by five prominent scholars who possessed specific and quite extensive knowledge of nineteenth century data about each of five US cities (1974). The five scholars were asked to independently rank occupations from each city on a scale of one to five. The results reflect a remarkable level of consistency between scholars and cities over time. Hauser extended the results, by highlighting the consistency between the Hershberg, et al., rankings and supporting data from the mid-twentieth century (1982).

Sobek in questioning the validity of the Hershberg, et al., results, states:

> "*how surprising is it that a group of late twentieth century scholars all exposed to modern census schemes and reading the same books, have come up with similar rankings of occupations or that those rankings are similar to contemporaneous ones? It would be startling if they had come up with anything different"* (1996, p.175).

A review of the British-based literature appears to confirm that no attempts to date have been made to replicate this approach in the British, nineteenth-century setting.

Sobek confirms that there is a lack of direct empirical research on occupational status change. He suggests that virtually all socio-historic studies ignore any, however subtle, movement of an occupation within the occupational structure[xxiii]. He states that:

> "*the farther back in time researchers go, the more they rely on occupations as the main indicator of status, class or well being. Although, occupation may be a reasonable indicator of social standing for most people in the past (for adult men at least), what is often missing from analysis is an appreciation of change over time"* (1996, p.171).

1.2.5. Stability of the occupational status of the accounting discipline

As indicated in the previous section, general occupational studies have identified only minor changes to the social status of individual occupations across short periods of time (for example, Gynther, 1970 & 1970b). In addition, there is almost no evidence to indicate that sociological studies have focused on the mobility of specific individual occupational groups across an occupational status continuum longer than a few years (Sobek, 1996). No empirically studies appear to have attempted to specifically measure the relative stability of the occupational status of the accounting discipline in Britain (England or Wales) for any periods prior to the study of twentieth-century data undertaken by Treiman in 1977.

It appears to be beyond dispute that from the early twentieth century the accounting profession has been recognised as a relatively high-status occupation. An examination of the earliest US census data (from the time upon which most of the above studies were based) indicates that the status of the occupational category of *public* (*or chartered*) accountant was confirmed as being both high and stable (Hodge, Seigal and Rossi, 1964; Nam and Powers, 1968; also review Puxty, 1990 re: social class). Treiman's results indicate similarly that the status of *chartered* or *public* accountants has shown remarkably little variation over different spatial and temporal locations[xxiv] during the twentieth century (1977). Chartered or public accountancy is consistently perceived to be in the top echelon with regard to occupational status across virtually all studies and in virtually every spatial setting that has been surveyed. The results of these occupational prestige studies appear to concur with the literature that cites accounting among the *professions* (see for example, Collins, 1979).

With regard to the United Kingdom, the *British Registrar General's Scale* (1913) is an important indicator of the status of accountants as at the beginning of the twentieth century. This scale provides the only specific, existing contemporaneous evidence of the relative occupational status of accountants from 1911 onwards (Szreter, 1984). As this scale was produced by the Brit-

ish Government it is of particular value in that it may be indicative of the general population's perception of the relative status of the occupational groupings at the beginning of the twentieth century (Hakim, 1980 & 1982; Higgs, 1996).

By way of background**,** Sorter suggests that the British Parliament:

> "*could occasionally be prevailed upon to authorise exceptional inquiries through the machinery of the nation's decennial census if there was sufficient public anxiety over a topical issue that could be sensibly investigated this way"*[xxv] (in Szreter, 1996, p.69)*.*

As a consequence the Registrar General's Office included a number of questions within the 1911 census pertaining to an issue (infant mortality) that were then to be analysed within the context of "*different social positions, and in occupational groups*" (Higgs, 1995). To facilitate this analysis, a scale or index of the *social position* of various occupational groups was constructed.

The British Registrar General's Scale was developed by T.H.C. Stephenson in 1911 and published in the British Registrar General's annual report in 1913. The scale was developed as a socioeconomic ranking device based on a *professional model* that ordered occupations based on the perceived skill of their incumbents[xxvi] (Szreter, 1984; also see Hakim, 1994). Higgs described the British Registrar General's Scale as a statistical *watershed*. He suggests:

> "*this was a new departure in census taking ……the General Register Office invented the original system of socio-economic groupings based on census occupations from which most subsequent classifications of social status are derived. This development has had important implications for the way social scientist have conceived modern societies ever since*" (1996, p.409).

The British Registrar General's Scale provides an official government representation of the British class structure as at 1911 (Szreter, 1984)[xxvii]. The scale categorised occupational groups into five social classes. These classes

were as follows:

I. Professions;
II. Intermediates;
III. Skilled: Non-manual;
Skilled: Manual;
IV. Intermediates: Partly skilled;
V. Unskilled;

Sorter describes these social grades as aggregations of occupational groups primarily based on a notion of their relative social status. He explains:

> "*Such relative prestige was judged to fall into three clearly demarcated zones standing in an ordinal relationship with each other, while the two intermediate categories were created for marginal, mixed or imprecisely defined occupations. As well as producing five grades of social position, the model also provides for a bipartite distinction between non-manual 'upper and middle class' supposedly represented most unequivocally by professions of class I, as against the various grades of the manual working class, in classes III-V. There would appear to be three fundamental methodological premises which defined the original, essential characteristics of this professional model of social class:*
>
> *1. That occupation ….provided the most reliable and accessible single piece of information upon which to base an empirical social classification system…*
>
> *2. That there was a primary division between … the higher status non-manual occupations which could be assessed according to the extent to which they were professional and, on the other hand, the lower-status manual occupations, which were assessed according to their skill level….*
>
> *3. That overall there could be a single, exhaustive uni-dimensional hierarchical social grading of all members of the nation according to such occupational criteria* (in Szreter, pps.74-75).

[Note: Banks provides a retrospective estimate of the population of each of

the five social classes identified in the British Registrar General's Scale for males, aged 20 for the period 1841-1881[xxviii](1978)].

By the early decades of the twentieth century the British Registrar General's Scale included *Chartered Accountants* with those occupations ranked as *Professional.* This ranking effectively distinguishes and differentiates the discipline's status from occupational groups in the *Intermediate* and *Skilled non-manual* classifications. This result would confirm that accounting was no longer considered part of the *commercial* classes by this period of British social history (Kirkham and Loft, 1993).

While the results indicated by the British Registrar General's Scale provide an important indication of the occupational status of accountants by the early decades of the twentieth century, Hakim suggests the census classification of occupations is also in itself indicative of their location within the social structure of the latter half of the nineteenth century (1980, p.563). Quoting Irvine, et al., (1979, p.3) Kirkham and Loft agree suggesting:

> "*statistic, such as those represented in census data, are not collected but produced and the techniques used to produce and to process the data are like the data themselves, social products*…" (1993, p.513)

and thus the collection of official statistics by *disinterested* government-funded officials, is a means of socially defining groups of people and their activities[xxix]. The census classification is therefore another valuable signal of occupational status in that it provides another *official* perspective which may also be considered indicative of the general population's perception of the relative status of occupational groupings during the nineteenth century.

Kirkham and Loft indicate that accountants and clerical positions were previously classified in official census and enumeration data with a number of lower status occupations [Commercial class (1)] for the entire nineteenth century (1993)[xxx]. They point to this change in the representation of accountants (as opposed to clerical accounting roles) within the official statistics by the twentieth century as reflective of the changing social status of the profession (1993, pps.514-16).

Increasing references to the favourable term *public accountant* but contradicting anecdotal evidence about how accountants were perceived is indicative of the conflicting perspectives of the social status of accounting throughout the nineteenth century. For example, Jones examines historical records and cites a number of references to the title *public accountant* appearing in trade directories and other historic materials as early as 1808 and the employment of the term consistently thereafter in both legislation and in general usage (1995)[xxxi]. Boys points out that, overall, little has been written about the general social perceptions of the English accounting discipline and accounting firms but that there exists evidence that at least six (self-described) *public accounting firms* can be traced back to the late-eighteenth century (1994, p.16).

Cornwell is one few commentators who raises the possibility that some early practitioners were often perceived as *professional* and that their actions were consistent with the possession of a privileged position within society (1993, p.155). He examines documents from Robert Fletcher's Bristol accounting practice from the 1820 to assess this proposition. He suggests that it is possible to argue that evidence gathered from the practice of Robert Fletcher from the 1820s and 1830s indicates that the activities undertaken by the firm were indicative of a "*fully fledged professional practice*" (1993, pps.161-63). He goes on to cite an impressive list of Fletcher's clients as evidence of his social standing as he "*successfully developing links with owners of half the great houses and lesser establishments of the rising commercial elite*"[xxxii] (Cornwell, 1993, p.156 & p.162).

Cornwell does however question whether Fletchers' experience was atypical. He suggests that a widely-held view was that "*the pioneering accounting practitioners were socially indistinguishable and behaved more like someone associated with a trade rather than with a profession*" but cites the lack of any significant documentary support for this statement and suggests that this perception appears to "*have arisen from what is thought to have been an unseemly competition for insolvency work*", which he describes as "*a scramble for the crumbs from the table of bankruptcy*" (1993, pps.155-60). Cornwell concludes that it is difficult to arrive at a definitive answer citing the

only other comparable data available (relating to a contemporary of Fletcher's firm, Josiah Wade) which suggests a similar experience. As so little documentary evidence is available, no firm conclusions are drawn as he questions whether either practice could be said to be representative of the accounting discipline at that time (Cornwell, 1993).

The *History of the Cooper Brothers & Co. 1854 to 1954* begins with a quote from Ernest Cooper in which he expresses an opinion on the social status *enjoyed* by the discipline. Cooper suggests that for the fifty years prior to 1864, the status of accountants was questionable, stating "*we could hardly, south of the Tweed, claim to be a profession... [and that] … our social position was not enviable"* (Brief, 1954, p.4).

Official government and parliamentary records provide some further insight into the social standing of individual accountants. Jones cites reports showing that a number of elite accountants were invited to give evidence to a variety of parliamentary committees (1981, p.48-49, also see, Jeremy, 1986). As a result various committee reports include references to specific individual accountants as having high social standing. For example, Edwards reports the engagement (by the London and North West Railway) of Mr J.E. Coleman, "*a professional accountant of eminence"* and a reference by the Duke of Richmond to Edwin Waterhouse as *"one of the eminent accountants"* with regard his contribution to the development of railway regulation (1985, p.39).

As a consequence it has been argued that the social status of accountants could be attributed to an elite group of *reputable* accountants (Jones, 1981, Edwards, 1985). Sikka and Willmott, show that in the period prior to the formation of professional accounting associations the status of professional accountants appears to have been based on the *reputation* and *connections* of the individuals themselves (1995). They indicate that eventually the most prestigious accounting bodies in the country were constituted by a self-selecting elite of *gentlemen accountants*[xxxiii] (also see Shackleton, 1995).

The centenaries of the major British accounting firms promoted a flurry of activity to document their histories (Brief, 1954; Kettle; 1982; Richards, 1981; Matthews, Anderson and Edwards, 1998; Hopkin, 1980; Jones 1981 & 1995). These histories have provided an additional basis for assessing the

social standing of the discipline. However these historical narratives were often commissioned and produced by the firms themselves and included contributions made by *prominent partners* of these firms[xxxiv]. Walker notes that these histories were often compiled to stress the longevity and continuity of the firm and its contribution to society, rather than for the purpose of academic inquiry (1993, p.129; also see, Parker, 1980, pps.285-86).

These studies collectively, however, do provide a significantly detailed chronological narrative of the elite of the accounting profession. The studies paint a picture of a series of *well-to-do* and *well-educated* individuals. Overall biographic and demographic research shows that the early leaders of the accounting discipline came from established families with backgrounds in law or the higher status commercial areas of British or Scottish society[xxxv] (MacDonald, 1984 & 1985 & 1987; Kedslie, 1990b; Stewart, 1975).

For example William Welsh Deloitte, the grandson of Count de Loitte (who held an important position in the court of Louis XV1) and the son of a company secretary (of a then well known firm of provision merchants) spent twelve years on the administrative staff of the Official Assignee in Bankruptcy of the City of London before setting up as an accountant in 1845 (Kettle, 1982). Brief provides a comprehensive history of the Cooper Brothers, including information about the founders' father, Emanuel Cooper:

> "*a staunch Quaker, and a strong supporter of the movement for the abolition of slavery. He was one of the founders in 1836 of the London and County Bank…..deputy director in its early days"* (1954, pps.1-10).

The difficulty in obtaining a position in any of the leading accounting firms indicates that these firms were the domain of the socially-advantaged. Mitchell and Sikka state the:

> "*impossibility of a young man to qualify except by serving under articles of clerkship in the office of a practicing accountant, for which his parents were obliged to pay a substantial premium and to support him while he was training"* (2004, pps.399-400).

Schwarz indicates that:

> "*an apprentice accountant had to be supported during his training, which probably lasted five years, …with the premium being charged by better London firms being quite substantial"* (2004, p.953).

Schwarz notes an amount of £499 in 1861 but suggests a more common indication of costs in 1880 and 1903 of about £150. Such charges indicate that the total cost of becoming a chartered accountant may have not been very different from the cost of attending Oxford or Cambridge Universities (2004). Schwarz, citing the *Pall Mall Gazette,* suggests that one could not become a chartered accountant without capital of at least £2,000 to £3,000 (2004, p.955).

The documentary evidence that exists to help understand the major accounting practices and practitioners of this period, highlights their contribution to the development of regulation and commercial law, the growth in the demand for their services and the substantial premiums paid to be admitted as an accounting/clerical apprentice. This information, combined with the eventual receipt of Royal Charter by these practitioners, is all highly indicative of an occupation quickly gaining status within British society. The nineteenth century ends with a number of accountants being put forward as potential recipients of knighthoods[xxxvi] (Chandler and Edwards, 1996; Brown, 1905). The current study would expect that a measure of the social status of accountants in the nineteenth century would exhibit this growth in social standing reflected through the income and educational attainment of accountants.

However Burrage and Torstendahl importantly note:

> "*historians (have) focussed on the creation of the corporate affairs of particular professions and therefore tend to concentrate on the elite of the profession and the issues that came to the attention of their governing bodies"* (1990, pps.5-6; also see: Robson and Cooper, 2006).

As the biographies and firm histories cited above indicate, only the elite of the accounting cohort were at the forefront of the foundation of the repre-

sentative accounting bodies. However, the social standing of the accounting elite may not have been representative of the discipline as a whole.

By the mid-nineteenth century, census data about an individual's occupation began to be collected in a more systematic manner (Booth, 1886; Bellamy, 1978; Drake, 1972; Hakim, 1982 & 1994). Walker uses these data to provide a cross-sectional analysis of the intra-occupational status of those identified as *accountants* using the 1851 census (2002). Walker's study used a number of different attributes to determine the hierarchy of those identified as accountants in the 1851 census. Using demographic indicators such as the *use of domestic servants*, *intergenerational mobility* and *residential details* to locate the social status of 'accountants' Walker suggests that while some accountants could be identified as belonging to the higher social echelons, most accountants were associated with clerical rather professional activities and were generally perceived as being part of the "*commercial rather the upper-middle classes*"[xxxvii] (2002, p.396; for general discussion re: elites in British history, see Rubinstein, 1987).

Matthews, Anderson and Edwards quote the 1857 writings of H. B. Thomson who divided professions into two groupings, the *privileged* and the *underprivileged*. The first group included priests, barristers and physicians who:

> "*excel the others in numbers and wealth, and receive a superior education and are generally drawn from a superior class'. Accountants belong to the second group, containing the painter, the architect, sculptor, civil engineer, educator, parliamentary agent, actuary, average calculator. The low standing of accountants derived from their traditional role. Most were viewed as mere bookkeepers or clerks"* (1998, pps.2-4).

They suggest that the reluctance to accept accounting unconditionally on par with the old professions was a function of both the public's perception of the nature of accounting work and the social classes from which many accounting practitioners emerged. They point out that those *young men* financially capable of obtaining higher education would hesitate in joining a *fledgling profession* and that this remained the case until well into the twentieth century (Matthews, Anderson and Edwards, 1998, p.5).

Thompson's commentary is consistent with many observations made about the accounting discipline during this formative period and corresponds with the 1851 census data presented by Walker (2002). The apparent social status of the majority of accountants, already perceived widely as being associated with the *clerical* and *commercial* classes rather the *professional* or *upper-middle* classes, appears to be further eroded by the social changes evoked by an increasingly better-educated population (Walker, 2002).

Hakim indicates that by the late-nineteenth century "*the increased diffusion of education has apparently flooded the country with candidates for clerkships*"[xxxviii] and that this provided the upwardly-mobile elements of the working classes with an opportunity to become office-based workers (1980, p.566). As there were very few routes by which persons from lower social classes could enter the commercial world, competition to obtain a clerical occupation increased and as a result the salaries and social status of these jobs decreased.

The lack of any actual or perceived demarcation between a clerical and a generic accounting occupation (other than the small group of elite practitioners) would suggest a similar decline in the social standing of both groups, particularly as both occupations were classified together within the census data as *commercial* for the entire nineteenth century (Kirkham and Loft, 1993). This view of the accounting vocation is further confirmed by Anderson who suggests that clerical training was analogous to a skilled-craft apprenticeship (which did not provide the same financial barrier to entry as professional training) and that, as such, it maintained a similar social status as other skilled crafts (1992).

Even by the first quarter of the twentieth century, prominent accountant Sir William Plender (1922) commented that few accountants had gone to either Oxford or Cambridge universities and that the majority were trained *on the job*, often after having started their career in some other undertaking and that this was therefore perceived as quite different from the career paths available in the *old professions* (Jones, 1981).

The conjoined nature of the occupational status of both the clerical and accounting disciplines is confirmed in biographical studies which provide evi-

dence that many of the *elite* accountants emerged from general business (where they were often unsuccessful) or from a clerical background[xxxix] (for example, Jones, 1981; Matthews, Anderson and Edwards, 1998).

In addition, Long examined inter-generational social mobility in England and Wales from 1851 to 1901 finding significantly greater levels of mobility across generations than had been previously thought, particularly when compared to their Scottish counterparts (2005; also see, Walker, 2004b; Landes, 2003). He suggests that while there is little evidence of the sons of those in manual occupations moving into *white collar* or clerical vocations, a high proportion of the upwardly mobile in Victorian Britain who achieved higher levels of social status did so from the *counting house* (Long, 2005; also see Miles, 1999 & 1999b).

Miles had earlier found that the social status (both inter- and intra-generational) of white-collar workers, (particularly clerical workers), was relatively unstable (1993). High rate of social mobility appears to have occurred across these *white-collar* occupational groups. Of particular interest to accounting researcher is the observation "*that one in ten white-collar workers had suffered a demotion from the ranks of the elite"* (Miles, 1993, p.54).

The lack of demarcation between accounting functions and other white collar/commercial/clerical functions appears to have been seized upon in the context of inter-occupational *turf battles* (Dezalay, 1995; Dezalay and Garth, 2004; Abbott, 1988, Collins, 1990; Goode, 1960 & 1969 & 1969b; Walker, 2004). Walker quotes commentary provided by *The Law Times* (1869) which, in the midst of a defence of the jurisdiction over bankruptcy and insolvency practice by lawyers, suggested that accountants were:

> "*semi-legal professional men who were unorganised and of decidedly mixed repute…the profession of an accountant is one of modern date, and its earliest practitioners were for the most part persons who, having failed in business, acquired their knowledge in the manipulation of accounts on the transit through the Bankruptcy Courts. These gentlemen have been succeeded by a somewhat superior class, but like their predecessors, undergo no test of their qualifications, and have no ac-*

knowledged status. ….as a rule they are men of small standing and of less principle" (2004, p.141).

Kirkham and Loft outline the '*professionalisation*' response of the accounting elite who began to form regional accounting associations from the 1860s onwards as a means of formally differentiating themselves from the *swarm of pettifoggers* attracted by the potential earnings associated with bankruptcy and insolvency work (1993; see also Walker, 1995; Cooper and Taylor, 2000).

Walker suggests that the confirmation of the title 'professional' accountant was perceived to come through membership of the newly formed institutes and the function of such an organisation was primarily to protect and advance the social status of accountants (2004b)[xl]. For example the secretary of the Institute of Chartered Accountants in England and Wales (ICAEW) wrote in 1878 that the "*elevation of the attainment and status of the profession had always been the primary object of the organisation*" (Walker, 2004b). Studies suggest this *elitist* approach was maintained through careful manipulation of the memberships of these bodies which was achieved by excluding from membership any persons perceived to be socially, economically as well as intellectually inferior, (Perks, 1993; Kirkham and Loft, 1993).

In summary throughout the century studies observe individual accountants being held out as a *reputable* and *eminent* by some prominent and influential sections of the society, while other equally notable social figures, such as Justice Quain, are suggesting that "*the whole affairs in bankruptcy had been handed over to a group of ignorant men called accountants*" (quoted in Walker, 1988). These contrasting views illustrate the mixed social perceptions of accountants held by observers of the burgeoning discipline. The conflicting evidence presented throughout the discussion above highlights the difficulties in assessing the social standing of accountants as a single occupational group in Britain during the nineteenth century.

The contradictory views on the status of accountants appear indicative of an occupation undergoing both perceived and actual change. Kirkham and Loft's study in tracing the changing census classification of the accountant

confirms the changing social perception of accounting during this period (1993). Until the 1911 census, clerks, commercial service-based occupations and accountants all remained in the same classification (they were differentiated only through the allocation of different sub-classifications). Kirkham and Loft suggest that:

> "*by 1914, although accountants had begun to be differentiated occupationally from the clerk, there was some ambivalence about the social and professional status of accountants. They remained inside the commercial classification alongside agents and brokers, as well as clerks, and outside the professional classifications …any differences between accountants and clerks, as reflected in the census, were relatively minor and ambiguous"* (1993, p.513).

By the 1921 census accountants had joined those disciplines classified as professional (virtually half a century after the establishment of the major professional representative body). This change in official recognition for the discipline, after an extended period of ambiguity, confirms the need to continue to investigate the rising social status of the accounting occupation in nineteenth-century Britain.

The present study seeks to facilitate further investigation into the social elevation of the accounting profession by retrospectively applying the *Nam-Powers* measure so as to capture (and where possible explain) the complex, often contradictory socioeconomic development of the discipline's members during the nineteenth century (while simultaneously examining the role earnings and educational attainment have played in the professionalisation of accounting).

1.3.0. Conceptual and measurement issues

As the current study is concerned with occupational status rather than a measure of the *collective perception* held by the British (English and Welsh) population of the subjective prestige (or even desirability) of the accounting discipline as an occupation during the nineteenth century, the debate regarding the utility of socioeconomic scores as a proxy for *prestige* is largely rendered irrelevant. Ultimately the nature of data available for this study necessitates the use of a composite measurement of occupational standing rather than any direct measure of perceived status. Thus given the availability of census data (albeit limited with regard to income and educational attainment) and the objectives of this study, the application of the *Nam-Powers* approach is believed to be particularly appropriate.

This study differs from the majority of the sociological studies that attempt to isolate a demographic variable that characterises a social subgroup and employ the socioeconomic occupational score as a measure of status attainment or social mobility. The majority of these studies use the occupational status of occupational classifications as a contextual variable in the study of demographic groups, thus employing the socioeconomic scores derived as an independent variable. By contrast, the objective of the current study is to produce a longitudinal measure of occupational status for professional accountants and employ this series of socioeconomic scores as a dependent variable.

A number of fundamental issues emerge in any attempt to retrospectively generate appropriate socioeconomic measures from nineteenth-century census data if the aim is to produce a series of scores that validly reflect the changing occupational status of English and Welsh accountants. Many of these issues are driven by the retrospective nature of the process and can only be resolved within the limitations imposed by the available data.

1.3.1. Conceptual issue: Period?

An important aspect of developing a series of *Nam-Power* scores for the emerging accounting discipline is the determination of both the beginning and ending points of the study and thus the overall duration of the study. Examining the changing occupational status of accountants is essentially an exercise in *change analyses* and as such must have a defined temporal dimension (Nisbet, 1969; Smith, 1973).

Smith highlights that *change* is an ongoing process within a social system therefore its temporal dimension requires the current study to isolate an appropriate time period over which to base an analysis[xli] (1973). Depending upon the nature of the change under analysis, one of three time horizons may be deemed suitable. Firstly, there is *eventual analysis*, which gives a short-term (month by month) examination of the relationship of the events that causes systemic change to occur. Second there is *processual analysis*, which is focused on the relationship of events and change over the medium term (i.e., measuring time and therefore change in decades). Finally, *trend analysis* is an approach that takes a more long-term perspective of change within a system (Smith, 1973).

Braudel warns against historical studies that have sometimes focused only on events that occur over a relatively short timeframe (1981; also see, Ricieur, 1980). Guthrie and Parker argue that historical events, such as the changing status of accountants, cannot be understood in isolation but only as part of an ongoing temporal process (1991). Abbott draws attention to the importance of both the periods prior to and after the formation of the professional organisations in the analysis of the social re-evaluation of accountant's occupational status (1988, p.102). Edwards, et al., rightly point out that while accountants were formally organised for only the last three decades of the nineteenth century, "[t]*he accountancy occupational group was undergoing a professionalisation process …….for much of the nineteenth century"* (2007, p.63). Carnegie and Edwards suggest that professionalisation may be viewed as an extended process, with the formation of an organisational body serving

as a visible public signal from an occupational collective within a series of events that operationalise its social ascendency (2001).

As mentioned previously anecdotal evidence supports the view that significant changes to the social status of a specific occupational group does occur, but only over a substantial period of time (Slocum, 1966; Duncan, 1968). Therefore for any study to provide a meaningful measurement of such social change it must cover a period that captures all the relevant events (intrusive and reactionary) associated with an appraisal of the occupation's social standing (Smith, 1973).

As a consequence this study spans an analytical period that reflects the impact of the relevant events and phases that characterise the changing occupational status of the accounting discipline. It must do so to meet its objective and provide a valid, useful metric for those who wish to further examine the emergence of the *professional* accountant in Britain. Given the decennial nature of British (English and Welsh) occupational census data, and the aforementioned anecdotal and empirical evidence attesting to the rate of change in the status of occupations, it is contended that the most appropriate approach for this study is a *trend*' *analysis*[xlii].

If *trend analysis* based on decennial data points is to provide insights and explanations retrospectively it will inevitably be dependent on the development of an appropriate historical trajectory that captures all phases of the change in the accounting discipline's occupational standing. Though studies suggests that accountants may have been actively attempting to define their social status even earlier than the nineteenth century, (Armstrong, 1987; Walker, 1995) this study locates itself within the period spanning 1821 to 1911. This period was selected because chronological records indicate that the most significant events that affected the development of accounting and accountants in England are captured within these ten census periods (Lee, 1979; Nobes and Parker, 1979).

These events may be summarised as:

- The period from the 1850s when the first professional accounting bodies begin to appear in Britain (initially Scotland, followed by England then Wales) to the amalgamation of the major regional bodies (across England) as a professional accounting institutes in the 1880s. The period selected, 1821 to 1911, provides three data points prior to, four data points during and three data points following the initial emergence of the British (English or Welsh) accounting profession;

- The majority of significant English commercial and bankruptcy legislative changes occurred (for example, the repeal of the *Bubble Act,* (1825) to the influential *Companies Act* (1901) within the period spanning 1821 to 1911;

- Significant changes occurred within the application of accounting (for example the changing emphasis on audit, liquidation and financial reporting) occurred within the period spanning 1821 to 1911;

- Substantial capital investment continued to occurred across a number of influential industries (For example the expansion of railway companies) occurred within the period spanning 1821 to 1911;

- The major accounting firms (predecessors of the current multinational firms) became established within this period.

Other issues that needed to be taken into consideration were the lack of reliable data prior to this period and the contention that the Napoleonic Wars (1803-1815) and the First World War (1914-1918) would provide confounding socioeconomic effects on all data sources, including census materials, and so render their usefulness marginal at best. Feinstein notes the "*massive impact"* of the Napoleonic wars on the British economy, suggesting:

> "*from that 1793 to 1815 the intensive hostilities and Napoleon's continental blockade created inflationary financial condition, stimulated some sectors and disrupted others, and withdrew thousands of men from the civilian labour force. It is difficult to distinguish accurately the effects of all of these powerful forces"* [on British society] (1998, p.628).

Prior studies that have investigated economic development and income inequality, suggest that available data is significantly compromised by the Napoleonic Wars and its effects until after 1815 (Kuznets, 1955; also see, Mokry and Savin, 1976).

The present study's justification for choosing our end point of 1911 is that as with the Napoleonic Wars, the First World War also caused confounding socioeconomic effects on all occupational data sources including the accounting discipline. For a comprehensive discussion of the impact of the First World War on the practice of accountants see Kirkham and Loft (1993); Loft, (1988); Jones (1981, pps.122-140); Matthews, Anderson and Edwards (1998, chapter 5)[xliii].

Finally, the British Registrar General's Scale provides an important indicator of the *social position* of all occupational groups (including accountants) in Britain from 1913 onwards. This scale re-classifies accountants (from commercial to professional) from the 1911 to the 1921 censuses periods (Kirkham and Loft, 1993) and therefore appears to confirm that by the second decade of the twentieth century the socioeconomic foundation of accounting firms and the profession (as a whole) was firmly established and widely recognised (Chandler and Edwards, 1996, p.5). As a result the present study suggests the introduction of the British Registrar General's Scale in 1913 provides an obvious temporal point to conclude this study's measurement of the occupational status of the accounting cohort. Finalising the study at this point provides the opportunity to assess the contiguity of the relationship between the scores created by this study and the rankings provided subsequently by the British Registrar General.

1.3.2. Conceptual issue: *Data sources?*

To date the application of sociological measures to the emergence of the accounting profession has been limited by the availability of data. Walker details the difficulties that have been traditionally encountered in researching all aspects of the history of the accounting profession during the nineteenth century due to the "*dearth of available primary source material generated by accounting firms"* (1993, p.128; see also Stewart, 1986; Chandley and Boys, 1991 and Mathias, in Jones 1981).

Census materials[xliv] have been identified as a key source of data for accounting historians (Kirkham and Loft, 1996) and have been applied to a variety of research questions (Neu, 1999; Kirkham and Loft, 1993). Edwards and Walker however, have suggested that the current growth in socio-analytical studies in the professionalisation of accounting has occurred because more evidence has become available, particularly for the period prior to the formation of *institutes* of accountants from 1870 onwards (2007). They point to the increasing dependence on official population counts by accounting historians and in particular the published abstracts of the actual census and the census enumeration books which in recent times have increased the capacity of researchers to examine both the social and economic attributes of the discipline.

Walker states that while the application of census data to accounting research has been questioned[xlv] due to issues of quality and problems of comparability "*it remains the case that this data is of fundamental importance for reconstructing Victorian society"* (2002, p.379, quoting Higgs, 1996, p.94). Hakim also states that "*population censuses are the only source of data covering a long enough time span for studies observing change over centuries in the size and characteristics of the workforce"* (1994, p.435). Thus census data has provided the primary foundation in the reconstruction of many aspects of industrialised Victorian, British society and has been used to investigate various socio-demographic themes including family structure, social class, geographical and social mobility and, importantly, the relationship of these factors

to occupation (Mill and Schurer, 1996; Higgs, 1996; Armstrong, 1965 & 1972 & 1978; Banks, 1978).

Not unexpectedly studies seeking to provide *Nam-Power's* scores for occupations have relied directly on twentieth-century census data usually from the US, (for example, Powers and Holmberg, 1978; Nam, Powers and Glick, 1964; Nam, Terrie and Schmertmann, 1994). To produce *Nam-Power's* scores for nineteenth-century Britain (England and Wales), census materials must again provide the primary source of data for determining occupational earnings and educational attainment scores. It is thus necessary to provide some explanation of the suitability of these data for that task.

The Census Office (located in London) has collated, compiled and published official decennial census reports on the British population since 1801. These include copies of remaining enumerators' books – the physical records of the census. Individuals were enumerated (listed and mentioned separately) by the official census taker (the enumerator). The majority of the published reports provided by the nineteenth-century censuses contained a combination of statistical tables and commentary on the results[xlvi]. Drake (1972) and later Higgs (1996) provide an overview, brief history and discussion of the census material upon which the comparatives used in this study are based. In addition, Armstrong provides a detailed commentary on the census enumerators' books and a history of the administration of the census process (1978, pps.28-81).

Census data collection began in 1801 and appears originally to have been little more than an attempt to determine the overall British population and some basic demographic and geographical distribution[xlvii]. The early acknowledgement of the importance of occupation, as a socioeconomic locator, is evidenced by the ever-increasing focus placed on it by census administrators during the nineteenth century (Sobek, 1996).

In terms of the compilation of occupational-based socioeconomic data, the 1801 census distinguishes only those individuals who are chiefly involved in each of the following three groupings: those chiefly involved in *agriculture*; those involved chiefly in *trade, manufacture and handicraft*, and lastly all other persons not involved in either of the first two categories.

The 1811 and 1821 data sets were essentially produced in the same form as the 1801 census but families are substituted for individuals (for example, the number of families chiefly employed within agriculture). The 1821 census data includes some information regarding the age structure of the population. Booth stresses the importance of this, as the figures presented therefore:

> "*ascertain the total number of individuals 'supported' by each of the great branches of industry"* [and] *"to find out how many depend for their subsistence on any particular industry should be the aim of an occupation census"* (1886, p.315).

Booth concludes that we can obtain details from other sources, pertaining to the activities and demographics of each industrial group and such information could be used to effectively cross-reference existing census data (1886).

Deane and Cole's landmark compilation of historic data provides a further deconstruction of earlier census data (1962, pps.137–155). Their compilations allow for the additional classification of occupations into the following categories: *Agriculture* (which includes fishing and forestry); *Manufacturing* (which includes mining and building); *Transport* (which includes trade); *Domestic Services* and *Professional Services* (which includes *other public management*)[xlviii]. Nineteenth-century British services were then further divided into three main groupings: *Retail and wholesale trade*; *Finance*; and *Professional services*.

In 1831, the census, although structurally similar to it two predecessors, provides a slightly more detailed attempt at the enumeration of occupations through the inclusion of *retail trades and handicrafts*, *professional men* and *domestic servants*. The limitations of this census come from the decision to collect data pertaining only to males of 20 years of age and above (thus omitting any detail about the age structure that had been collected in the previous 1821 census). Booth's analysis highlights that:

> "*it was not until 1831 that any detailed return of occupations of people were attempted'* with earlier censuses adopting a *'rough and ready*

method…of dividing the population into three or four large groups" (1886, p.314).

Deane and Cole again provide a further deconstruction of this data (1962, pps.137–155).

By 1841 the British census became a considerably more sophisticated enumeration of individualised socioeconomic data. According to Lawton the 1841 census was collected through a standardised printed household schedule[xlix] and is widely considered as "*the first full-scale modern British census*" (1978, p.1). Wrigley suggests "*it was the most ambitious exercise of its type, covering every family in the land"* (1972, p.1). The 1841 data detail and differentiate all principal occupations and is reconciled with the entire British population. While the data is for Great Britain, it contains separate classifications for England and Wales, Scotland and Ireland. Booth states that:

> "*there are separate returns for every county and for the large towns: sexes are distinguished, but ages are only given at two periods, under and over twenty years of age. The former occupations of paupers, lunatics and criminals, are given in separate tables and the whole is arranged in alphabetical order"* (1886, p.315).

Booth goes on to show how further advances were made in 1851 when occupations were grouped into seventeen classes (each broken down into numerous subclasses)[l] (1886, p.316).

Lawton, remarks that *"a notable feature of the English census of 1861 was the bringing together in the General Report summary tables and commentary on the results of the census"* (1978, p.17). Booth goes on to suggest that from 1851 to 1891 the classification of occupations remained relatively constant but as a consequences of the growth in the volume of materials "*the pruning knife became very busy"* with the *"tables being reduced to a third of their former size and a number of the smaller trades spirited away"* (1886, p.318).

The 1901 census was essentially a continuation of the nineteenth-century practices but varied from its predecessors in terms of its format.

These changes reflected the increased complexity of the tabulation. The 1911 census included a number of important additions, including questions relating to aspects of housing and the marital status (and fertility) of respondents. Importantly a question was added that required respondents to indicate the industry in which they worked in addition to their occupation (Lawton, 1978; Higgs, 1996).

The general limitations of the census materials have been well documented (Tillott, 1972; Willigan and Lynch, 1982; Higgs, 1996). Lawton warns that "*neither the published reports nor the enumerators' books of census are as easy or straightforward to use as may at first sight seem the case: indeed there are pitfalls for the unwary"* (1978, p.3). Armstrong also identifies a number of these issues within his examination of the enumerator's books and suggests "*errors in census data may be classified under two headings"... "errors of coverage"* or *"errors of content"* (1978, pps.33-81; also see Crafts, 1987; Conk, 1983).

Errors of coverage are errors that occur as a result of either under or (much less common) over-enumeration. For example, inconsistencies are apparent in the interpretation of nineteenth-century census data of the term *occupied* (within an occupation or industry) when applied to the population surveyed. Hence there are difficulties in determining whether figures represent people actually *employed* in an occupation *or associated with* an occupation. For example, as previously indicated, the 1811 and 1821 returns were compiled on the basis of the number of *families' occupied* in particular vocational pursuits, not individuals. Such inconsistency in the application of the term *occupied* provides some explanation of the large number of undefined persons in subsequent censuses (Booth, 1886)[li].

Armstrong suggests that in response to the complexity of the broader occupational / family question, a decision was made to adopt the principle of *occupational units,* however a number of inconsistencies and ambiguities are still apparent (1978, p.48). For example, an occupational unit could include children, servants, retired persons, and students as well as apprentices in trades or professions who were still in training and in receipt of no income.

There is also conjecture that there was an under-enumeration of infants or young children when compared to parish birth records (Armstrong, 1978). Cunningham suggests that for most of the nineteenth century the term *child* was poorly defined, as was the term *employment* (1990). Cunningham believed that the *young* fell into three categories: the employed, scholars and the unemployed, but the enumerators were inconsistent in their treatment of these groups (1990, p.140). He suggests that this was caused by several factors including the prevalence of part-time work in some industries, inconsistencies in the interpretation of *employment* and certain legislative issues that arose from schooling laws and child labour laws (Cunningham, 2000 & 2005). As a result, a number of studies have identified errors where children or young people have been incorrectly included or omitted from their father's or their family's classification in the enumeration of occupations, particularly within the classifications of agriculture, mining, and in a variety of manufacturing subgroups but less so in the professional categories (Armstrong, 1978; Horrell and Humphries, 1995). The following *methodology* section will address the impact of these *errors of coverage* on the objectives of this study.

Errors of content are those mistakes made in the reporting or recording [or in the further processing] of data. Armstrong suggests "*Altogether more attention has been paid to the reliability of the occupational data* in terms of *'errors of content*", with census authorities criticising *"the extremely inaccurate and inadequate manner in which respondents described their callings, in census after census*" (1978, p.37). Tillott identifies a "*tendency to upgrade*" the job description and thus status implied in census data as a major error of content (1972, p.85). Jones and McMillan show how this issue stemmed from the British Census Bureau's working logic and applied rationales leading to the inconsistent categorisations of individual occupations and groupings of occupations upon which the census results were based (2001). This issue, as it applies to the accounting discipline, will be dealt with comprehensively in the next section.

1.3.3. Conceptual issue: *'Accountant' as an occupational classification*

A third issue in the retrospective attribution of a *Nam-Powers* score for accountants is the establishment of a defensible basis for the classification of *accounting* as a relatively discrete and distinguishable occupational category whose incumbents were employed in activities that were relatively similar (*possessing internal heterogeneity*) and differ from those occupations deemed outside the *Accounting* category (*possessing external heterogeneity*) (Hauser and Warren, 1997; also see Cain, 1980; Cain and Treiman, 1981; Miller, Treiman, Cain and Roos, 1980). To succeed in its objectives this study must establish the temporal consistency of the occupational classification, *Accounting* across each of the 10 census periods analysed from 1821 to 1911.

As discussed in section 1.3.2., there are a number of difficulties that arises with regard the integrity of the classification process, in that it is dependent upon accurate occupational identification by individuals, enumerators and consistent official categorisation and summation within the census materials. Defining and assessing the consistency of an occupational title has been often presented as a problematic issue when analysing census data for the purpose of attributing socioeconomic, or prestige scores (Hodge and Siegel, 1966 & 1968; Haug, 1977; Hodge, 1981; Ganzeboom, De Graaf and Treiman, 1992; Ganzeboom and Treiman, 1992; Bergman and Joye, 2001)[lii]. Consequently over the twentieth century numerous attempts were made to describe and standardise various *occupational titles and categories*[liii] to facilitate more valid comparative studies.

Nakao and Treas suggest that the process of attribution and classification is complicated by changes to the nature of an individual occupation over time (1992). Sharlin agrees noting that even within those occupational titles that appear to display longevity, the meaning of an occupation changes over time (1979)[liv]. They both suggest that such changes occur slowly and are associated with structural changes within the workplace and in labour-force composition[lv].

Hartwell identifies the industrial revolution as an "*important period of fundamental structural change"* that was characterised by significant growth in the *secondary* (industry, manufacturing etc) and the *tertiary* sectors (transport, commerce, government and service) (1971b, p.363). Anderson indicates that the rapid expansion of the service sector in nineteenth-century Britain was accompanied by a dramatic increase in the levels of specialisation within this sector which produced instability in terms of the classification of such occupational roles across the entire century (1976 & 1988). Perkins shows the difficulty in using time-series data provided by early British census materials due to "*the fluctuation in definitions*". He suggests that:

> "*any category carrying prestige attracted, especially in the early years before definitions became more precise and the anonymity of the census better understood, a significant proportion of unqualified aspirants*". He goes on to suggest that "*there was a continual shifting of 'assistants' from architects, dentists, engineers and surveyors, of bookkeepers and clerk from accountant"* (1961, p.127).

Given these general observations the process of defining the occupational classification *Accounting* and differentiating it from related functions has been particularly problematic when one considers that the discipline was in its formative period and was characterised by substantive inter and intra-disciplinary change (see for example, Chatfield, 1977; Jones, 1981). Kirkham and Loft provide one of numerous studies that confirm the inconsistent treatment of the definition of '*accountant*' between census periods in the nineteenth century (1996). Matthews provides additional evidence of an imperfect reporting of the accounting discipline (1996, p.199). Added to this is the ambiguity caused by the lack of standardised or regulated controls over the title *accountant*[lvi] for the entire nineteenth century (*Guide to the Accountancy Profession*, 1895, quoted in Walker, 2004).

Edwards and Walker reviewed the variety of occupational titles and job descriptions used by the accounting discipline in trade directories from 1820 to 1870 (2007)[lvii]. These include such terms as *accomptant*, *accountant, public accountant* or *chartered accountant*, *auditor* and even *public expert in mat-*

ters of account. Further, Chatfield records the many references in early British trade directories to *expert in accounts* or *bookkeeper*, *appraiser*, *attorney*, *actuary*, *bankruptcy auditor*, *executor of estates* or *winder-up of dissolved companies* (1977, p.113). Jones also notes the practice of bookkeepers advertising themselves as *writing masters* (1981, p.26). Edwards and Walker document a number of errors with regard to the classification of occupations that have spellings similar to the word *accountant* and highlight the ambiguities with the use of the term *accounts clerk* when seeking to identify the work of accountants (2007). As a result socioeconomic measures covering the entire nineteenth century must rely on a variety of occupational nomenclature for the discipline of accounting.

Cooper suggests that the number of people describing themselves as accountants increased most significantly during the middle period of the nineteenth century (1921). Kirkham and Loft reveal that the number of individuals self-identifying as *accountants* listed in the census increased from the middle of the nineteenth century until 1891 but following the formation of the professional accounting institutes, the last census enumeration of the nineteenth century released in 1901 discloses a decrease in the overall numbers of *accountants* (1993; also see Perkin, 1961 & 1989). Anderson, et al., suggest that with the formal organisation and recognition of the discipline in the latter half of the nineteenth century, came issues of credentialism that eventually lead to the wider usage of the term *chartered accountant* (2007).

In an attempt to resolve this type of debate Hauser and Warren focus on the utility of distinguishing between *jobs* (defined as *"a specific and sometimes unique bundle of activities carried out by a person in the expectation of economic remuneration"*) and *occupations* (defined as *"an abstract category used to group and classify similar jobs"*) (1997, p.180). Given both the internally and external heterogeneity issues that emerge from the self-defining nature of nineteenth-century accounting practice, perhaps a more appropriate approach is to conceptualise the accounting discipline as a defined number of ongoing *jobs* rather than as an occupational entity.

Miller and Napier focused on the indeterminacy of the *accounting function*, suggesting that the *"territory of accounting is permeable and there have*

been redefinitions of its boundaries and changes in its content" (1993, pps.631-632). Abbott shows that a shift in the application of existing accounting techniques and principles and thus a shift in the jurisdiction of accounting from "*bankruptcy practice to auditing, with a gradual expansion into cost accounting and now into management services*" (1988, p.26). He goes on to highlight the demarcation disputes between accounting and other occupations as evidence of the temporal instability of the role of the discipline (Abbott, 1988). Matthews illustrates this when quoting the official history of the accounting firm, *Grace, Darbyshire & Todd*…… "*We threw our net for business wherever we thought it would catch fish, or should I say make money"* (2006b, p.503).

Many accounting historians have identified and tracked the evolution of accounting's knowledge set, often tracing certain accounting practices and techniques back over long periods of time (for example, Lee, 1990 & 1990b; Littleton and Yamey, 1956; Winjum, 1972; Littleton, 1933). Hill suggests that throughout the nineteenth century very few amendments were made to accounting principles and methods or to the scope of auditing. He concludes "*to sum up, it may be said that over the period of 75 years book-keeping methods showed little change, a fact that is hardly surprising, as the principles had long been established"* (1979, p.12). Brown examined the work of accountants for the fifty years after the Glasgow accountants successfully petitioned for Royal Charter (1905). He concluded that the work and skills of accountants had not changed in any substantial way during that period, with no discoveries of new principle or the introduction of novel methods (1905, p.313). He suggests that accounting changes were just modifications "*of the principle and methods which were already well understood and practices of the old accumptant*" (Brown, 1905 p.314).

Many studies suggest that the accounting knowledge set was not created but merely formalised and entrenched during the nineteenth century (Carey, 1969; Edey, 1956; Littleton and Yamey, 1978) and that any changes to it during this period were often cosmetic in nature, aimed at creating a positive perception of accountants (see, for example, Freidson, 1986, Halliday, 1985). Edwards and Walker citing a range of sources[lviii] suggest that the pub-

lic accountant's jurisdiction, while not totally static, was "*substantially defined prior to the organisational formation in England*" and that while accountants undertook to provide a range of business related services it appears that the additional services offered by firms substantially declined over the nineteenth century (2007b, p.65). [A more comprehensive discussion of the evolution of the accounting knowledge set from both the functionalist and critical perspectives is provided in Appendix 1 of this study].

Edwards and Walker show that there was a general acceptance that three broad categories of work were specifically identified with *accountants* for much of the nineteenth century. These are firstly, *accounting for the going concern*, secondly, activities involving *business, disputes, failure and bankruptcy* and finally *valuation and agency* matters (2007, pps.82-84; also see, Abbott, 1988, p.215). Each of these three categories of work appears to have been based on the application of the accounting discipline's knowledge set of principles, techniques and practices.

The consistent application of a relatively static set of accounting techniques and practices to three identifiable work categories provide sufficient evidence for this study to conceptualise a consistent occupational classification, identified as *Accounting*. As a result this study suggests that a valid occupational grouping is provided by including all those occupational titles that are associated with the performance of those three broad categories of work. This study therefore accepts an expanded definition of *Accounting* (as an occupational classification) because such an approach appears to reflect the broad public perception of the discipline during the period of analysis as confirmed by the interchangeable occupational nomenclature used in contemporary trade journals, census documents and advertising.

Those accounting activities involving *business, disputes, failure and bankruptcy* and *valuation and agency* matters appear to be strongly identified with those people within the accounting discipline who were specifically engaged in public practice. This assertion is perhaps confirmed by the inter-occupational boundary disputes with other professional groups arising over jurisdictional claims over this type of work (Abbott, 1988).

An editorial in the October edition of *The Accountant* (1879, p.4) suggests that "*it was probable that not more than a third* [of *accountants* listed in the *Accountants' Directory*] *were engaged in the work of public accountants".* Edwards, Anderson and Chandler identify significant numbers of *accountants* working within organisations other than accounting (and related services[lix]) firms across the entire nineteenth century (2005)[lx]. Matthews cites numerous examples of even *public* accountants becoming involved in activities associated with internal management accounting functions of commercial organisations, such as costing and certain forms of recording keeping, from the early decades of the nineteenth century (1998, pps.77-85). Thus a large proportion of the accounting cohort appears to have been primarily involved in activities based upon *accounting for the going concern*.

This study's inclusive approach specifically raises the issue of the relationship of bookkeepers and clerks with the accounting discipline and the degree to which this group may be perceived to be *accounting for the going concern*. Kirkham and Loft explain that the:

> "*seemingly consensual understandings of the difference between an accountant and a bookkeeper do not appear to extend to different aspects of the accounting function. Hence recording items in the books of a business may be viewed as part of the accountant's knowledge base whilst the practice is generally regarded as the primary role of the bookkeeper or clerk"* [lxi] [they go on to suggest] ….. *"the apparent transportability of skills between clerks and bookkeepers and accountants" as the underlying reason these groups are "represented as occupationally equivalent"* [during the nineteenth century]*..... "despite the protestation of some. The difference between an accountant and some clerks was a contested area"* (1993, p.518).

Kirkham and Loft also point out that the difference between a bookkeeper, clerk and an accountant "*may appear to be self evident in most contemporary societies…differentiated …on a number of levels including skill, social status, rewards, influence and power*" but this was not always the case and for many years little differentiated the two groups (1993, p.507). For ex-

ample Kettle, when discussing the staffing difficulties found at *Deloittes,* emphasises their ongoing need for 20 to 30 clerks at any point in time, and importantly, the progression of these clerks to accountants and in some cases partners (1982, p.25).

Boot indicates that during most of the nineteenth century the term *clerk* is as problematic for defining an occupation, as is the term *accountant*[lxii] as both occupational titles included incumbents from either end of the socioeconomic spectrum (1999). Hanlon suggests that a high proportion of *accountants* were part of the service class and were often involved in marginalised low paying activities (1994 & 1996). He argues that accounting was segmented into a very small elite group who acted as the agents of capital (obtaining significant rewards) whereas the majority remained as members of the working class[lxiii]. Walker also identifies a number of subgroups identified as *accountants* using data from the 1851 census [lxiv](2002). He confirms:

> *'that the term 'accountant' encompasses a wide range of occupational experiences and employment statuses and its meaning appears to have been subject to spatial variation'* (2002, p.377).

Chatfield also shows that there was a lack of demarcation within the accounting occupational group and suggests that for most of the century there was no required standard of education or skill deemed necessary for recognition as an accountant and that, while the elite accountants were held in esteem and employed for their expertise, the others acted in a mainly clerical capacity (1977, p.113). Routh indicates that the lack of any formal differentiation encouraged numerous bookkeepers and clerks (and some failed business men) to call themselves accountants thus blurring the demarcation between the increasing numbers of individuals involved in commercial, financial, clerical and accounting roles for the majority of the nineteenth century (1987, p.20).

As a consequence, for the majority of the period covered in this study, clerks and accountants were not differentiated in any census data. Routh points out that:

> "*prior to and including 1881, the census for England and Wales included 'commercial or business clerks' with accountants and other related occupations. As a result 'bookkeepers' and 'accountant's clerks' were classed as 'accountants' in subsequent census as 'commercial' or 'business clerks'. In 1911, 'railway officials, clerks' were lumped together as were 'post-office officers and clerks' and 'other Civil Service officers and clerks"* (1987, p.23).

Anderson shows that until the late-nineteenth century the occupational classification *accountant, bookkeeper* and *clerk* signified a person of similar standing with regard to education and social status but that by the early twentieth century these classifications were no longer regarded as equivalent (1976; also see Anderson, 1988). Eventually the census compilers tightened their definitions significantly and by the 1911 census the *bookkeeper* or *accountant's clerk* were reclassified under the heading C*ommercial or business clerk* leaving *accountants (clerks or officials) in the service of companies etc* as a separate classification. The construct *accountant being public or chartered working in practice* was only then differentiated from those in commercial work. Kirkham and Loft indicate that it was not until the 1931 census that accountants were totally reclassified under *professional occupations* (specifically excluding clerical staff) and that *clerks were included under a totally separate category (clerks, draftsmen; typists)* (1993, p.509).

So while the differentiation between accountants and others in the commercial sector began in the early twentieth century it was not complete until the 1930s. Kirkham and Loft go on to suggest that it is only since the mid-twentieth century that accounting has been studied as part of the *professions* literature and bookkeeping classified as part of the broader *white collar* occupational activity (1993, p.508).

Given this lack of demarcation, for the purposes of this study, clerical, bookkeeping and accounting work may be seen as belonging to the same occupational group as accounting for most of the period covered by this study. This inclusive approach is consistent with a number of influential studies that have also focused on the more marginalised groups within the context

of the accounting discipline (For example, Loft 1988, 1990 & 1994; Witz, 1992; Robson and Cooper, 2006; Bourdieu, 1984).

The downside of the adoption of our broad definition of '*accounting*' is that such an approach complicates the interpretation of any measure of the socioeconomic characteristics of the occupational group. The inclusion of both the 'elite' and the 'non-elite' of the accounting discipline within a single disciplinary group could confound the resultant measure as it would be expected that each end of the accounting continuum would have significantly different socioeconomic profiles with regard to earnings and education [which could be assumed to be the case with virtually all broad occupational classifications]. This complication will be addressed in latter sections of this study.

If, for the purposes of this study, *Accounting* is to be recorded, not as an individual occupation, but as a grouping of related occupational titles, census data pertaining to accounting-related occupations must also be brought together to facilitate the *Nam-Powers* ranking. Perkin approves of this approach commenting that *while difficult*, comparisons [and thus rankings] can be made in terms of broad categories rather than for all specific occupations (1961, p.127). Armstrong suggests that:

> "*without some grouping one cannot work effectively and most researchers would agree that attainment of comparability between studies is worth the loss of a little finesse in individual methodology"* (1978, p.58).

Social analysis to date, using the occupational data contained in census reports, has been aggregated into a variety of groupings based predominantly on either *social classification* (Armstrong, 1972) or *industrial based grouping* (Booth, 1886; Routh, 1987).

Occupation is often used as a contextual variable to facilitate the study of social mobility and as a consequence its classification and aggregation has been based predominantly on '*social classification*' thus linking the two terms. The groupings of occupations that reflect this purpose have been significantly influenced in Britain by the *British Registrar General's Scale* and in the US by the 1930's *Census Bureau Classifications (*see, for example, Edwards, 1933 or Thernstrom, 1973)[lxv].

These studies often involve the categorisation of occupations into classes (usually 1-5) based on the criterion of *general standing within the community* as provided by the British Registrar General's Office classifications scheme (or some derivation thereof[lxvi]). Given the purpose of this current study such an approach to the classification of occupations is inappropriate and tautological in nature, given that it presupposes the results of the social standing of each occupational group [effectively treating the social status of individual occupations as invariant]. The present study seeks to treat the status of an occupational group as a measurable variable. As a result it must seek a basis for identifying and grouping occupations into categories that would best reflect a unified and consistent *bundle of activities* (as per Hauser and Warren, 1997).

In the present study such a grouping is achieved through the adoption of the alternative *industrial based* grouping of occupations. Charles Booth's landmark analysis of nineteenth-century British census data, "*Occupations of the People of Great Britain, 1801 to 1981"* provides a detailed classification of various occupational groups for the period 1841–1881. As discussed (in Sections 1.3.3. and 1.3.4.), the difficulties associated with occupational classification (particularly pertaining to grouped or individual occupations such as accounting and clerks) contained in the printed census volumes varied significantly from census to census. Confronted by these difficulties Booth states that "*(i)t was with the idea of remedying to some extent this state of things that I undertook the compilation of the tables, the result of which are submitted in the appendix of* (his) *paper"* (1886, p.318). Booth's study effectively reduced the occupational classifications to fifty-one subgroups and then further reduced these into a more workable eighteen industry-based occupational groupings.

While not perceived as perfect, Booth's industry-based classification scheme has been generally accepted as logical (Routh, 1987). Perkins states that:

> "*up to 1881 the safest guide is Charles Booth's correlated abstract from the returns, which takes into account changes in defi-*

nitions and deliberately groups occupations to make them reasonably comparable" (1961, p.128).

Armstrong briefly outlines the benefits of using Booth's classifications, with regard to comparability between studies and suggests that his classifications have been subsequently "*heavily relied upon by scholars wrestling with the changing economic structure of England* [and] *that their value does not end at that point*' his arrangement of census data facilitates the "*securing of comparability with national figures and approximate long-run comparability across years down to 1881"* (1978, p.58).

Szreter quotes influential economist and statistician Alfred Marshall (who worked closely with Booth, throughout the 1880s and 1890s):

> "*It seemed to me that the first aim of the classification of an industrial census should be to group together, as far as possible, those homogeneous groups of people who have skill of about the same kind and degree, who are of the same social status,* [emphasis added] *who are able to act together in industrial and social questions, and who are fitted for being the subject of generalizations of importance in economic and social studies"* (1984, p.525).

Szreter goes on to suggest:

> *"Booth's methodology was the only empirical social classification explicitly discussed in detail by Stevenson during his protracted deliberations* (and therefore as a basis for his subsequent development of the British Registrar General's Occupational Scale'). *"It was considered state of the art"* (1984, p.526).

Of particular importance to this study is Booth's classification *Industrial services* which may be deconstructed into two sub-classifications:

a. General labour;
b. Commercial services;

Booth explains that within the sub-classification *Commercial services* he included those persons identified by successive census data as those "*engaged in banking, insurance and accounts*". He goes on to explain that this sub-classification covers "*all commercial clerks, accountants and bankers*" (1886, p.336). Based on the above discussion about the scope of the accountant's work, there is strong evidence for relying on Booth's *Commercial services* occupational grouping as a suitable proxy for the socioeconomic analysis of the accounting occupational group[lxvii].

Routh extended the work of Booth, focusing on the census data provided by the Department of Employment, British Labour Statistics (Historical Abstracts 1886 – 1968, HMSO) for the period 1891 to 1911 (1987). While not reproducing Booth's groupings explicitly, Routh's classifications[lxviii] provide a means by which meaningful occupational comparisons may be made from 1841 to 1911. He includes within the occupational grouping *Commerce and financial services* those services provided by the accounting discipline for census periods after the conclusion of Booth's study.

Booth suggested that by using a combination of sources it was possible to ascertain a number of demographic characteristics associated with occupational groups within the "*great industries*" from the earlier periods of the nineteenth century even given the inadequacies of the census data available (1886, p.315). As a result data from early census dates based on a compilation of work (such as that from Deane and Cole, 1962) can then be employed to estimate occupational characteristics for the census dates 1821 and 1831. These estimates can be directly converted into Booth's classifications. The technique upon which this process of estimation is undertaken is fully outlined in the *Methodology – Constructing Nam-Powers socioeconomic scores retrospectively (1.4.0.)* section of this study.

Thus using the classifications obtained from these sources it is possible to establish a basis upon which to collect data pertaining to the broadly defined, industry based classification of *Accounting* for all ten census periods from 1821 to 1911.

1.3.4. Conceptual issue: *Estimating occupational income levels*

The retrospective development of an effective socioeconomic measure of status is contingent on the identification of an appropriate measurement of occupational earnings. Given the outcome of the above discussion regarding the occupational classification of *Accounting*, any estimation of income levels must include sufficiently detailed time-series data pertaining to the relative earnings of both elite and non-elite practitioners for the entire period covered by this study.

In terms of the elite cohort of the nineteenth-century British accounting discipline a number of studies provide a useful (albeit fragmented) view of both their *income* and *wealth* (For example, Jones, 1981 & 1995; Brief, 1954; Cornwell, 1993). As the primary sources of these data comes from the histories of surviving[lxix] accounting firms and commissioned biographies of professional accountants, its reliability and representativeness has been the subject of some debate[lxx] and conjecture (Goss, 1932; Norton, 1950; Boys, 1994). The earnings data gathered by Jones' (1981) and to a lesser degree, Cornwell (1991), has been consistently employed by accounting historians to provide an insight into the nature of these accounting practices in a number of studies[lxxi] (see, for example, Parker, 1986; Edwards, 1989; Kedslie, 1990; Anderson, et al., 1996; Edwards, et al., 2007).

These studies indicate that the elite and entrepreneurial of the accounting discipline were amongst the highest income earners of the period. Matthews points out that the Victorian era's elite accountants nominally "*worked for a fee rather than profit (albeit for the highest fee they could command"*[lxxii]*)* and that nineteenth century "*accounting firms were highly profitable*" (2006b, p.502). Kettle quotes William Welsh Deloitte from May 1855, writing to a solicitor in Colchester: "*my charge will be three pounds and three shillings a day* [while] *my clerks will be one pound, eleven shillings and six pence per day*" (1982, p.15). Jones quotes Edwin Waterhouse [who] stated in the 1880s that "*some charge three pounds and three shillings a day, much less than I estimate my own time to be worth and get for it*" (1981, p.35).

Edwards citing *Herapath's Journal* indicates that a "*barrage of editorial abuse"* was directed at accountants during the 1849-50 "*railway audit debate*" in response to the suggestion[lxxiii] that there was a need to adopt a regime of continuous audit carried out by "*mere professional accountants who charge the excessive rate of three guineas a day for each principal"* (1985, p.38).

Historic earnings data from the accounting firm of *Curtis Jenkins and Co.* (Bristol) indicate that during the periods 1851–57; 1862-67; 1876-77 the firm principals charged two pounds and two shillings a day and clerks were charged out at fifteen shillings per day. (This *charge-out* rate appears to be applied to all types of jobs and to have remained stable until around 1894) (Edwards, 1985, p.40-1).

The History of J and A. W. Sully suggests a *charge-out* rate (by 1880) of fifteen guineas (a guinea being one pound and one shilling) a week for a partner, ten guineas for a senior clerk and five guineas for an articled clerk (Stacy, 1954). Edwards, Edwards and Matthews examined the *Letter Book* of *Price Waterhouse and Co*. from 1897 which details the *fee notes for service*. It indicates that total fees earned of £47,000 and *charge-out* rates of two guineas per day (1997, p.20)[lxxiv]. Chandler and Edwards within the context of a discussion regarding the competition between audit firms and the appropriateness or adequacy of fees of the late-nineteenth century, cite *The Accountant* (4 March 1899, p.243) suggesting that "*25 pounds for a week or two's work was an insufficient charge and thus unprofessional to accept*" (1996, pps.18-19). Edwards, Edwards and Matthews however, in highlighting the audit fees charged by a number of firms[lxxv] at various dates [from the mid-1870s to 1900], suggest that salaries paid to experienced professional staff were only a small fraction of the *charge-out* rate (1997, pps.17-18).

Fragmented details of accounting earnings may also be obtained from the study of the evolution of Companies or Bankruptcy legislation (see Appendix 2 for full discussion). The changes associated with this type of legislation have been frequently cited as being financially beneficial to accountants[lxxvi] and sometimes provide partial details of the earnings of those *specialist chartered accountant* or *public expert in matters of account* involved in the reform process (Markham-Lester, 1995*;* Edwards, 1986 & 2001; Walker,

2004). For example, William Turquand (father of the prominent Victorian accountant of the same name) earned on average, as an *official assignee* for the years 1833 to 1841 (inclusive), payments of £689 13 shillings and 8 pence per year (or more than two guineas per working day)[lxxvii].

In addition to the *public accounting* elite, historic studies have identified a small group of highly-paid clerks employed by both public and private entities. Boot describes how a very small number of *established clerks* (with up to forty years experience) employed by the *East India Company* and several government departments (including the Treasury, the Foreign, Colonial and Home Offices) were some of the highest paid employees in Britain. Some clerks in these agencies and also those working in administrative affairs within large private firms are recorded as having achieved salaries of up to £2,000 annually (during the second and third decades of the nineteenth century). He goes on to describe how, on average, the real income of an established clerk with significant experience earned approximately £600 per annum during the early periods of the nineteenth century, with a substantial proportion achieving £800 and £1,000 (1999, pps.639-40 and Table 1, p.643).

If we move away from the earnings of the elite of the discipline to others within the accounting groupings we are presented with a very different perspective. Numerous studies confirm that articled clerks rarely received anything beyond the return of the premium they had paid to be articled over the period of articles (Anderson, et al., 2005, pps.26-27; Schwarz, 2004, p.953; Parker, 2004, p.75). Edwards cites William Plender's biographer who suggests he began work with *Deloittes, Dever, Griffiths and Co* in 1884 (having previously worked in Newcastle for John G Benson and Co.) for £100 per annum and that this amount was generally regarded "*as the current rate of remuneration for newly qualified accountants*" (1985, p.737).

Musgrove also provides a brief reference to middle-class earnings and includes a range of clerical earnings associated with "*routine clerks; bank clerks; managing clerks, second division clerks employed in the civil service"* (1959, p.99). He observes commercial clerks and bookkeepers salaries ranging from £60 to £200 per annum at different points across the century. Boot while highlighting the high salaries of the elite *established clerks* acknowl-

edges that those with reasonable experience working in banking were commonly earning between £150 and £450 per annum during the first half of the nineteenth century (1999).

Boot confirms that salaries paid by the *East India Company* corresponded closely to those paid by the government and were slightly higher than those paid by banks (comparing them specifically to the *Bank of England* and *Coutts Bank*) and insurance companies (1999, p.658). He suggests also that there was parity between the incomes of those employed in lesser, menial clerical roles and those employed in manufacturing and commerce.

The accounting earnings data contained in the above studies indicate that while a very small minority of the elite (either accounting or clerical) were amongst the most highly-remunerated people in Britain, there was a large number of modestly-paid accountants and clerks, indicating a great deal of diversity in the earnings of those working in the accounting discipline. Several studies highlight the rapid growth of the accounting discipline over the nineteenth century, making it an attractive work area for the newly-educated and aspirational working classes, and the negative impact this had on the earnings of those workers successful in gaining employment in accounting positions (Kirkham and Loft, 1993; Routh, 1987; Booth, 1886; Anderson, 1976; Glenn and Feldberg, 1977). Overall these studies suggest that while the accounting occupational group, as a whole, is more highly paid than most other service industry groups there is diversity and a growing gap between the earnings of the minority of elite accountants and those of the burgeoning group of non-elite accountants.

Anecdotal evidence of the high fees charged by accounting firms (and accretions of wealth secured by the individual principals of these firms) appears plentiful, however accurate earnings data across the various employment levels of the accounting discipline for nineteenth-century accountants is significantly more difficult to obtain or estimate. Specific accounting firm data display a number of limitations in terms of their use in the development of socioeconomic scales. The major limitations are:

- The data primarily disclose the firm's fee income rather than the earnings of the individuals within the discipline. While it is possible to extrapolate this to a degree, it requires a number of *"heroic assumptions"* (see Edwards, Edwards and Matthews, 1997, pps.17).

- The data does not cover the entire period under investigation;

- The available data reflects only the very elite of the accounting discipline (whose practices had existed often for over a century) and is therefore unlikely, in any real way, to represent even the upper quartile of earnings in the accounting discipline during the period under investigation.

- As the *Nam-Powers* approach is a relative measure based on earnings and education there is the need to determine earnings for a large proportion of the employed workforce in the accounting discipline in nineteenth-century Britain, not just some elite section of it.

The incomplete nature of these firm data sets does not provide sufficiently robust empirical evidence (either in terms of volume or disciplinary range) at each of the census points to contribute, in any significant way, to the construction of a socioeconomic scale for the entire accounting cohort for the ten census periods covered in this study. However, if an alternative source of earnings information could be identified, these data do provide a base for basic validation and /or reconciliation (see Section 1.3.1.)[lxxviii].

As is the case with all historic research, time series data are often difficult to both obtain and verify. Sobek states that the demand for such continuous measures has led scholars to devise proxy variables for income (such as wealth, home ownership, and the presence of servants) (1996, p.175). Sharlin warns researchers about the inconsistent application of these measures across time and social location, citing Treiman (1976) and his use of

both *income* and *wealth* measures (1980)[lxxix]. Again with regard to accounting (both elite and non-elite) only fragmented data are available for proxies such as wealth and home ownership. Given these limitations, this study has sought an alternative means of determining a valid measurement of earnings of the accounting disciplinary group.

Economic historians have a long history of examining the pay structures of workers in Britain both pre- and post-industrialisation (for example, Stamp, 1916; Ashton, 1955; Hartwell, 1961; Deane and Cole, 1962; Jackson, 1987; Feinstein, 1988 & 1998; Coleman, 1956; MacKinnon, 1985). Williamson (1979 & 1980) and Lindert and Williamson (1983) have compiled earnings' time series from a variety of sources, including church records, (clergy lists), educational records, (from charity schools, elementary schools, and Parochial Union schools), and civilian pay lists from military records[lxxx]. Lindert and Williamson suggest that the *annual estimates* extracted from the *Parliamentary Papers* provides a particularly *rich source* of consistent time series earnings data on well-defined occupations for a large numbers of employees in each category (1983).

Williamson provides evidence that from as early:

> *"as 1797 government pay rates appear consistently and in detail as part of the annual estimates reported in the Parliamentary papers. This information offers a time series on a long list of heterogeneous civilian labour inputs hired by the British government: clerks, accountants, porters, messengers, engineers, post-office letter sorters, doctors, constables, police inspectors, and many more. Such information makes it possible to establish the structure of civilian pay within the government service sector for the two centuries prior to World War 1…but it offers far more if we are to accept trends in public pay as proxies for trends in private pay for the same occupations. In most cases there is simply no alternative since service occupations in the private sector are so poorly documented"* (1982, p.11).

Data generated by Routh supports Williamson's contention that there is a high degree of correspondence between private and public sector earnings across occupational groups in nineteenth-century Britain (England and Wales) and he cites evidence supporting the competitive nature of the private and public labour markets in British service occupations, from 1874 to 1913 (1954)[lxxxi]. Routh's work, in confirming the public/private sector wage parity, is of particular importance in that his conclusions are based on predominately white collar clerical workers' earnings (1954; also see Glenn and Feldberg, 1977). Sobek, within the context of socio-historical studies, also showed that Williamson's data reflects the relative standing of the occupational groupings in terms of the average incomes typically earned by persons classified within each occupational grouping (1996). The income score indicates the person's market position in terms of the resources he or she can expect to command, and it therefore suggests a range of life chances dependent on income (Sobek, 1996).

Applying these data Williamson derived a complete set of English and Welsh earnings measures for a wide range of occupational groupings from the late eighteenth century until 1911 (1982; also see Lindert, 1980). Lindert and Williamson explain that the earnings figures generated are based on adult males across eighteen occupational classifications (1983)[lxxxii]. The rates are for "*normal or full time earnings and excludes income from property, pensions, poor relief and any payment in-kind*" (1983, pps.2-9, also see Lindert and Williamson, 1982 & 1985). They state that the data captures the entire earnings distribution with regard to age, tenure and skill within each of the occupational groupings (1983, pps.4-5). Williamson also suggests the occupational groups included in his study are representative of about two thirds of the occupied English and Welsh populations and come very close to exhausting all wage and salary earners (1982, p.7). He acknowledges that not all industries or occupations have been included due to the limitations of the data (for example, some aspects of the clothing trades and shop assistants are not represented) (1982, p.8). This nominal pay series data is fully documented in Table 3.4.0. of Appendix 3.

While providing a critique of Williamson's data (and conclusions)[lxxxiii] Feinstein states that Williamson's occupational earnings dataset has proved to be of particular importance to historical researchers in that he greatly extended the time span of calculated earnings figures available for British occupational groups for the nineteenth century when compared with other datasets that have been generated but which mainly focused on the second-half of the nineteenth century (1988; also see Lindert, 2000, who provides an overview of the issues raised by Feinstein and responds to the perceived biases with regard to the statistical data used).

Jackson suggests that by calculating pay scales for such a broad range of occupations Williamson made a major contribution to the knowledge of nineteenth-century pay structures (1987 & 1994; also see Phelps Brown and Hart, 1952; Soltow, 1968)[lxxxiv]. This is important for the current study because Williamson included in his calculations, estimates of the earnings of a range of service occupations (where other studies provide pay data only for wage earners in industry or agriculture).

Williamson provides an overview of the specific occupations that are included in each of these groups (1982) and this data is fully documented in Table 3.5.0. of Appendix 3. Importantly, for this study, one of Williamson's eighteen occupational classifications is defined as, *Clerks: excluding government* and includes within it the following occupations, bank clerks, auctioneers, appraisers, accountants, commercial clerks, railway clerks.

As previously mentioned, accounting history studies have identified auctioneering, appraising and obviously accounting as specific functions undertaken by accounting practices for the majority of the nineteenth century. Numerous other historical investigations have suggested that significant changes in the nature of British society caused by industrialisation, specifically the impact of railways and banking companies, affected the evolution of the accounting discipline in Britain (see for example, Parker, 1990; Littleton and Yamey, 1956; Gourvish, 1980; Burchell, Clubb, Hopwood and Hughes, 1980; McCartney and Arnold, 2003; Edwards, 1985 and 1989; Jones, 1981; Cornwell, 1993; Jones and Aiken, 1995). A full discussion of these factors is contained in Appendix 3.

From an evaluation of these studies it is possible to conclude that Williamson's classification - *Clerks: excluding government* is both strikingly similar in substance to Booth's (1886) *Commercial services* grouping (in concert with the groupings presented by Routh, 1987) and thus equally representative of the accounting discipline during the period of interest for this study.

An examination of all eighteen of Williamson's occupational classifications highlights the obvious similarities between the occupational groupings used by Williamson and those employed in the much earlier Booth (1886) study. This similarity suggests that it may be possible to align the two datasets so as to facilitate a comparative analysis of the relative earnings of these eighteen occupational groupings across the 1821 to 1911 census periods.

1.3.5. Conceptual issue: *Estimating occupational educational levels*

The second attribute measured in the production of a *Nam-Powers* socioeconomic score is the *relative* educational attainment of the members of an occupational grouping. Hauser and Warren suggest that two dominant approaches exist to the measurement of educational attainment and that therefore comparability between studies is always an inherently difficult issue (1997). They explain that a value for educational attainment is most often determined by either:

- Adopting a scaling procedure based on a logarithmic transformation of the average number of *years of schooling* individuals within occupational groups undertake;

or

- Calculating the proportion of the members of an occupation that have completed a predetermined number of *years of schooling* (commonly, one year post-secondary schooling).

Twentieth century occupational status studies have determined *years of schooling* using measures obtained directly from national census data (for example, Stevens and Featherman, 1981; Stevens and Cho, 1985; Nakeo and Treas, 1992; Powers, 1982; Nam and Powers, 1968). While there is a significant body of literature that focuses on the relationship between British industrial development and education (for example, Bowman and Anderson, 1963; Webb, 1955; Hurt, 1971 & 1979; Sanderson, 1972 & 1974; Schofield, 1968 & 1973) direct measures of *schooling* are not, however, specifically available from nineteenth-century Britain census material, either in general or for specific occupational groups. Even where direct verification of primary education enrolment is available, evidence of both *attendance* and *quality* is disjointed and therefore its application for the purposes of this study is problematic.

For example contemporaneous studies such as The *Children's Employment Commission* (1842-43, cited in Perkin, 1961) questioned the reliability of early educational records kept regarding the general population, citing a lack of specific information available as to the ages of children commencing or completing formal schooling for the early decades of the century. Importantly, where records appear available the *Commission* indicated that inadequate conditions and/or curricula developed by relatively uneducated '*teachers*' characterised the majority of schools and thus lead to questions as to the consistency and quality of the educational experience [lxxxv] (Perkin, 1961).

As a consequence historic studies must countenance significant difficulties when directly (or even indirectly) assigning or estimating measures of *schooling* to occupational groups in nineteenth-century Britain. However the importance of educational attainment as a social variable, combined with the lack of specific, reliable schooling information from this period, has generated vigorous debate within the educational and social history literature. Studies have attempted to both establish (and question) the validity of the available schooling data from the period or, alternatively, seek to provide substitute measures of schooling.

For example, Schofield's study based on surveys conducted during the early nineteenth century[lxxxvi], indicates that prior to 1830, "*few children were regular in attendance, and few remained at school for more than one and a half years*" (1968, p.452). West disputes Schofield's results and suggests that there were high levels of social relocation and migration during this period (1978). He states that children often spent short periods of time in several schools and that cumulative samples show the average duration of school may have varied significantly from what records and surveys indicate. Musgrove further complicates the debate by suggesting that this period is characterised by a changing balance between home education (using a governess or private tutors) and school attendance for the higher socioeconomic classes (1971)[lxxxvii].

Although the availability of *schooling* data improves over the second fifty years of the nineteenth century, the *Commissioner on Popular Education* in the *Newcastle Report* (1861, cited in Perkin, 1961) again indicated a number

of issues with regard to the reliability, meaning and hence the utility of the data used in assessing all educational outcomes for this early period[lxxxviii]. Formal records published as a component of the *Newcastle report*[lxxxix] of 1861 showed that the average duration of schooling to be 4.5 years in 1850 based on census data compiled in 1851. By the following census (1861) this had increased to 5.7 years. Subsequent British Government reports found a steady increase in average period of school enrolment, showing that by 1890 it had grown to 6.13 years and that by the turn of the twentieth century the average had risen further to 7.05 years (*Bryce Commission*, 1895, cited in West, 1978).The later *Bryce Commission* of 1895 shows undoubted improvement since the earlier surveys but suggests that this was not by any means an *excessive expansion* of the duration of school enrolment[xc] (cited in Schofield, 1968).

Again the reliability of the government survey data used in assessing all educational outcomes in these subsequent reports has been questioned, particularly with regard to the distinction between *enrolment* and *school attendance* (Schofield, 1968). The *Newcastle Report* stated that by the midpoint of the century over 85 percent of children were still not regularly attending any school. Even though a number of legislative restrictions[xci] were placed on children working by the third quarter of the nineteenth century (thus attempting to ensure compulsory school attendance), it has been suggested that the nominal level of school attendance was still not indicative of actual attendance throughout the entire century (Stone, 1869; also see, Sanderson, 1967; Ellis, 1973). Hurt points out that for the period 1888 to 1916 school non-attendance was the second most common offence heard by magistrates (the first being *drunkenness*) (1979, p.203).

Data about the basic levels and quality of educational participation across the population are no more reliable for post-primary educational attainment than primary educational attainment during the nineteenth century. Stone states that the records suggest that, during this period in Britain, participation in higher education was stagnant and did not noticeably expand until well into the third decade of the following century (1969; also see Mathews, Feinstein, and Odling-Smee, 1982; Rothblatt, 1882)[xcii]. As with most western

countries, in nineteenth-century Britain, the secondary-educated cohort was just two to three percent of the population and the higher educated cohort was estimated to be less than 1% of the population. Thus the majority of the population was *marginally involved* in primary education only (Stone, 1969, p.72).

As little reliable data on *years of schooling* is available for the general population or individual census classifications across the entire century *relative educational attainment* of the accounting discipline must be determined using some type of alternative criteria.

In circumstances where *years of schooling* have been difficult to obtain or records are considered too unreliable, many scholars of educational history have sought to measure educational attainment indirectly. Rather than focusing on *years of schooling* these studies have commonly used levels of *literacy* as a measure of the educational variable (West, 1978).

Studies of *literacy* describe *years of schooling* as *indirect evidence* of literacy while studies of *years of schooling* regard *literacy* in a similar context (West, 1978). The degree of correspondence between these measures has been the subject of great debate. However it is general accepted that levels of *literacy* and *years of schooling* are highly correlated and highly interdependent (West, 1978). As West correctly suggests, scholars should not be:

> *"'too hasty'* to '*dismiss any data, whether of literacy or schooling, the moment difficulty or complexity arises. Usually with some sensibly expressed qualification, the information from most sources can be employed, tentatively at least, and confidence will be increased if a consistent pattern from the various sources emerges"* (1978, p.377).

Measures of literacy often rely on the *marriage literacy test*. This *test* is based on the retrospective examination of historical records of marriage participants' ability to write or even just sign their names on official records or documents, such as marriage certificates, legal dispositions, petitions and wills[xciii]. Using the results of *marriage literacy tests*, Schofield produced a scale showing an estimation of the percentage of illiterate men and women across Britain for each year of the nineteenth century (1973)[xciv]. The results of

Schofield's scaling provide one measure of literacy that can be used as a proxy for the *educational attainment* for the general population and that may be used in conjunction with *school-based* data (West, 1978).

Laqueur used the results of *marriage literacy tests* to suggest that British literacy (and schooling) was at its lowest level at the beginning of the nineteenth century but that an increase in literacy could be seen by 1840 (1974). This trend continued for the remainder of the century. While overall the literacy of the British population increased during the nineteenth century it did so from a very low base (Schofield, 1973). Although Schofield's study is indicative of increasing participation in primary education, there is little evidence of any significant or consistent overall expansion in secondary or tertiary educational participation across the entire nineteenth century (Stone, 1969, pps.71-2).

Literacy is said to provide a useful proxy for educational attainment in studies related to employment as it is believed to capture both general and vocational education (Perrot, 1975; also see Spufford, 1979). However for the purposes of this study the *marriage literacy test* data contained limited occupational information for much of the nineteenth century. Its results are compromised by its total reliance on self-identified occupational membership and often poorly defined occupational classifications. Thus it allows only a very basic investigation of any correlation between occupational group and *literacy* (Schofield, 1968).

In addition, for the purposes of this study the utility of the *marriage literacy test* data is further diminished in that literacy (or illiteracy) measures provide only a dichotomous rather than continuous variable. As a result the data does not provide an indication of the relative levels of literacy (or illiteracy) of individuals within each occupational classification. For example, available *marriage literacy test* data indicates that those in the accounting discipline (and also *clergy*, *law*, *teaching* or *medicine* and a number of other occupations) were 100 percent literate (to the extent that they could sign their names) for the entire century. By the end of the nineteenth century approximately 97 percent of men and 95 percent of women could also sign their names effectively (Schofield, 1973). As such, the results obtained using these

data does not provide a sufficiently sensitive means of differentiating, and hence ranking individuals across occupational groupings.

Treiman highlights the difficulty in obtaining or deriving meaningful educational levels for the purpose of determining occupational status:

> "*my search proved totally futile with respect to a measure of skill – I was not able to find a single appropriate tabulation, even using literacy rates as a measure of educational attainment*" (1976, p.291).

Subsequently studies have sought to overcome the total lack of a direct measure of *years of schooling* or *literacy* in the ranking of educational attainment by omitting the measure altogether (based on the Treiman's 1977 finding that there is a high correlation between income and educational attainment). As a result some influential historical studies have used only occupational-income scores (Treiman and Yip, 1989). The use of *occupational-income scales* as a basis for evaluating the consistency of occupational status has been applied to US data for the period from the late nineteenth-century to the mid-twentieth century, but is however, acknowledged as being a "*noisy measure*" as it reflects only economic status and is subject to more variation than pure socioeconomic scores due to short-run market changes (Sobek, 1996, p.178).

Given the lack of reliable time-series educational data one important issue appears not to be contested by either the *literacy* or *years of schooling* literature. Over the nineteenth century there was a growing awareness that literacy or schooling were positive correlated with the financial rewards associated with occupational roles. For example, West concludes that the increasing school enrolment (even prior to compulsory schooling) reflected a willingness of parents to expose their children to education and may indicate a desire for upward social mobility (1978)[xcv]. Bleek attributes the maturing of industrialisation and the consequential need for operational efficiencies, as a stimulus to the growing demand for educated employees in both the public and private sectors[xcvi] and as a result studies have identified schooled employees as being paid higher wages and enjoying other non-monetary benefits (1972; also see Corfield, 1995; Blaug, 1968).

Musgrove suggests that while initially parents often did not perceive an employment-related benefit arising from literacy (and thus schooling) during the early stages of industrialisation this changed during the nineteenth century[xcvii] and that from the 1820s onwards there appears to be no doubt that:

> *"a public school education became more valued by families as a means of vocational advancement*[xcviii]*. Initially through the social connections made through attendance at schools and from the 1850s through the awarding of educational certificates*" (1959, p.102; also see, Mitch, 1981).

Importantly, during this period of industrialisation new occupational roles emerged (Hartwell, 1971). Many individuals were excluded from participating in these roles due to their limited prior exposure to education (Perkin, 1961). Given the lack of supply of even basically-educated employees, those skilled occupations with higher remuneration could attract those with higher levels of formal education even before they entered their respective professional disciplines[xcix] (Hans, 1951; also see McLachlan, 1931; O'Day, 1982). While critical of the generality of the accounting knowledge set, Hines concurs with this view, citing accounting recruitment advertising that documents a number of specified educational attributes desired prior to employment such as "*penmanship, arithmetic and calculation"* skills (1989, p.79).

Education became more widely recognised as a prerequisite for admission into a variety of apprenticeships by the mid-nineteenth century (Spufford, 1979; also see Vovelle, 1981) and thus the eventual expansion of secondary and higher education participation is often attributed to the emerging professionalised occupations which were observed to have systematically increased their educational requirements preceding entry[c] (Collins, 1979; also see Runeby, 1981).

Anderson, et al., show how this occurred in the context of the accounting discipline, when they suggests that the successful public practitioner throughout the nineteenth century, required a good secondary education in order to undertake "*a lengthy period of supervised vocational training* [and eventually] *rigorous written examinations*" (2005, p.382). Parker points to a period of

educational participation, that spanned approximately from five to seventeen years of age, as a prerequisite to entry to the accounting profession (2004, p.75). Anderson, et al., note that such "*apprenticeship ….conspired to restrict entry to …… (the wealthy and) the well educated*" (2005, pps.26-27).

With regard to clerical employment, Boot describes how clerks spent time completing a probationary period:

> "*probationers usually entered the company at about the age of seventeen and worked without salary for three or five years before they became established at about the age of twenty*"[ci] (1999, p.643).

Boot goes on to explain how *age* tends to be indicative of the length of time that a clerk had been employed and is more or less analogous with the level of skill[cii] and that by 1820*, "the average age of clerks began to increase. By 1850, the average age of a clerk was 10 years higher than it had been in 1820*" (1999, pps.639). Treiman, agrees, suggesting:

> "*occupations differ with respect to the amount of knowledge, training or talent they required for their performance. Some jobs can be done by almost anyone, with little or no preparation or training time.... Others require special training or special talent ... One cannot be a clerk without being literate; an illiterate clerk is a definitional absurdity"* (1977, p.13).

In addition, Musgrove examined the age data for the professions of law and medicine and while observing an overall aging of the occupational group also noted a decline in those in younger census age classifications (1959, p.106).

These studies suggest that education prior to employment became more widely accepted, particularly for those occupations associated with higher levels of social status. In summary, while discussing the professional person of the nineteenth century Schwarz states:

> "*regardless of his connections, it took him longer to enter a profession and he entered it at a later age…… new entrants were customarily aged above sixteen and ….. entrants also needed their school exams – initially*

only exams taken at the age of sixteen, then supplemented with exams taken at eighteen, and eventually supplemented with a university degree…. [Seen as a means of entry into higher status jobs]*…it was not accidental that during the 1850s both Oxford and Cambridge introduced a system of examination for sixteen year old school leavers..by 1907 ….* [these examinations plus] *… the London University Matriculation exams, were examining over 20,000 candidates per year…As formal patronage declined …..the attractions of secondary education increased"* (2004, p.943).

Schwarz also shows the entry age of Scottish accountants rising over the nineteenth century in parallel with increasing general education levels. The mean entry age for recruitment to the *Society of Accountants of Edinburgh* rose from 16.8 years between 1837 and 1854 to 18.06 years during the 1860s and eventually to 19.02 years between 1905 and 1911 (2004, p.953). He concludes that while the Scottish and English systems were different the same trends were in operation (also see, ICAS, 1954; Kitchen and Parker, 1980). As a consequence even though the British accounting professions remained averse to purely graduate entry (and preserved this stance well into the twentieth century) and maintained their strong traditions of *in-house training*, the average entry age into the profession continually rose over the nineteenth century. Treiman in discussing the means by which labour divides suggests:

"*some tasks can be more efficiently performed by individuals with particular personal traits – great strength, height, agility, speed, stamina, sharpness of eyesight, intelligence, tenacity, aggressiveness and so forth ..... similarly some activities are rigidly age stratified virtually everywhere ..... most tasks require learned skills, many of which take considerable time to master"* (1977, p.7).

The present study acknowledges the limitations imposed on the development of a socioeconomic scale caused by the lack of direct measures of *years of schooling* or *literacy*, however the *noise* (increased volatility) caused

by adopting a hierarchy based solely on *occupational-income scores* unacceptably confounds the results. As a consequence this study has sought to identify an acceptable proxy for educational attainment given the availability of historic information. The previously cited studies appear to indicate that the age an employee entered a profession was relatively higher than the age an individual would have entered an occupation with less social status. This would indicate that while the overall entry age to employment, in general increased during the nineteenth century, the entry age for those aspiring to higher status employment did not increase as quickly[ciii] as prerequisite educational requirements existed prior to the introduction of any mandatory educational requirements.

The present study suggests that the age at which an individual is first identified as employed within an occupational group may be indicative of either the duration of education that preceded their employment, or the maturity of judgment required in its performance. For example, those occupations that were more often undertaken by the very young required less prerequisite training than other occupations requiring more of the skills acquired from pre-employment education. Applying this criterion, those occupations that required higher skill and education or more vocational training, would employ proportionately fewer children.

Such a view implies that those occupational groups with higher levels of social standing will have lower child-participation rates than those occupations perceived as having less status (even though the difference between the higher and lower status may decrease over the century). Cunningham suggests the term "*child has been taken to mean anyone under fifteen years of age, primarily because one can isolate this age group from a variety of source including the census figures*". Thus census data may be used to identify the relative proportion of '*children*' occupied in each occupational grouping so as to provide a proxy for the *years schooling* measure of educational attainment (1990, p.118).

Census enumeration clearly shows that by 1851 36.6 percent of males and 19.9 percent of females *less than fifteen* years of age were recorded as *occupie*d. By 1911 participation declined to 18.3 percent for males and 10.4

percent for females[civ]. Estimations based on earlier census data of the overall child participation rate (both male and female) suggest this trend may characterise the entire nineteenth century (Horrell and Humphries, 1995). As such the reduction in child participation may reflect the changing perceptions of the value of education across the population or changes in census reporting as a result of the introduction of child employment and compulsory education legislation. The causes of a reduction in child participation have been the subject of significant debate within historic educational literature and thus cannot be resolved within the parameters of this study. It is simply asserted that an association exists between the *duration of educational participation* and those individuals identified as employed who are less than fifteen years of age. This study employs the relative proportion of *children* occupied with occupational groups as a proxy without inferring any type of causation.

Applying this criterion, census data indicates that the distribution of occupational roles of those *less than fifteen years of age* differs significantly from the average of all age groups. Thus different occupations employ different proportions of those *less than fifteen years of age*. Importantly, however, between eighteen and twenty one years of age the occupational distribution is less significant (Booth, 1886; Horrell and Humphries, 1995). This indicates that different occupational groups were discriminating both for and against the employment of those under fifteen during this period.

A preliminary examination of those occupations identified as employing larger proportions of children (not discriminating) indicates that there is a negative correlation between the level of education required and the proportion of children recorded as occupied. The occupations identified as principally employing children less than fifteen years were *messengers* and *newsboys, textiles manufacturing* (particularly cotton and woolen) *boot and shoes making; coal-mining and agricultural labour, domestic services* and *hairdressing.* The *messenger* and *newsboys* classifications were the only sub-classifications to consistently grow in numbers during the second half of the period under study. With regard to the employment of girls under fifteen years, most were engaged in either *textile manufacturing* or *domestic services*. Many of these occupations were described as *blind alley* jobs, attracting

large numbers of young, untrained girls, but offering little or no prospect of, permanent employment after the teenage years (Routh, 1987).

A second preliminary examination of those occupations identified as employing (discriminating) smaller proportions of children again indicates that there is a negative correlation between the level of education required and the proportion of children recorded as occupied. Those occupations employing the least proportion of children were the *medical*, *legal* and *religious* professional groups. The study however must recognise a number of limitations in employing this approach to determining educational attainment.

This study acknowledges the professionalisation literature which suggests that the eventual expansion of secondary and higher education participation may have contributed to the emerging professionalised occupations which were observed to have systematically increased their educational requirements for entry'[cv] (Spufford, 1979; also see Vovelle, 1981; Collins, 1979; Runeby, 1981). However the present study recognises that the application of the *proportion of less than fifteen years of age* as a measure of an occupation's general educational attainment will not reflect the increased differential between the educational attainment levels of the professions and other occupational groups. It is assumed, however, that the implication of this will be to understate the educational attainment differential (both between professional groups and between the professions and other occupations). Given the identified low participation rates in tertiary education in England and Wales until the decades subsequent to those covered by this study (and the high rates of post-employment training undertaken by those in the professions) it is considered that this limitation will not significantly impact the ranking outcome.

The present study acknowledges that some occupations, because of their physical (rather than intellectual) nature, will exclude those *less than fifteen years of age*. As a result the low child-participation rate will overstate the educational attainment of such occupations. However as socioeconomic scores are comprised of both income and educational measures (equally weighted in the case of the *Nam-Powers* approach) this weighting process should reduce the impact of this effect on the ranking process and thus the resulting hierarchy. (Given the changing work practices and structures inhe-

rent to the industrialisation occurring in England and Wales during the nineteenth century it is unlikely that occupations requiring purely physical criteria will be highly remunerated for the entire century in any case).

As previously noted, this study also acknowledges the commentary provided by Ganzeboom, De Graaf and Treiman who caution that educational attainment should not only be conceptualised as the *amount* of education completed but also the *quality* of education completed (1992). They caution that it is not always possible to interchange these two concepts and that *years of schooling* may provide an imperfect basis for comparison that does not accurately reflect the attribute being measured. The present study accepts that, given the limited nature of the educational data available to historians, the ability to differentiate educational quality and quantity must simply be acknowledged. Again as a result it is more probable that the raw census data identifying child participation as a proxy to educational attainment could be expected to overstate educational outcomes, particularly with regard to those occupations of lesser social standing.

An obvious limitation is that, while more reliable information about child participation is available from the 1851 census onward, earlier data is more problematic. Horrell and Humphries state that the total level of *child participation* in the labour markets during the first three decades of the nineteenth century remains unclear and census data prior to 1851 is again unlikely to completely resolve this problem due to its unreliability (1995)[cvi]. Even so, a variety of studies have attempted to estimate child participation in general during the early decades of the nineteenth century (Horrell and Humphries, 1995; also see Ellis, 1973; Goldstrom, 1978; Keeling, 1914; Kirby, 2005; Nardinelli, 1980 & 1990).

These studies are based upon a number of studies that focus on specific occupations, each of which also provides some (often very basic or anecdotal) evidence of their levels of child participation prior to 1851[cvii] (Snell, 1983; Galbi, 1997; Routh, 1954; Thompson, 1968; Tucker 1936; Anderson, 1976 & 1988; Boot, 1999; Flinn, 1984; Freeman and Aldcroft, 1988; Bowley, 1900 & 1900b; Bowley and Wood, 1906; Gardner, 1995; Hammond and Hammond, 1917; Harris,1988; Hasbach, 1966; Higgs, 1983 & 1995; Jack-

man, 1916; Jones, 1964; Kelsall, 1955; Klingender, 1935; Knox, 1980; Layton, 1908; LeBold, Perrucci and Howland, 1966; Loudon, 1986). Given the existence of these data, the view taken in this study is that reliable estimates for occupational groups, such as accounting, can be developed.

Obviously limitations apply with regard the reliance on census materials even from 1851 (as previously discussed). For example, Cunningham states:

> "*most people instinctively sense that the returns understate the extent of child employment. The householder's and enumerators instructions declared that the occupations of children and young persons occupied from the home or at home on any but domestic duties be recorded. Unfortunately no definition of child or young person was given – nor employment, more crucially anything said about part time occupations"* (1990, p.140).

It is more probable that the census data could be expected to understate rather than overstate child workforce participation within those occupations of lesser social standing (given the changing regulatory environment surrounding child labour in general and in particular occupations). Thus a measure of educational attainment based on child participation will also reflect this overstatement.

Even confronted with these limitations, this study proposes that the proportion of individuals who are identified within an occupational group as children (less than fifteen years of age) provides a consistent proxy for the relative levels of educational attainment for each of the occupational groupings to be identified within this study.

1.3.6. Conceptual issue: *Validating the use of Nam-Powers scores?*

The fundamental issue confronting this study is whether application of the *Nam-Powers* method can generate a series of retrospective socioeconomic scores that are valid indicators of the relative ranking (and changes in that ranking) of the English and Welsh accounting discipline within those country's nineteenth-century occupational hierarchy?

To answer this question, and therefore assess the utility of any conclusions that may be drawn from the subsequent use of a retrospective *Nam-Powers* scale, this study needs to determine the criteria by which the resultant scores may be assessed as valid representations of the changing occupational status of British accountants.

The criterion identified by Warren, Sheridan and Hauser as most commonly applied to the assessment of the appropriateness of an occupational status scale is *face validity* (1998, p.11). Socioeconomic scores are justified and applied on the basis that they appear to align with and thus represent the observed indicators of the social status of the occupations under investigation. As the objective of this current study is to generate a series of retrospective measures of occupational status for the accounting discipline, the face validity of the resultant scores generated will be the sole means of determining the utility of these measurements, there being no opportunity to create a secondary source of confirmation by conducting prestige surveys.

While it is acknowledged that all previous studies concerned with the stability of occupational status are located in different social (usually US) and temporal (post-twentieth century) locations, the view taken in this study is that resultant scores should share some common characteristics with previous occupational status studies in a general sense and correspond with known characteristics of the British accounting occupational structure from this period (particularly given the *invariant* findings of Trieman, 1977 and the commentary provided by Slocum, 1966 and Duncan, 1968)

In this section we will look at a number of indicators that can be used to validate the *Nam-Powers* scores derived from this study for the nineteenth-

century accountant's occupational status. In the *Overall results* section (1.5.0.) that follows, there will be a discussion of the degree of correspondence between such indicators and this study's resultant *Nam-Powers* scores.

These indicators of validity may be divided into two categories: Firstly, those indicative of the general face validity of the overall ranking process used in this study when compared to the results obtained from previous occupational status research, the results of past British economic history studies that encompassed occupational structure and general sociological studies into the history of professions in Britain. Secondly, those relevant characteristic identified by the numerous of studies that have focused on this era of accounting history and in particular the elevation in the social status of the process of professionalisation undertaken by accountants in nineteenth-century England and Wales.

General indicators of validity

The *Nam-Powers* scores (and their underlying component measures) developed as a result of this study should reflect certain common characteristics identified by previous occupational status (and related) research, together with the results of past British economic history studies that encompassed occupational structure and general sociological studies into the history of professions in Britain.

These are:

1. Irrespective of which measure of occupational status is employed, the results of past occupational status studies that include data gathered from multiple census periods demonstrate a high degree of temporal stability in the relative status of all occupational groups within the occupational hierarchy of a nominated social location, (Davies, 1952; Kahl, 1957; Reiss, et

al., 1961; Blau and Duncan, 1967; Hodge, 1981; Hodge, Seigal and Rossi, 1964).

Given the results of these earlier investigations, it is anticipated that the *Nam-Powers* scores provided by this study should also display a degree of temporal stability in the relative status of disciplinary groups within the nineteenth-century British occupational hierarchy. Given the changing nature of employment identified in nineteenth-century Britain in concert with the extended temporal coverage of this study it is anticipated that the results should however display higher degree of variance in some occupational groups.

2. The results of past occupational status studies consistently found that of the proportion of occupations that changed in status, the majority were revised down and that this downward revision resulted from relatively smaller increases in *both* education levels and earnings levels when compared to other occupational groups (Nam and Powers, 1968).

Given the consistent results shown in later studies it is anticipated that a persistent relationship between measures of education, earnings and the revision of occupational status may also be apparent with regard the occupational groupings that change status within the nineteenth-century British (English and Welsh) occupational hierarchy.

3. The results of past occupational status studies indicate that only a small minority of occupations experience a relative increase in socioeconomic status over time. Of this minority most increase in *both* relative earnings and education levels and therefore only very few changed status as a result of changes in only one of the income or education measures (Nam and Powers, 1968).

Given the consistency of later studies and the observed stability of occupational hierarchies the results of this study should also reflect similar at-

tributes with regard to this relationship between measures of earnings and education and socioeconomic status.

4. The results of past occupational status studies indicate that *income based* measures are more volatile over time because they are more susceptible to fluctuating market forces, and thus *educational* measures are less volatile over time and therefore tend to dampen any change in occupational status caused by the volatility of earnings (Duncan, 1968; Treiman, 1976).

Given the consistent results of later studies this study anticipates results that also show that for the majority of occupational classifications identified within the nineteenth-century British (English and Welsh) occupational hierarchy the *income based* measures will be more volatile over time than the *educational* measures.

5. The results of past occupational status studies indicate a consistent tendency for those occupations with relatively large populations to be more stable in terms of the relative earnings measures used in the determination occupational status (Sobek,1996).

Given the consistency of the results in these studies the results of this study should display a tendency for those occupational classifications identified within the nineteenth-century British occupational hierarchy with relatively large populations to be relatively more stable in terms of earnings than smaller groupings.

6. The results of past comparative occupational status studies indicate that a relatively high average correlation exists between educational and earnings measures used in determining occupational status.

Given the consistency of the results across studies the results of this study should display a similar relationship between earnings and education tendency for those occupational classifications identified within the nineteenth-century British occupational hierarchy.

7. The results of past professionalism and professionalisation studies suggest that *old professions* such as the *church*, *medicine* and the *law* were already established by eighteenth-century Britain and as such their position on a nineteenth-century occupational hierarchy would reflect their elevated status (see for example, Collins, 1990). However, while overall such elite professions were highly ranked, their relative status may change across the century (Routh, 1987; Treiman, 1976).

The results of this study should correspond to the results of previous *professions* research with regard to the rankings of these professionalised occupations within the British nineteenth-century occupational hierarchy, particularly in terms of any known changes to that structure that occurred during this period.

8. The rankings provided by the British Registrar General's Scale (1913) are the only specific, existing contemporaneous evidence of the relative occupational status of all notional occupational groups from 1911 onwards.

The corresponding results provided by this study, in terms of its attribution of the relative status of all occupational groupings at the beginning of the twentieth century (1911) should show strong correlations with the classifications provided by the British Registrar General's Scale (1913) for the same period.

Specific accounting indicators of validity

1. Past accounting history and professionalism studies suggest that both the elite and non-elite of the accounting cohort were more highly educated than most other occupational groups throughout the nineteenth century in England and Wales (Jones, 1981 & 1995; Kettle, 1982; Brief, 1954; Cornwell, 1993; Routh, 1987; Booth, 1886; Anderson, 1976; Boot, 1999; Musgrove, 1959; Edwards, 1985).

The measures used within this study should therefore reflect the elevated educational attainment of both cohorts within the accounting occupational group within the occupational hierarchy across the period covered.

2. Past accounting history and professionalism studies suggest that both the elite and non-elite cohorts of the accounting occupational grouping, were also more highly remunerated than most other occupational groups throughout the nineteenth century in Britain (England and Wales) (Jones, 1981 & 1995; Kettle, 1982; Brief, 1954; Cornwell, 1993; Routh, 1987; Booth, 1886; Anderson, 1976; Boot, 1999; Musgrove, 1959; Edwards, 1985).

Similarly, the measures used in this study that reflect the earnings of the accounting cohorts should reflect the overall elevated position of the occupational group within the English and Welsh occupational hierarchy.

3. The results of accounting history studies suggest that a small group of individuals were accorded the benefits of heightened social recognition from as early as the late eighteenth century in England and Wales and this was maintained throughout the nineteenth century (Cornwell, 1991 & 1993; Armstrong, 1985 & 1987; Walker, 1991 & 1993).

The resultant *Nam-Powers* scores developed by this study for the early periods of the nineteenth century should reflect the continued elevated socio-economic scores of the elite cohort of the accounting discipline throughout the entire nineteenth century.

4. The results of the cross-sectional analysis of the intra-occupational status of various sub-classifications within the overall classification *Accounting*, should provide some indication of the overall social standing of these classes within the occupational group as at the mid-point (1851) of the nineteenth century (Walker, 2002).

The resultant *Nam-Powers* scores developed by this study from the 1851 data should reflect the breadth of range in social status identified with the variety of classes within the accounting discipline.

5. The results of past professionalism studies of accounting suggest the lack of actual or perceived demarcation between a clerical and accounting occupation led those elite accountants to implement strategies to differentiate themselves from the non-elite within the occupational group (Kirkham and Loft, 1993).

The resultant *Nam-Powers* scores developed by this study should reflect the results of this strategy of differentiation. The socioeconomic *gap* between the elite and non-elite within the accounting discipline should increase across the period covered by this study (Jones, 1981 & 1995; Kettle, 1982; Brief, 1954; Cornwell, 1993; Routh, 1987; Booth, 1886; Anderson, 1976; Boot, 1999; Musgrove, 1959; Edwards, 1985).

6. The results of past accounting history and professionalism studies suggest the professionalisation of the discipline may be viewed as an extended process and thus draw attention to the

importance of the periods both before and after the formation of the professional organisations in the analysis of the social re-evaluation of accountant's occupational status (Abbott, 1988; Edwards, et al., 2007; Carnegie and Edwards, 2001).

The resultant *Nam-Powers* scores developed by this study should reflect the extended changing socioeconomic status of the accounting discipline over the decades prior to and following the formation of the professional organisations.

7. The results of past studies, in identifying nineteenth-century England and Wales as an important period of professionalisation for the accounting elite, commonly cite the unification of an organisational body and the granting of Royal Charter as a visible public signal of its occupational ascendency (Carnegie and Edwards, 2001; Edwards, et al., 2007).

The resultant *Nam-Powers* scores developed by this study should reflect these views.

8. The rankings provided by the British Registrar General's Scale (1913) include classifications for both the elite (professional accountants) and the non-elite (clerical occupations) as at the early decades of the twentieth century.

The resultant *Nam-Powers* scores for both the elite and non-elite cohorts of accounting occupational group developed in this study that relate to the early decade of the twentieth century (1911) should correspond to the occupational status indicated by the British Registrar General's Scale (1913).

9. Overall do the *Nam-Powers'* scores provided by this study reflect the substantive body of literature that identifies the nine-

teenth century as the temporal location of the professionalisation of English and Welsh accountants?

The resultant *Nam-Powers* score should reflect the entire professionalisation process through an overall significant change to the relative positioning of the accounting disciplinary group with the English and Welsh occupational hierarchy (see, for examples, Larson, 1977; Abbott, 1988; Willmott, 1986; Walker, 1988 & 1995; Jones, 1981; Kedslie, 1990; Lee, 1990; MacDonald, 1984; Robson and Cooper, 1990).

This study suggests that if the *Nam-Powers* approach (and its resultant sequence of occupational status scores) can be adapted to reflect these characteristics, both in general and as they specifically relate to accounting, it will have successfully quantified the changing occupational status of the accounting discipline within the temporal and social location of nineteenth-century Britain. The resultant sequence of occupational status scores will be indicative of both the relative rate and magnitude of the changes that occurred to the occupational status of the accounting discipline during this period.

1.4.0. Methodology: Constructing Nam-Powers socioeconomic scores retrospectively

The objective of this study is to generate a series of relative occupational status scores for the *Accounting* disciplinary group. Sections 1.2.0. to 1.2.3. determined that the *Nam-Powers* ranking process was the most suitable means of achieving this task. As a result this approach has been adopted and as with all measures of occupational status may be adapted to suit different research applications (for example, Hauser and Featherman, 1977; Stevens and Featherman, 1981; Duncan, 1984; Stevens and Cho, 1985; Nakao and Treas, 1992). The need for adjustment in the current study arises from the retrospective nature of the earnings and educational attainment data sets upon which the scores are based. As indicated in Section 1.3.2. the data sets (occupational-based earnings and educational characteristics) that underpin the construction of these socioeconomic scores were primarily compiled (either directly or indirectly) from English and Welsh census data. However due to the limitations identified within these data, a variety of alternative historical sources[cviii] (which have often been created for a variety of original purposes) have also been used to augment the existing census data.

Section 1.3.4. suggested the use of Williamson's data set in the ranking of occupational earnings. As a result each of occupational classification was ranked based on Williamson's assessment of their average nominal annual earnings. The higher the occupational group's earnings, the higher it's ranking. Each of the occupational group's weightings were determined and expressed as a percentage of the total occupied workforce so as to facilitate the determination of a percentile *earnings* rank.

Section 1.3.5. proposed the use of the proportion of occupational membership who were *less than fifteen years of age* as a proxy for educational attainment. The lower the occupational group's proportion of occupational membership who were *less than fifteen years of age*, the higher it's ranking. Each of the occupational group's weightings were determined and expressed

as a percentage of the total occupied workforce so as to facilitate the determination of a percentile *education* rank.

These two rankings were summed, in accordance with the *Nam-Powers* approach to determine the occupational group's socioeconomic status. (A full discussion follows in Section 1.4.4.).

Section 1.3.3. concluded that industry-based criteria were the appropriate bases upon which to classify occupations. Section 1.3.1. suggested that the most beneficial period to base this current study included the decennial census dates covered during the period 1821 to 1911 (inclusive).

Within the limitations of the conceptual and measurement issues outlined in Sections 1.3.0. to 1.3.6. the following section provides the specific methodology applied in the application of the income and educational attainment data to the construction of the *Nam-Powers,* socioeconomic, occupational status scores.

1.4.1. Construction of a 'Modified Booth/Williamson' occupational classification scheme

The present study represents the occupied workforce of England and Wales Britain during the nineteenth and early twentieth centuries (1821–1911) through the lens of eighteen industry-based occupational classifications.

These classifications were constructed primarily by amalgamating the industry-based occupational groupings identified in the works of both the statistician, Charles Booth (1886) and economic historian, Jeffery Williamson (1982). Booth's study (1886, Appendix A) provides eleven classifications[cix] that may be deconstructed into fifty-one sub-classifications. Williamson divides the workforce into eighteen occupational groupings (1982)[cx].

The present study has reconstructed Booth's eleven classifications based on the available data provided by his fifty-one sub-classifications, into eighteen occupational groupings equivalent to those used by Williamson. This process of reconstruction (and the combination of a number of individual occupational sub-classifications) was undertaken to provide homogeneity in the occupational grouping for which the scores of relative educational attainment and earnings were developed over the ten census periods.

The recalibration of Booth's data into groupings more closely aligned to those used by Williamson is also desirable as it provides greater symmetry between the two data sets and thus offers an improved basis for future comparative longitudinal studies (remembering the focus of this study is the *Accounting* group rather than the other seventeen industry groupings identified).

In addition, the expansion from eleven to eighteen groupings significantly improves the incremental calibration of the scaling process between occupational groups, thus providing a more informative ranking outcome.

This study acknowledges that the adjustments made to some classifications may affect the relative standings of individual occupations (other than *Accounting*) within the affected industry groupings but, for the reasons cited above, the reclassifications provide more informative data as the present study tracks the changing occupational status of accountants.

The reclassification process outlined below organises the occupied English and Welsh workforce into eighteen occupational groupings. The reclassifications are as follows:

- Booth (1886, p.349) explains the arbitrary basis upon which the classifications of *Manufacture* and *Dealing* have been divided and the large intersection between the individuals involved in these two functions for the majority of the period 1821 to 1911. The reclassification of the two groupings into a single group simply reflects the significant degree of crossover identified between the *Manufacturers* and *Dealers of goods* during the majority of this period (Booth, 1986; Williamson, 1982).

  As a result the Booth classifications of *Manufacture,* including sub-classifications, *General labour industrial; Earthenware manufacture; Fuel, gas, chemical manufacture; Food, drink, smoke manufacture* and *Dealing*, including sub-classifications, *Dealing: raw materials*; *Dealing: clothing, material and dress*, *Dealing: Food, drink and smoke*; *Lodging and coffee house*; *Dealing: Furniture and utensils and stationary*; *General dealing*, have been combined and are represented under the title *General manufacturing and dealing.* The sub-classification *Lodging and coffee houses* was retained in this grouping due to its close relationship with the sub-classifications *Dealing: Food, drink and smoke* and *Food, drink, smoke manufacture.* A number of other sub-classifications were removed from the *Manufacture* grouping as they could be identified with specific industry groups. These adjustments will be discussed below.

  In addition Booth (1886) identifies the classification *Industrial services*, sub-classification, *Genera labour* as being primarily involved in manufacturing activities. Because a significant proportion of the workers in this classification were employed in manufacturing this group was included in the manufacturing classification to align with Williamson's manufacturing classification, *General labourers and oth-*

ers. The combined groups are represented in this study under the generic title *General manufacturing and dealing.*

- Booth's (1886) classification *Public service and professional sub-classifications*, *Education* and *Literature and science* have been combined, again because of the significant cross-over between the two groupings and the homogeneity of the combined group particularly with regard to educational attainment. This grouping could then be aligned with Williamson's classification, *Teachers.* The combined groups are represented in this study under the generic title *Teaching.*

- Booth's (1886) classification *Building* sub-classification, *Management* has been removed from the *Building* classification as its incumbents included a significant proportion of surveyors and those skilled in building engineering. This grouping was then aligned with Williamson's classification, *Engineers and surveyors.* As a result the sub-classification became a classification group in its own right and is represented in this study under Williamson's title *Engineers and surveyors.*

- Booth's (1886) *Manufacture* sub-classifications, *Machinery and tools*; *Watches, Instruments and other*; *Metal workers*; *Unspecified machining* were removed from the general *Manufacture* group. This group was then aligned with Williamson's classification, *Skilled in engineering* (Williamson differentiates engineers from those working with metal such as boilermakers and machinists: see Appendix 3, Table A3.5.0.). These sub-classification have been reclassified in this study under the more specific title, *Metal trades*.

- Booth's (1886) classification *Manufacture* sub-classifications, *Furs, leather and glue; Textiles and dyeing; Dressmaking; Paper, floorcloth and waterproof* were also removed from the general *Manufacture* group and reclassified under the more specific title, *Textile trades*. This group was then aligned with Williamson's classification, *Skilled in*

textile.

- Booth's (1886) classification *Building* sub-classification, *Building: operatives*; *Road-making* were combined with *Manufacture* sub-classification, *Woodworking, furniture and carriages* to align with Williamson's classification *Skilled in building*. Those working in both *Woodworking, furniture and carriages* and *Road building* appear to share more common attributes in terms of both education/skill and earnings with those involved in the generic class of builders than workers classified in the of *Transport* or *Manufacture* occupations (see Appendix 3, Table A3.5.0.). This group has been classified in this study under the specific title, *Building trades*.

- Booth's (1886) classification *Manufacture* sub-classification, *Ship-building* had been added to the classification *Transport*, sub-classifications, *Navigation and docks* and *Railways*. This grouping has been aligned with the Williamson classification, *Skilled in ship-building* to form the combined *Transportation trades* grouping in this study.

- Booth's (1886) occupations within the classification *Transport*, sub-classification, *Road transport* was considered less aligned with the previously mentioned ship or railway building trades and more aligned with Williamson's classification *Govt: Low wage* which covers workers involved in the land based delivery or transportation of goods or people. This group has been classified for the purpose of this study under the specific title, *Commercial delivery and postal services*.

- Booth's (1886) classification *Manufacture* sub-classification, *Printing and bookbinding* has been removed from the general *Manufacture* classification as its incumbents are specifically involved within the printing industry. This group has been aligned with Williamson's classification, *Skilled in printing.* As a result the sub-classification became

a single classification and is represented in this study under the title *Printing trades.*

- Booth's (1886) classifications *Agriculture and Fishermen* have been combined so as to represent primary producers (see Deane and Cole, 1962). This group was then aligned with Williamson's classification, *Agricultural labour.* The combined groups are represented in this study under the generic title *Agricultural occupations.*

- Booth's (1886) classification *Public service and professional sub-classifications*, *Law*; *Medicine*; *Religion*; *Administration and Police and prisons* have been removed from the general *Public service and professional* classification and each now forms an individual classification. Each of these groups corresponds (respectively) to the following Williamson classifications, *Solicitors and barristers; Medical officers, surgeons; Clergymen; Govt: high wage; Police and guards*. Table 1.4.2. provides the titles used to represent these groups within this study.

- Booth's (1886) classification *Public service and professional sub-classifications*, *Army and navy* and *Arts and amusement* and general classifications *Property owning* and *Indefinite* have been omitted from the study. The first two sub-classifications were removed primarily due to a lack of internal homogeneity in terms of both identifiable educational and earning attributes. The army and navy occupational weightings were also distorted depending on whether the incumbents are actually in England or Wales at the time the census data was collected. The view has been taken by this study that only a relatively small proportion of those employed in the *Army and navy* or the *Arts and amusement* classifications would have affected the rankings of the *Accounting* discipline (ie: the small proportion of educated and high earning military officers or entertainers who may have ranked above *Accounting*).

- As discussed in Section 1.3.3., the occupants of both Booth's (1886) classification *Industrial services* sub-classification *Commercial and Williamson's* classification *Clerks: Non-govt* are representative of the accounting discipline. These groups are represented in this study under the generic title *Accounting.*

Table 1.4.1. provides a both a summary of the reconstructed classifications and a guide or key by which to reconcile the transformation of both Booth's and Williamson's occupational group titles into those used in this study.

The results of the reclassification of occupations were compared and found to be consistent with other historic studies of specific occupational groups. (For example, see, Abel, 1979 & 1988 (*legal*); Bowley, 1900 (*Building trades*); Bowley and Wood, 1906 (*Engineering*; *Shipbuilding*)*;* Brown and Hopkins, 1955 (*General*); Peterson, 1978 (medical); Snell, 1983 (*General labouring*); Galbi, 1997 (*Textile workers*); Routh, 1954 (*Civil Service*); Thompson, 1968 (*Engineers and Surveyors*); Tucker 1936 (*General Artisans*); Anderson, 1976 & 1988; Pringle, 1989 (*Clerical*); Boot, 1999 (*Clerical*); Flinn, 1984 (*Mining trades*); Freeman and Aldcroft, 1988 (*Transport trades*); Gardner, 1995 (*Teaching*); Holdaway, 1979 (Police, prison and guards); Hammond and Hammond, 1917 (*General labouring*); Harris,1988 (*Metal trades*); Hasbach, 1966 (*Agricultural trades*); Higgs, 1983 & 1995 (*Domestic servants and messengers*); Jackman, 1916 (*Transport trades*); Jones, 1964, (*Agricultural trades*); Kelsall, 1955 (*Civil Service*); Klingender, 1935 (*Clerical*); Knox, 1980 (*General apprentice*); Layton, 1908 (*Domestic servants and messengers*); LeBold, Perrucci and Howland, 1966 (*Engineering*)*;* Loudon, 1986 (*Medical profession*); Hainsworth, 1987 (professions); Macauley, 1906; O'Brien 1959 (general British/economic history).

Table 1.4.1.: Reallocation of Booth and Williamson's of occupational classifications		
This study	**Booth (1886) Appendix A (1)**	**Williamson (1982)**
Legal	Public service and professional sub-classification, *Law*.	Solicitors and barristers (8H)
Medical	Public service and professional sub-classification, *Medicine.*	Medical officers, surgeons (10H)
Accounting	Industrial services (H) sub-classification *Commercial.*	Clerks: Non-govt (9H)
Religious	Public service and professional sub-classification, *Religion*.	Clergymen (7H)
Teaching	Public service and professional sub-classifications, *Education; Literature and science.*	Teachers (11H)
Govt: Civil official	Public service and professional sub-classification *Administration*.	Govt: High wage (1H)
Engineers and surveyors	Building (D) sub-classification, *Management*.	Engineers surveyors (12H)
Metal trades	Manufacture (E) sub-classification, *Machinery and tools*; *Watches Instruments and other*; *Metal workers*; *Unspecified machinery*.	Skilled in engineering (3H)
Textile trades	Manufacture (E) sub-classification, *Furs, leather and glue; Textiles and dyeing; Dress-making; Paper, floorcloth and waterproof.*	Skilled in textiles (5H)
Building trades	Building (D) less sub-classification, *Management* plus Manufacture (E) sub-classification, *Woodworking, furniture and carriages*.	Skilled in building (4H)
Transportation trades	Manufacture (E) sub-classification, *Shipbuilding*; plus Transport (F) less sub-classification, *Roads*.	Skilled in shipbuilding (2H)
Commercial delivery and postal services	Transport (F) sub-classification, *Roads*.	Govt: Low wage (4L)
Police, prison and guards	Public service and professional sub-classification, *Police and prisons*.	Police and guards (5L)
Printing trades	Manufacture (E) sub-classification, *Printing and bookbinding.*	Skilled in printing (6H)
Domestic services and messengers	*Domestic Service* (including coachmen)	Messengers and porters (3L)
Mining occupations	Mining (C).	Miners (6L)
General manufacturing and dealing	Manufacture (E) sub-classifications, *General labour industrial; Earthenware manufacture; Fuel, gas, chemical manufacture; Food drink, smoke manufacture;* Industrial services (H) sub-classification, *General labour*; *plus* Dealing (G).	General labourers and others (2L)
Agricultural occupations	Agriculture (A) and Fishermen (B)	Agricultural labourers (1L)

1.4.2. Estimation of incomplete data set

Earnings

Data from the Williamson's study provides average nominal annual occupational earnings data for particular years from the period 1710 to 1911 and thus the basis for the earnings ranking for each of the eighteen occupational classifications (1982)[cxi]. Earnings data was obtained directly from Williamson's study for each of the ten decennial periods.

While Williamson's data was directly derived from census-based materials for the periods 1851 to 1911 (inclusive), other sources were used prior to those dates (see Section 1.3.5. and Appendix 3, Table A3.4.0.). These data-sources correspond closely to the census periods but not exactly. As result the following adjustments should be noted:

- Williamson's earnings data from 1819 is used in this study to represent the eighteen occupational group's earnings for census date 1821;

- Williamson's earnings data from 1827 is used in this study to represent the eighteen occupational group's earnings for census date 1831;

- Williamson's earnings data from 1835 is used in this study to represent the eighteen occupational group's earnings for census date 1841;

Education

The adjusted Booth classifications provide data showing the proportion of occupational group members who were *less than fifteen years of age* that is used in the ranking of the educational attainment of each of the eighteen occupational classifications for the period 1841 to 1881. Data showing the proportion of occupational classification members who were *less than fifteen years of age* that is used in the ranking of educational attainment of each of the eighteen occupational classification for the periods 1891, 1901 and 1911 was collected from both Routh (1987) and directly from the census summary materials. These data were then allocated to the *Williamson/Booth* classifications and cross-referenced back to established (albeit general) population data[cxii] (Deane and Cole, 1962; Wrigley and Schofields, 1989; Wrigley, Davis, Oeppen and Schofields, 1997, see Appendix 4).

Occupational census data from the censuses conducted in 1821 and 1831 was not of sufficient detail to directly convert into Booth's classifications. However, as Booth suggests, it is possible (using a combination of alternative sources) to ascertain a number of demographic characteristics associated with occupational groups within the *great industries* from the earlier periods of the nineteenth century even given the inadequacies of the census data available (1886, p.315). As a result, data observations for 1821 and 1831 have been estimated as explained below.

To facilitate the process of determining an educational score for each of the occupational groups for 1821 and 1831 estimates of the following characteristics were made for each of the fifty-one sub-classification within each of the eighteen occupational classifications. The resulting estimations were then aggregated for the eighteen *Williamson/Booth* occupation group classifications (see Appendix 4, Tables A4.4.0. and A4.5.0.):

Estimations were made for the following sub-classificational attributes:

1. Total proportion of workforce occupied within each sub-classification;
2. Proportion of male occupants within each sub-classification;

3. Proportion of female occupants within each sub-classification;
4. Proportion of male occupants under fifteen years of age within each sub-classification;
5. Proportion of female occupants under fifteen years of age within each sub-classification;

The eight decennial observations obtained from Booth's (1886, Appendix A – observations for 1841 to 1881, inclusive), Routh (1987) and direct census summary data (1891 to 1911) were used to retrospectively forecast the results for each of these five characteristics for the two periods 1821 and 1831. Each of the 510 (two years by five characteristics by fifty-one sub-classifications) estimations was made using *Holt'*s linear exponential smoothing method[cxiii]. The application of a double exponential smoothing method to retrospectively project these estimates was determined to be appropriate given that census data pertaining to age participation and occupational structure from 1841 to 1911 displays distinct trending, but no seasonality or cyclic characteristics[cxiv]. For example, a preliminary examination of the data (1841 to 1911) confirms a reduction in *less than fifteen years of age* occupational participation across the period after the introduction of successive *Factory* and *Education* Acts. Similarly there is an observable increase (and decrease, in some classifications) in women's workforce participation (Booth, 1886; Routh, 1987; Atkinson and Delamont, 1990; Jordan, 1988; Anderson, 1988; Deane and Cole, 1962; Wigley, 1972; Hatton and Bailey, 2001). Such retrospective projection methods are widely used in the analysis of historic census data (see, for example, Lee, 1974 & 1978 & 1985; Lee and Lam, 1983; Lopez, 1961; Smith and Oeppen, 1993)[cxv].

Table 1.4.2a. shows the estimations for both 1821 and 1831 for the following:

- Column A: Total proportion of the British workforce occupied within each occupational group, expressed as a percentage of the total workforce;

- Columns B: Percentage of female occupational members within each occupational, expressed as a percentage of the total workforce;
- Columns C: Percentage of male occupational members within each occupational, expressed as a percentage of the total workforce;
- Columns D: Percentage of female occupational members *less than fifteen years of age* within each occupational group;
- Column E: Percentage of male occupational members *less than fifteen years of age* within each occupational group
- Column F: Total percentage of *less than fifteen years of age* members for the occupational group (sum of columns D and E).

For example, Table 1.4.2a. shows that in 1821 the occupational grouping *Accounting* was estimated as being 0.42 percent of the total workforce (Column A). Of that 0.42 percent, only 0.01 percent were estimated as being female (Column B) and the remaining 0.41 percent were estimated as being male (Column C). Column D reflects that there were no female occupational members *less than fifteen years of age* (0.00 percent). Column E shows the percentage of male occupational members of *less than fifteen years of age* at 4.21 percent. Column F provides the total percentage of *less than fifteen years of age* cohort of both males and females in the *Accounting* occupational group. For 1821, it is estimated that 4.21 percent of the *Accounting* occupational classification were males *less than fifteen years of age*.

Table 1.4.2a. also shows that in 1831 the occupational grouping *Accounting* was estimated as having grown to 0.55 percent of the total workforce (Column A). Of that 0.55 percent, again only 0.01 percent were estimated as being female (Column B) and 0.54 percent were estimated as being male (Column C). Column D reflects that there were no female occupational members *less than fifteen years of age* (0.00 percent). Column E reflects the percentage of male occupational members *less than fifteen years of age* at

3.92 percent. Column F provides the total *less than fifteen years of age* membership for the composite of both males and females. For 1831, the *Accounting* classification is estimated as having a total of 3.92 percent of its occupational members, again all male, who were *less than fifteen years of age*.

Appendix 4, Table A4.4.0. provides the estimates of *less fifteen years of age participation* (as a percentage) for all sub-classifications of each of the eighteen occupational classifications for both males and females for both 1821 and 1831. Appendix 4, Table A4.3.0. shows the weighted, aggregations used to derive the total percentage of *less than fifteen years of age* participation for each of the eighteen occupational grouping for 1821 and 1831.

Each of the occupational groups was ranked based on the percentage of *less than fifteen years of age participation* of their membership. As outlined earlier in Section 1.4.0. those occupational groups with lower *less fifteen years of age participation* were ranked highest. Appendix 4, Table A4.2.0. provides a detailed summary of the rankings for the years 1821 and 1831.

As no specific data is available to determine the legitimacy of the estimations contained in Table 1.4.2a. they can only by assessed as to their face validity through comparison with existing total and age-related population data and available workforce data (Deane and Cole, 1962; Wrigley and Schofields, 1989).

A reconciliation of the estimates for occupational classification weightings (Table 1.4.1a. Column A) for 1821 and 1831 with those provided by the widely cited Deane and Cole study (1962) is contained in the following table (Table 1.4.2b.). A number of adjustments must be made to reconcile the weightings used in this study with the five sector weightings developed by Deane and Cole. These adjustments effectively reverse the adjustments made to the Booth data outlined in Section 1.4.1. of the current study. (The adjustments include the separation of the *Manufacturing and dealing* cohort and the inclusion of the occupational groups omitted from this study such as, *Armed forces*, *Arts and amusemen*t. This adjustment process is comprehensively explained in the endnotes of this study[cxvi]). The data contained in Table 1.4.2a. outlines the estimated weightings derived by this study for each occu-

pational group and when aggregated appears to correspond closely to the more generic sector groupings provided by Deane and Cole (1962).

As accurate quantitative data for individual occupational groups is unobtainable, justification for the estimation of *less than fifteen years of age* participation in all fifty-one occupational sub-classifications is therefore impossible to provide for the periods 1821 and 1831. The results of the estimation of *less than fifteen years of age* occupational participation were again compared and found to be consistent with other historic studies of specific occupational groups although [cxvii].

Previous studies that provide estimates of the *overall* numbers of child participants in the workforce are available. For example, Hazell (1969) adopts a method similar to that employed by Armstrong (1965) in the estimation of the age structure (by gender) of the English and Welsh population. Using the birth/death/migration data and survival ratios obtained from the *British Life Tables*, Hazell provides approximations for a number of age categories in the population for 1821 and 1831 for both males and females. The data provide an estimation of the total participation of those *less than fifteen years of age* in the workforce for these years[cxviii]. The total estimated participation rates provided by this study correspond to those overall figures estimated by Hazell (1969). Table 1.4.2a. of the present study estimates that 10.4 percent and 9.2 percent of the occupied population were *less than fifteen years of age* in 1821 and 1831 respectively[cxix]. Table 1.4.2a. indicates that vast majority were male. These results correspond to those of Hazell (1969), Summerfield, (1987) and Wrigley and Schofields (1989).

Horrell and Humphries provide an examination of '*family*' (father/children) participation across several industry sectors for the periods 1787-1816 and 1817-1839 (1995, also see Medick, 1976). Inherently their study provides approximations of employment participation rates by age classification (and the *average age of first participation*) for those periods. Their data indicate that those occupations requiring higher skill levels employed fewer children. The estimated weightings of the *less than fifteen years of age* cohorts employed in each occupational group applied in this study for the periods 1821 and 1831 reflects this attribute[cxx]. For example, Horrell and

Humphries identify mining, low skill agriculture and factory work as having high child participation rates (1995). Appendix 4 and Table 1.4.2a. show (for both 1821 and 1831) the estimates provided by this study reflect high levels of child participation for these groups[cxxi]. Higher skilled occupational groups (for example, the *professions* and skilled trades such as building or metal) are all represented as having significantly less child participation (also see Davin, 1982; Dunlop and Denman, 1912; Pressley, 2000).

Levels of male and female *less than fifteen years of age* participation (Columns D and E) can only be judged with reference to existing studies of specific occupational groups. These studies indicate that certain occupational groups did employ young girls, for example *Agriculture*, *Domestic services and messengers* and *Textile trades* (Galbi, 1997; Hasbach, 1966; Higgs, 1983 & 1995; Jones, 1964; Layton, 1908) early in the nineteenth century. Similarly other occupations have been identified as employing high rates of young boys, for example, *Agriculture, General manufacturing and dealing* and *Textile trades* (Snell, 1983; Higgs, 1983 & 1995; Jones, 1964; Hammond and Hammond, 1917; Hasbach, 1966). Table 1.4.2a. shows (for both 1821 and 1831) the estimates provided by this study appear to reflect the gender based *less than fifteen years of age* participation rates for these groups.

Table 1.4.2a.: Estimations of occupational weightings 1821 and 1831						
Occupational groups: 1821	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
Police, prison and guard	0.20	0.00	0.20	0.00	0.00	0.00
Religious	0.30	0.00	0.30	0.00	0.31	0.31
Medical	0.74	0.22	0.52	0.00	0.53	0.53
Engineers & surveyors	0.08	0.00	0.08	0.00	2.00	2.00
Teaching	0.67	0.41	0.22	0.00	2.29	2.29
Legal	0.47	0.00	0.47	0.00	2.31	2.31
Govt: Civil official	0.35	0.00	0.35	0.00	2.76	2.76
Commercial delivery and postal services	0.25	0.00	0.25	0.00	3.63	3.63
Accounting	0.42	0.01	0.41	0.00	4.21	4.21
Building trades	5.89	0.10	5.79	0.03	4.98	5.01
General manufacturing and dealing	12.19	1.63	10.56	0.14	6.14	6.28
Printing trades	0.16	0.01	0.15	0.05	7.97	8.02
Domestic services and messengers	16.34	14.21	2.13	10.00	0.14	10.14
Metal trades	4.60	0.39	4.21	0.38	10.54	10.92
Textile trades	23.02	9.38	13.64	5.79	5.22	11.01
Agricultural occupations	28.85	2.34	26.51	0.09	12.26	12.35
Transportation trades	2.73	0.07	2.66	0.05	12.59	12.64
Mining occupations	2.74	0.14	2.60	0.06	20.82	20.88
Occupational groups: 1831	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
Police, prison and guard	0.23	0.01	0.22	0.00	0.00	0.00
Religious	0.33	0.01	0.32	0.00	0.29	0.29
Medical	0.73	0.23	0.50	0.00	0.35	0.35
Engineers & surveyors	0.11	0.00	0.11	0.00	1.70	1.70
Teaching	0.84	0.49	0.35	0.00	1.81	1.81
Legal	0.48	0.00	0.48	0.00	2.37	2.37
Govt: Civil official	0.37	0.01	0.36	0.00	2.52	2.52
Commercial delivery and postal services	0.45	0.00	0.45	0.00	3.70	3.70
Accounting	0.55	0.01	0.54	0.00	3.92	3.92
Building trades	6.01	0.09	5.92	0.03	4.33	4.36
General manufacturing and dealing	12.27	1.50	10.77	0.11	5.52	5.63
Printing trades	0.23	0.01	0.22	0.04	7.58	7.62
Domestic services and messengers	16.14	14.22	1.92	10.06	0.12	10.18
Metal trades	4.74	0.50	4.24	0.44	9.09	9.53
Textile trades	23.95	11.80	12.15	4.92	4.16	9.08
Agricultural occupations	25.86	1.95	23.91	0.08	11.03	11.11
Transportation trades	3.77	0.07	3.70	0.03	12.33	12.36
Mining occupations	2.94	2.81	0.13	0.04	15.55	15.59

Column A: Percentage of total occupied workforce; **Column B:** Percentage of female occupational members as a percentage of the total workforce; **Column C:** Percentage of male occupational members as a percentage of the total workforce; **Column D:** Percentage of female occupational members *less than fifteen years of age* within each occupational group; **Column E:** Percentage of male occupational members *less than fifteen years of age* within each occupational group; **Column F:** Total percentage of *less than fifteen years of age* members for the occupational group;

Table 1.4.2b.: Reconciliation of occupational weightings: Present study (adjusted) and Deane and Cole (1962)

Year	**Agriculture, fishing and forestry** (in percentages)		**Manufacturing, mining and building** (in percentages)		**Transport and trade** (in percentages)		**Domestic** (in percentages)		**Professional, public service and other** (in percentages)	
	Deane and Cole	**This study**	**Deane and Cole**	**This study**	**Deane and Cole**	**This study**	**Deane and Cole**	**This study**	**Deane and Cole**	**This study**
1821	28.4	27.1	38.4	39.8	12.1	12.1	12.7	13.3	8.5	9.2
1831	24.6	24.2	40.8	41.0	12.4	12.5	12.6	13.3	9.5	9.7

Sources: Deane and Cole, (1962; pps.142 -52; Appendix 4: Current study Table 4.2.0. and Table 4.3.0.

1.4.3. Variation within the occupational groups

Given the unavoidable aggregation of occupations into classifications to provide uniformity over the ten census periods, each group's score will be represented as a percentile band (or range) rather than a single score of an individual occupation's relative socioeconomic status. This lack of precision may be particularly problematic for those larger groupings of occupations such as *Agricultural occupations or General manufacturing and dealing* where socioeconomic status of the entire cohort is represented by a broader percentile band. With regard to the objectives of this study, however as each of these groups is consistently (and wholly) ranked below the *Accounting* group, it is unlikely to significantly affect the results obtained.

As those occupations that are expected to be towards the upper end of both the educational and earnings rankings, such as *Legal*; *Medicine*; *Religious*; *Civil official* and *Engineers and surveyors* (Collins, 1979) consist of smaller cohorts and are more narrowly defined, the higher end of the rankings should provide a greater level of measurement precision. As *Accounting* is expected to attract educational and earnings rankings that elevate it towards the higher end of the socioeconomic scale, the inherent difficulties associated with measuring the socioeconomic scores for larger groups will have less influence on the *Accounting* rankings.

Importantly, the inclusive approach to defining an occupation such as accounting (ie: including a number of occupational titles from bookkeeper to chartered accountant) complicates the intra-ranking of the socioeconomic characteristics of the group through a failure to differentiate the '*elite*' from the *non-elite* within the broader occupational discipline (even though it must be expected that each occupational title will have significantly different socioeconomic profiles with regard to earnings and education). Given that this study divides the occupied population into only eighteen classifications this could be assumed to be the case with virtually all occupational classifications. As such, it should be acknowledged that the resultant socioeconomic scores based on the above defined Booth/Williamson occupational groups provide only *coarse* measures of occupational status.

While it would be undoubtedly preferable to obtain individual measures for each occupation within an industry grouping this is not possible. Given that the rankings will be expressed in a percentile band, this study proposes that additional utility could be derived from the resultant *Nam-Powers* scale by conceptualising those represented by scores at the higher percentile boundary of each grouping (in terms of both earnings and educational attainment) as the *elite* occupations of that group.

Alternatively, those scores at the lower percentile boundary of the group may be conceptualised as being representative of those occupations within the overall grouping with the lowest socioeconomic standing. For example, the upper limit of the *Accounting* group's percentile rank may be said to represent professional or chartered accountants, while the lower limit of the accounting result will be more indicative of those involved in lower clerical tasks.

As a consequence of the percentile ranking approach adopted, each occupational group is represented by two *Nam-Powers* scores for each year: an *elite* score and a *non-elite* score. The separation of *elite* and *non-elite* effectively increases the number of occupational classifications from eighteen to thirty-six. This approach further improves the incremental calibration of the scaling process between occupational groups, thus providing a more informative ranking outcome.

The study does not attempt to estimate the proportions of either the *elite* or *non-elite* within any of the occupational groups because, as stated above, no data is available currently available to facilitate that task (Note: Kirkham and Loft, 1993, Table 1, p.510 provide measures for the number of clerks and accountants identified in census materials from 1861 to 1911 but uniformly similar data was not available for all eighteen classification and does not necessarily reflect the desired demarcation needed for this study, as per Section 1.3.3. However this table is reproduced in endnote xxxvii). As a consequence the *elite* and *non-elite* scores are simply derived from the highest and lowest percentile of the *Nam-Powers* ranking range occupied by each occupational group after aggregating the group's earnings and educational rankings.

Examples of the calculation of each of the *elite* and *non-elite* scores for the *Accounting* occupational group is presented in the following section.

1.4.4. Attributing a Nam-Powers rank

A percentile band rank must be calculated for each of the eighteen groups for both earnings and the educational attainment.

The earnings rank is calculated by ordering (greater to lesser) the eighteen occupational groups based on their nominal average earnings. The eighteen occupational groups are then weighted by the group's population relative to the total occupied population in each of decennial periods (expressed as a percentage). The occupational weightings are then applied to determine each group's percentile standing and ranked (greater to lesser) within the total occupied population.

For example, Appendix 3, Table 3.2.1. indicates that, as at the 1821 census, the *Accounting* group received average nominal earnings of £229.64. Only the classifications of *Legal* (£447.50); *Engineers and surveyor*s (£326.43); and *Religious* (£266.55) are recorded as having higher average nominal earnings at that point. The aggregate percentage of the total workforce occupied in the *Legal*, *Engineers and surveyors* and *Religious* occupational groups is 1.62 percent (0.49 + 0.21 + 0.92). As a result the elite of *Accounting* group are ranked behind these relatively higher earning groups at the 98.38 percentile (100 – 1.62). The non-elite of *Accounting* are represented by the lower percentile boundary of the occupational group as determined the occupational weighting for the earnings of the group expressed as a percentage of the total occupied workforce. The 1821 earnings' weighting of 2.44 percent determines that the non-elite of *Accounting* should be ranked at the 95.95 percentile level (100 – 1.62 – 2.43 = 95.95) Note that we do not deduct the whole *Accounting* cohort of 2.44 as this would put us into the top of the next band down. By deducting 2.43 this leaves us with the lowest rung for the accounting discipline on the occupational ladder. The complete earnings calculations and rankings for all occupations are contained in Appendix 3, Tables A3.1.1. to A3.1.10. and summarised in Table 1.4.3.

The education data are calculated by ordering the eighteen groups based on the proportion of the occupational group which is identified as be-

ing *less than fifteen years of age*. Those groupings with the highest proportion of members who are identified as *less than fifteen years of age* will be ranked lowest, while those with the lowest proportions of *less than fifteen years of age* participation will be ranked highest and then weighted as to the group's population relative to the total occupied population.

For example, Appendix 4, Table A4.2.0. indicates that in the 1821 census the *Accounting* group is represented as having a weighting of 4.21 percent of occupied individuals *less than fifteen years of age*, and is ranked eighth. The classifications of *Medical (0.53 percent)*; *Engineers and surveyors (2.00 percent)*; *Legal (2.31 percent)*; *Teaching (2.29 percent)*; *Govt: Civil official (2.76 percent)*; *Commercial delivery and postal service (3.63 percent)*; *Police, prison and guard (0.00 percent)* and *Religious (0.31 percent)* are all recorded as having lower levels of *less than fifteen years of age* participants than *Accounting*. As a result the elite of the *Accounting* group are ranked behind these groups at the 96.94 percentile, as the occupations ranked above it comprise 3.06 per cent of the occupied workforce (Table 1.4.2a., Column A, 0.20 + 0.30 + 0.74 + 0.08 + 0.67 + 0.47 + 0.35 + 0.25 = 3.06) and the non-elite of *Accounting* are ranked at the 96.53 percentile band (100 – 3.06 – 0.41). The complete educational attainment calculations and rankings for all occupations are contained in Appendix 4, Tables A4.2.0. to A4.4.0. and summarised in Table 1.4.4.

The two high percentile boundary rankings for each occupational group's education and earnings are summed and averaged in accordance with the *Nam-Powers* approach. The two low percentile rankings for each occupational group's education and earnings will also be summed and averaged. The former will provide a socioeconomic score for the elite and the second will estimate the socioeconomic score for the non-elite of each industry group. *Nam-Powers* rankings will be expressed as the aggregate percentile for each of the elite and non-elite groups.

Appendix 5, Table A5.2.0. indicates that at the 1821 census the elite of the *Accounting* group is represented as having a *Nam-Powers* rank of 97.67 percent. The table shows this was derived by averaging the sum of the high percentile rank for earnings of 98.38 percent and the high percentile rank for

education of 96.94 percent (ie: 98.38 + 96.95 = 195.33 / 2 = 97.67).

Appendix 5, Table A5.2.0. also indicates that at the time of the 1821 census the non-elite of the *Accounting* group has a *Nam-Powers* rank of 96.23 percent. The table shows that this is calculated by averaging the sum of the low percentile rank for earnings of 95.95 percent and the low percentile rank for education of 96.53 percent (ie: 95.95 + 96.52 = 192.47 / 2 = 96.23 percent).

The complete calculations and rankings for all occupational groups are contained in Appendix 5, (Tables A5.2.0. to A5.2.9.) and summarised in Table 1.5.1. The *Accounting* group's percentile scores for earnings, education (and changes in each percentile rank) for the period 1821 to 1911 are contained in Table 1.4.5. The *Accounting* group's *Nam-Powers* scores are contained in Table 1.5.3.

In addition, a basic 1st to 36th ordinal rank has been allocated to both the elite and non-elite scores of each occupational group. These rankings are also contained in Appendix 5 (and Tables A5.2.0. to A5.2.9.) and summarised in Table 1.5.2. This simplistic ordinal approach to ranking will provide some additional (albeit limited) indication about whether the non-elite occupations of one group ranked higher than the elite of another grouping.

Again using data from Appendix 5, Table A5.2.3. as at the 1821 census the elite of the *Accounting* group is represented as having a *Nam-Powers* rank of 97.67 percent giving them a nominal ranking of 7th. Only the classifications of *Legal* (both elite and non-elite); *Engineers and surveyors* (both elite and non-elite) and *Religious* (both elite and non-elite) are recorded as having higher socioeconomic status (as ranked using *Nam-Powers*) than *Accounting*.

However the same table indicates that for the same period the non-elite of the *Accounting* group had a *Nam-Powers* rank of 96.23 percent giving them a nominal ranking of 11th. This suggests that not only the classifications of *Legal* (both elite and non-elite); *Engineers and surveyors* (both elite and non-elite) and *Religious* (both elite and non-elite) are recorded as having higher socioeconomic status (as ranked using *Nam-Powers*) than non-elite *Accounting* but also *Govt: Civil officials* (elite only), *Medical* (both elite

and non-elite) and obviously elite *Accounting*.

1.4.5. Preliminary Results - Earnings and education:

Table 1.4.3. summarises the results for each of the decennial observations for all eighteen classification's results with regard to occupational earnings:

Table 1.4.3.: Earnings rankings for all occupational classifications

Occupational classification	**1821**		**1831**		**1841**		**1851**		**1861**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**100.00**	99.52	**100.00**	99.51	**100.00**	99.44	**100.00**	99.45	**100.00**	99.49
Engineers & surveyor	**99.51**	99.31	**99.50**	99.28	**99.43**	99.19	**99.44**	99.20	**99.48**	99.20
Religious	**99.30**	98.39	**99.27**	98.32	**94.97**	93.91	**99.19**	98.17	**98.52**	97.37
Accounting	**98.38**	95.95	**98.31**	95.77	**97.84**	94.98	**98.16**	95.42	**96.06**	92.24
Govt: Civil official	**95.94**	94.81	**95.76**	94.58	**99.18**	97.85	**95.41**	94.12	**97.36**	96.07
Medical	**94.80**	94.13	**94.57**	93.90	**93.90**	93.12	**94.11**	93.35	**99.27**	98.53
Metal trades	**94.12**	93.04	**90.14**	89.00	**87.68**	86.40	**89.26**	88.02	**91.16**	89.61
Domestic services and messengers	**93.03**	89.44	**93.84**	90.15	**93.11**	88.88	**93.34**	89.27	**89.60**	85.34
Printing trades	**89.43**	89.23	**88.99**	87.74	**86.39**	84.98	**86.86**	85.50	**85.33**	83.82
Teaching	**88.22**	87.22	**87.73**	86.69	**88.87**	87.69	**88.01**	86.87	**92.23**	91.17
Police, prison and guards	**87.21**	86.54	**78.48**	77.79	**84.68**	83.90	**59.34**	58.59	**57.74**	56.89
Textile trades	**86.53**	82.14	**76.73**	72.13	**83.89**	78.72	**75.45**	70.50	**72.93**	68.75
Building trades	**82.13**	74.26	**86.68**	78.49	**78.71**	68.55	**85.20**	76.33	**83.81**	74.44
Commercial delivery and postal services	**74.25**	74.02	**76.18**	76.74	**84.97**	84.69	**85.49**	85.21	**73.40**	72.94
Transport trades	**74.01**	73.25	**77.78**	76.99	**78.71**	77.82	**76.32**	75.46	**74.44**	73.41
Mining occupations	**73.24**	63.34	**72.14**	61.84	**68.54**	56.91	**70.49**	59.35	**68.74**	57.75
General manufacturing and dealing	**63.33**	50.05	**61.83**	48.02	**56.90**	41.29	**58.58**	43.63	**56.88**	39.92
Agricultural occupations	**50.04**	00.01	**48.01**	00.01	**41.28**	00.01	**43.62**	00.01	**39.91**	00.01
Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**100.00**	99.52	**100.00**	99.53	**100.00**	99.54	**100.00**	99.54	**100.00**	99.56
Engineers & surveyor	**98.79**	98.62	**97.59**	97.20	**98.90**	98.54	**99.53**	99.16	**99.55**	99.30
Religious	**98.61**	97.42	**98.80**	97.60	**98.53**	97.41	**87.91**	86.76	**86.97**	85.88
Accounting	**96.12**	90.88	**97.19**	91.07	**97.40**	89.39	**99.15**	88.62	**98.58**	86.99
Govt: Civil official	**97.41**	96.13	**91.06**	89.90	**89.38**	88.18	**86.75**	85.19	**84.40**	82.59
Medical	**99.51**	98.80	**99.52**	98.81	**99.53**	98.91	**88.61**	87.92	**99.28**	98.59
Metal trades	**89.88**	87.94	**84.51**	82.45	**86.97**	84.90	**83.77**	81.07	**82.57**	79.94
Domestic services and messengers	**87.93**	83.52	**88.62**	84.52	**70.32**	63.70	**68.99**	62.26	**62.32**	55.48
Printing trades	**70.22**	68.54	**68.81**	66.76	**72.73**	70.33	**60.00**	57.27	**65.31**	62.33
Teaching	**90.87**	89.89	**89.89**	88.63	**88.17**	86.98	**85.18**	83.77	**85.86**	84.41
Police, prison and guards	**55.86**	54.91	**65.48**	64.54	**48.05**	46.76	**21.01**	19.53	**23.54**	21.94
Textile trades	**73.71**	70.23	**71.91**	68.82	**84.90**	82.03	**62.25**	60.01	**79.93**	77.45
Building trades	**83.51**	73.72	**82.44**	71.92	**82.02**	72.74	**81.06**	69.00	**77.44**	67.17
Commercial delivery and postal services	**56.61**	55.87	**64.53**	63.97	**46.75**	45.92	**39.60**	38.29	**21.93**	19.61
Transport trades	**68.53**	67.31	**66.75**	65.50	**63.69**	62.22	**57.26**	55.30	**67.16**	65.32
Mining occupations	**67.30**	56.62	**63.96**	51.85	**62.21**	48.05	**55.29**	39.61	**55.47**	37.09
General manufacturing and dealing	**54.91**	35.94	**51.84**	29.87	**45.91**	24.89	**38.28**	21.02	**37.08**	23.52
Agricultural occupations	**35.94**	00.01	**29.86**	00.01	**24.88**	00.01	**19.52**	00.01	**19.60**	00.01

Table 1.4.4. summarises the results for each of the decennial observations for all eighteen occupational classification's results with regard to education.

Table 1.4.4.: Educational ranking for all occupational classifications

Occupational classification	1821		1831		1841		1851		1861	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**98.01**	97.55	**97.76**	97.29	**97.63**	97.15	**96.81**	96.42	**96.37**	96.01
Engineers & surveyors	**98.76**	98.69	**98.71**	98.61	**98.69**	98.54	**98.66**	98.40	**97.42**	97.08
Religious	**99.80**	99.51	**99.77**	99.45	**99.77**	99.43	**99.80**	99.42	**99.15**	98.74
Accounting	**96.94**	96.53	**96.46**	95.92	**96.79**	96.90	**96.41**	95.54	**96.00**	95.27
Govt: Civil official	**97.54**	97.20	**97.28**	96.92	**97.14**	96.80	**97.12**	96.89	**97.07**	96.38
Medical	**99.50**	98.77	**99.44**	98.72	**99.42**	98.70	**99.41**	98.65	**99.84**	99.16
Metal trades	**61.94**	57.35	**53.45**	48.72	**11.88**	7.30	**58.98**	53.96	**73.45**	66.88
Domestic services and messengers	**78.28**	61.95	**48.71**	32.58	**76.97**	56.49	**73.38**	58.99	**45.26**	29.48
Printing trades	**78.44**	78.29	**77.63**	77.41	**77.36**	76.98	**73.80**	73.39	**29.47**	28.96
Teaching	**98.68**	98.02	**98.60**	97.77	**98.53**	97.64	**98.43**	97.13	**98.73**	97.43
Police, prison and guards	**100.00**	99.81	**100.00**	99.78	**100.0**	99.78	**100.00**	99.81	**100.00**	99.85
Textile trades	**57.34**	34.33	**77.40**	53.46	**58.48**	36.12	**53.95**	30.70	**66.87**	45.27
Building trades	**96.52**	90.64	**95.91**	89.91	**95.52**	89.25	**95.53**	88.01	**95.26**	87.38
Commercial delivery and postal services	**97.19**	96.95	**96.91**	96.47	**96.09**	95.53	**88.00**	87.38	**74.09**	73.46
Transport trades	**5.47**	2.75	**6.71**	2.95	**3.87**	00.01	**4.50**	00.01	**9.77**	4.66
Mining occupations	**2.74**	00.01	**2.94**	00.01	**7.29**	3.88	**8.66**	4.51	**4.65**	00.01
General manufacturing and dealing	**90.63**	78.45	**89.90**	77.64	**89.24**	77.37	**87.37**	73.81	**87.37**	74.10
Agricultural occupations	**34.32**	5.48	**32.57**	6.72	**36.11**	11.89	**30.69**	8.67	**28.95**	9.78
Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**96.72**	96.35	**93.81**	93.42	**94.02**	93.63	**95.15**	92.76	**92.54**	92.15
Engineers & surveyors	**98.53**	98.12	**98.44**	97.94	**98.90**	98.71	**98.80**	98.62	**98.80**	98.66
Religious	**99.69**	99.27	**98.68**	99.22	**98.70**	98.21	**98.61**	98.12	**98.65**	98.26
Accounting	**96.34**	94.83	**96.18**	93.82	**96.10**	94.03	**95.81**	93.16	**98.25**	95.05
Govt: Civil official	**94.82**	94.47	**93.41**	93.05	**98.20**	97.71	**96.41**	95.82	**93.34**	92.55
Medical	**99.26**	98.54	**99.21**	98.45	**99.70**	98.91	**99.70**	98.81	**99.60**	98.81
Metal trades	**70.22**	62.98	**84.35**	78.27	**93.62**	85.73	**68.20**	56.81	**67.87**	57.28
Domestic services and messengers	**43.00**	26.00	**47.21**	30.06	**25.27**	7.71	**23.46**	4.71	**23.50**	8.21
Printing trades	**43.65**	43.01	**60.99**	60.19	**60.32**	59.13	**56.80**	55.41	**57.27**	55.48
Teaching	**98.11**	96.73	**97.93**	96.19	**97.70**	96.11	**98.11**	96.42	**95.04**	93.35
Police, prison and guards	**100.00**	99.70	**100.00**	99.69	**100.00**	99.71	**100.00**	99.71	**100.00**	99.61
Textile trades	**62.97**	43.66	**24.90**	6.33	**48.48**	30.18	**41.16**	23.47	**41.30**	23.51
Building trades	**94.46**	86.33	**93.04**	84.36	**68.42**	60.33	**76.71**	68.21	**76.52**	67.88
Commercial delivery and postal services	**70.93**	70.23	**61.86**	61.00	**7.70**	4.72	**3.08**	00.01	**3.10**	00.01
Transport trades	**5.37**	00.01	**6.32**	00.01	**4.71**	00.01	**4.70**	3.09	**8.20**	3.11
Mining occupations	**10.52**	5.38	**30.05**	24.91	**30.17**	25.28	**46.46**	41.17	**47.40**	41.31
General manufacturing and dealing	**86.32**	70.94	**78.26**	61.87	**85.72**	68.43	**92.75**	76.72	**92.14**	76.53
Agricultural occupations	**25.99**	10.53	**60.18**	47.22	**59.12**	48.49	**55.40**	46.47	**55.47**	47.41

Table 1.4.5. summarises the *Accounting* classification's results with regard occupational earnings and educational attainment. The table reveals the following:

- The earnings measures show that the highest percentile achieved by the elite of the *Accounting* occupation was 99.15 in 1911, while the lowest percentile of 96.06 was recorded in 1861.

- The percentile change in nominal earnings ranking for the elite of the *Accounting* occupational group was positive for five of the nine decennial periods. The period of greatest change in the percentile ranking of elite accountants was a reduction in ranking between 1851 and 1861 (98.16 to 96:06 or negative 2.10 percent). The period with the greatest increase in percentile ranking was between 1891 and 1901 (97.40 to 99.15 or 1.75 percent).

- The percentile change in nominal earnings ranking for the non-elite of *Accounting* was negative for seven of the nine decennial periods. No change in ranking occurred between 1891 and 1901. The only period to provide a rise in the percentile ranking of the non-elite *Accounting* earning's measure was the initial period 1821/1831 (1.82 percent). The period of greatest change in the percentile ranking of non-elite accountants was between 1841 and 1851 (95.40 to 92.23 or negative 3.17 percent).

The growth in the numbers employed in the accounting discipline over the period surveyed has consequences for the earnings measure for the *Accounting* non-elite which declined significantly during the period 1821 to 1911. [Table 1.4.5 shows a range of between 97.75 (1831) to 86.98 (1911)]. The measures for the first half of the century reflect only a narrow differentiation between the elite and the non-elite. As the numbers joining the discipline expanded, this forced a decline in the percentile range occupied by the non-elite. (See the extract of Table A3.3.0., Appendix 3, presented below, showing Williamson's occupational weightings for *Accounting,* including the percen-

tage decennial growth). By the final quarter of the century this growth had manifested as a significant decline in the relative earnings of non-elite accountants.

Table 1.4.5. indicates less volatility with regard to the discipline's measure of education. The educational measure of elite accountants is highest at 98.25 (1911) and at its lowest at 95.81 (1901), remaining in the 96th percentile for all but these two observations.

The percentile change in ranking was negative for seven of the nine decennial periods. Only the periods 1861/1871 and 1901/1911 provided a rise in the percentile ranking of the elite *Accounting* measure. The period of greatest change in the percentile ranking of elite accountants was between 1901 and 1911 (95.81 to 98.25 or 2.44 percent). The period represented as having the greatest reduction in percentile ranking was 1891/1901.

Table 1.4.5. again displays only small variations in the measure of education for the non-elite of the *Accounting* discipline. The highest percentile ranking occurring in 1821 (96.53) and the lowest in 1901 (93.16). The variation in the measure of education for the non-elite of the accounting discipline is represented as being far less than the variation in their earnings measurement.

The percentile change in nominal earnings ranking for the elite of *Accounting* was negative for five of the nine decennial periods. The period of greatest change in the percentile ranking of elite accountants was the increase in ranking between 1901 and 1911 (93.16 to 95:05 or 1.89 percent). The period with the greatest decrease in percentile ranking occurred between 1891 and 1901 (94.03 to 93.16 or negative 0.87 percent).

Table 1.4.5.: *Accounting* ranking (relative earnings and education – 1821 to 1911)

	Relative earnings ranking			Relative educational ranking	
Year	**Elite**	**Non-elite**		**Elite**	**Non-elite**
1821	98.38	95.93		96.94	96.53
1831	98.31	97.75		96.46	95.92
1841	97.84	94.96		96.79	96.09
1851	98.16	95.40		96.41	95.54
1861	96.06	92.23		96.00	95.27
1871	96.12	90.86		96.34	94.83
1881	97.19	91.06		96.18	93.82
1891	97.40	89.37		96.10	94.03
1901	99.15	88.62		95.81	93.16
1911	98.58	86.98		98.25	95.05
	Change in earnings ranking			**Change in educational ranking**	
	Elite	**Non-elite**		**Elite**	**Non-elite**
1821/31	(0.07)	1.82		(0.48)	(0.61)
1831/41	(0.47)	(2.79)		(0.33)	0.17
1841/51	0.32	(0.56)		(0.38)	(0.55)
1851/61	(2.10)	(3.17)		(0.41)	(0.27)
1861/71	0.06	(1.37)		0.34	(0.44)
1871/81	1.07	(0.20)		(0.16)	(1.01)
1881/91	0.21	(1.69)		(0.08)	0.21
1891/01	1.75	(0.75)		(0.71)	(0.87)
1901/11	(0.57)	(2.39)		2.44	1.89

Extract Table A3.3.0, Appendix 3.: *Accounting* occupational weightings		
Year	Weighted occupational numbers	Weighted occupational numbers
1821	33.60	N/a
1831	46.20	37.50
1841	59.00	27.71
1851	81.00	37.29
1861	118.50	46.30
1871	173.40	46.33
1881	221.50	27.74
1891	339.40	53.23
1901	463.10	36.45
1911	546.40	17.99
1821-1911		1,562.19%

1.5.0. Overall Nam-Powers occupational status results

Table 1.5.1. summarises the all classification's results with regard their *Nam-Powers* scores:

Table 1.5.1.: Overall *Nam Powers* Scores for all occupational classifications

Occupational classification	**1821**		**1831**		**1841**		**1851**		**1861**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**99.00**	98.54	**98.88**	98.40	**98.82**	98.30	**98.41**	97.94	**98.19**	97.75
Engineers & surveyors	**99.13**	99.00	**99.11**	98.95	**99.06**	98.87	**99.05**	98.80	**98.45**	98.18
Religious	**99.55**	98.95	**99.52**	98.89	**97.37**	96.67	**99.50**	98.80	**98.94**	98.06
Accounting	**97.67**	96.23	**97.39**	**95.85**	**97.32**	**95.94**	**97.29**	**95.48**	**96.03**	**93.76**
Govt: Civil official	**96.74**	96.00	**96.52**	95.75	**98.16**	97.33	**96.27**	95.54	**97.22**	96.23
Medical	**97.15**	96.45	**97.01**	96.31	**96.66**	95.91	**96.76**	96.00	**99.56**	98.85
Metal trades	**78.03**	75.20	**71.80**	68.86	**49.78**	46.85	**74.12**	70.99	**82.31**	78.25
Domestic services and messengers	**85.65**	75.70	**71.30**	61.37	**84.94**	73.69	**83.36**	74.13	**67.43**	57.41
Printing trades	**83.94**	83.76	**83.31**	82.58	**81.88**	80.98	**86.18**	79.45	**57.40**	56.39
Teaching	**93.45**	92.62	**93.17**	92.23	**93.70**	92.67	**93.21**	92.00	**95.48**	94.30
Police, prison and guards	**93.61**	93.18	**89.24**	88.79	**92.34**	91.84	**79.67**	79.20	**78.87**	78.37
Textile trades	**71.94**	58.24	**77.07**	62.80	**71.19**	57.42	**64.70**	50.60	**69.90**	57.01
Building trades	**89.33**	82.45	**91.30**	84.20	**87.12**	78.90	**90.37**	82.17	**89.54**	80.91
Commercial delivery and postal services	**85.72**	85.49	**86.55**	86.61	**90.53**	90.11	**86.75**	86.30	**73.75**	73.20
Transport trades	**39.74**	38.00	**42.25**	39.97	**41.29**	38.91	**40.41**	37.73	**42.11**	39.04
Mining occupations	**37.99**	31.67	**37.54**	30.92	**37.92**	30.40	**39.58**	31.93	**36.70**	28.88
General manufacturing and dealing	**76.98**	64.25	**75.87**	62.83	**73.07**	59.33	**72.98**	58.72	**72.13**	57.01
Agricultural occupations	**42.18**	2.74	**40.29**	3.36	**38.70**	5.95	**37.16**	4.34	**34.43**	4.89
Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**98.36**	97.94	**96.91**	96.48	**97.01**	96.57	**97.58**	96.15	**96.27**	95.86
Engineeris & surveyors	**98.66**	98.37	**98.02**	97.57	**98.90**	98.63	**99.17**	98.89	**99.18**	98.98
Religious	**99.15**	98.35	**98.74**	98.41	**98.62**	97.81	**93.26**	92.44	**92.81**	92.07
Accounting	**96.23**	**92.86**	**96.69**	**92.45**	**96.75**	**91.71**	**97.48**	**90.89**	**98.42**	**91.02**
Govt: Civil official	**96.12**	95.30	**92.24**	91.48	**93.79**	92.95	**91.58**	90.51	**88.87**	87.57
Medical	**99.39**	98.67	**99.37**	98.63	**99.62**	98.91	**94.16**	93.37	**99.44**	98.70
Metal trades	**80.05**	75.46	**84.43**	80.36	**90.29**	85.32	**75.99**	68.94	**75.22**	68.61
Domestic services and messengers	**65.47**	54.76	**67.92**	57.29	**47.80**	35.71	**46.23**	33.49	**42.91**	31.85
Printing trades	**56.94**	55.78	**64.90**	63.48	**66.53**	64.73	**58.40**	56.34	**61.29**	58.91
Teaching	**94.49**	93.31	**93.91**	92.41	**92.94**	91.55	**91.65**	90.10	**90.45**	88.88
Police, prison and guards	**77.93**	77.31	**82.75**	82.12	**74.03**	73.24	**60.51**	59.62	**61.77**	60.78
Textile trades	**68.34**	56.95	**48.41**	37.58	**66.69**	56.11	**51.71**	41.74	**60.62**	50.48
Building trades	**88.99**	80.03	**87.74**	78.14	**75.22**	66.54	**78.89**	68.61	**76.98**	67.53
Commercial delivery and postal services	**63.77**	63.05	**63.20**	62.49	**27.23**	25.32	**21.34**	19.15	**12.52**	9.81
Transport trades	**36.95**	33.66	**36.54**	32.75	**34.20**	31.11	**30.98**	29.20	**37.68**	34.22
Mining occupations	**38.91**	31.00	**47.00**	38.38	**46.19**	36.67	**50.88**	40.39	**51.44**	39.20
General manufacturing and dealing	**70.62**	53.44	**65.05**	45.87	**65.82**	46.66	**65.52**	48.87	**64.61**	50.03
Agricultural occupations	**30.97**	5.27	**45.02**	23.61	**42.00**	24.25	**37.46**	23.24	**37.54**	23.70

Table 1.5.2. summarises all classification's (1st to 36th) rankings based on *Nam-Powers* scores:

Table 1.5.2.: Rankings based on *Nam Powers* scores for all occupational classifications

Occupational classification	**1821**		**1831**		**1841**		**1851**		**1861**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**3/4**	6	**5**	6	**3**	4	**5**	6	**5**	8
Engineers & surveyor	**2**	3/4	**2**	3	**1**	2	**2**	3/4	**4**	6
Religious	**1**	5	**1**	4	**6**	9	**1**	3/4	**2**	7
Accounting	**7**	11	**7**	11	**8**	11	7	12	**11**	14
Govt: Civil official	**9**	12	**9**	12	**5**	7	**9**	11	**9**	10
Medical	**8**	10	**8**	10	**10**	12	**8**	10	**1**	3
Metal trades	**24**	27	**25**	27	**29**	30	**25**	27	**16**	20
Domestic services and messengers	**19**	26	**26**	30	**20**	24	**19**	24	**25**	26
Printing trades	**21**	22	**21**	22	**21**	22	**18**	22	**27**	28
Teaching	**14**	16	**13**	14	**13**	14	**13**	14	**12**	13
Police, prison and guards	**13**	15	**16**	17	**15**	16	**21**	23	**18**	19
Textile trades	**28**	30	**23**	29	**26**	28	**28**	30	**24**	29
Building trades	**17**	23	**15**	20	**19**	23	**15**	20	**15**	17
Commercial delivery and postal services	**18**	20	**19**	18	**17**	18	**16**	17	**21**	22
Transport trades	**32**	33	**32**	33	**31**	32	**31**	33	**31**	32
Mining occupations	**34**	35	**34**	35	**34**	35	**32**	35	**33**	35
General manufacturing and dealing	**25**	29	**24**	28	**25**	27	**26**	29	**23**	29
Agricultural occupations	**31**	36	**31**	36	**33**	36	**34**	36	**34**	36

Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**6**	8	**7**	9	**8**	9	**3**	5	**6**	7
Engineers & surveyor	**4**	5	**5**	6	**3**	4	**1**	2	**2**	3
Religious	**2**	7	**2**	4	**5**	6	**8**	9	**8**	9
Accounting	**9**	14	**8**	11	**7**	13	**4**	12	**5**	10
Govt: Civil official	**10**	11	**13**	14	**10**	11	**11**	13	**13**	14
Medical	**1**	3	**1**	3	**1**	2	**6**	7	**1**	4
Metal trades	**16**	20	**16**	19	**15**	16	**16**	17	**16**	17
Domestic services and messengers	**23**	29	**21**	27	**26**	31	**27**	31	**28**	33
Printing trades	**27**	28	**23**	24	**22**	24	**22**	23	**21**	24
Teaching	**12**	13	**10**	12	**12**	14	**10**	14	**11**	12
Police, prison and guards	**18**	19	**17**	18	**18**	19	**20**	21	**20**	22
Textile trades	**22**	26	**28**	33	**20**	25	**24**	28	**23**	26
Building trades	**15**	17	**15**	20	**17**	21	**15**	18	**15**	18
Commercial delivery and postal services	**24**	25	**25**	26	**34**	35	**35**	36	**35**	36
Transport trades	**32**	33	**34**	35	**32**	33	**32**	33	**30**	32
Mining occupations	**31**	35	**29**	32	**28**	30	**25**	28	**25**	29
General manufacturing and dealing	**21**	30	**22**	30	**23**	27	**19**	26	**19**	27
Agricultural occupations	**34**	36	**31**	36	**29**	36	**30**	34	**31**	34

Table 1.5.3. summarises the *Accounting* classification's results with regard occupational status as measured by their *Nam-Powers* scores. The results shown in Table 1.5.3. indicate that the highest percentile achieved by elite accountants when applying the *Nam-Powers* socioeconomic measure was 98.42 in 1911, while the lowest percentile of 96.03 was recorded in 1861. These results show that the elite of the *Accounting* discipline were consistently ranked amongst the highest of occupations in terms of socioeconomic status during the period 1821 to 1911.

The percentile change when applying the *Nam-Powers* socioeconomic ranking for the elite of *Accounting* was negative for the initial four of the nine decennial periods. The period represented as having the greatest decrease in percentile ranking occurred between 1851 and 1861 (97.29 to 96.03 or negative 1.26 percent). The subsequent five periods trend towards an increasing percentile ranking (1861/1871 to 1901/1911). The period of greatest change in the percentile ranking of elite accountants was in the final period (1901 and 1911) when the ranking increased from 97.48 to 98:42: positive 0.94 percent).

The average *Nam-Powers* socioeconomic percentile ranking for the elite of the *Accounting* occupational grouping is 97.13. The group’s ranking has an average deviation of 0.56 and a standard deviation of 0.71.

The results shown in Table 1.5.3. indicate the highest percentile achieved by non-elite accountants when applying the *Nam-Powers* socioeconomic measure was 96.83 in 1831, while the lowest percentile of 91.02 was recorded in 1911. These results show that the non-elite of the *Accounting* discipline were consistently declining in their socioeconomic ranking during the period 1821 to 1911.

The results contained in Table 1.5.4. show the percentile change when applying the *Nam-Powers* socioeconomic ranking to the non-elite *Accounting* group was negative for the last eight of the nine decennial periods. Only the initial period (1821 to 1831) indicated an increase in the non-elite accountant's socioeconomic status (positive 0.60 percent). The period of greatest change in the percentile ranking of elite accountants was the decrease in ranking between 1851 and 1861 (95.47 to 93:75 or negative 1.72 percent).

The average *Nam-Powers* socioeconomic percentile ranking for the non-

elite of the *Accounting* occupational grouping is 95.11. The group's ranking has an average deviation of 1.83 and a standard deviation of 2.12.

Table 1.5.5. documents the results by the simply representing the *Nam-Powers'* rankings for both the elite and non-elite of the *Accounting* group by its ordinal position within the occupational hierarchy captured by this study. Table 1.5.5. indicates that the highest nominal ranking achieved by elite accountants was in 1901 (4^{th}/36) and the second highest in 1911 (5^{th}/36). The lowest nominal ranking (10^{th}/36) was recorded in 1861. These results reveal the nominal ranking of the elite of the *Accounting* discipline was constantly high, but declines slightly for the first half of the nineteenth century but recovers in throughout the second half of the period covered by this study.

The highest nominal ranking achieved by the non-elite cohort of accountants was in 1911 (10^{th}/36) and the lowest nominal ranking (14^{th}/36) was recorded in both 1861 and 1871. These results reveal the nominal ranking of the non-elite of the *Accounting* discipline appears to also be initially stable but decline in the middle decades of the nineteenth century.

Table 1.5.3.: *Accounting Nam–Powers* rankings (1821 to 1911)				
Year		**Elite**		**Non-elite**
1821	Ranked by education	96.94		96.53
	Ranked by average annual earnings	98.38		95.93
	***Nam-Powers* ranking**	**97.67**		**96.23**
1831	Ranked by education	96.46		95.92
	Ranked by average annual earnings	98.31		97.75
	***Nam-Powers* ranking**	**97.39**		**96.83**
1841	Ranked by education	96.79		96.09
	Ranked by average annual earnings	97.84		94.96
	***Nam-Powers* ranking**	**97.32**		**95.53**
1851	Ranked by education	96.41		95.54
	Ranked by average annual earnings	98.16		95.40
	***Nam-Powers* ranking**	**97.29**		**95.47**
1861	Ranked by education	96.00		95.27
	Ranked by average annual earnings	96.06		92.23
	***Nam-Powers* ranking**	**96.03**		**93.75**
1871	Ranked by education	96.34		94.83
	Ranked by average annual earnings	96.12		90.86
	***Nam-Powers* ranking**	**96.23**		**92.84**
1881	Ranked by education	96.18		93.82
	Ranked by average annual earnings	97.19		91.06
	***Nam-Powers* ranking**	**96.69**		**92.44**
1891	Ranked by education	96.10		94.03
	Ranked by average annual earnings	97.40		89.37
	***Nam-Powers* ranking**	**96.75**		**91.70**
1901	Ranked by education	95.81		93.16
	Ranked by average annual earnings	99.15		89.37
	***Nam-Powers* ranking**	**97.48**		**91.26**
1911	Ranked by education	98.25		95.05
	Ranked by average annual earnings	98.58		86.98
	***Nam-Powers* ranking**	**98.42**		**91.02**

Table 1.5.4.: *Accounting Nam-Powers* ranking percentile change 1821 to 1911					
Year		**Elite**		**Non-elite**	
1821	*Nam-Powers* ranking	97.67		96.23	
1831	*Nam-Powers* ranking	97.39		96.83	
1821/1831 percentile change			**(0.28)**		**0.60**
1831	*Nam-Powers* ranking	97.39		96.83	
1841	*Nam-Powers* ranking	97.32		95.53	
1831/1841 percentile change			**(0.07)**		**(1.30)**
1841	*Nam-Powers* ranking	97.32		95.53	
1851	*Nam-Powers* ranking	97.29		95.47	
1841/1851 percentile change			**(0.03)**		**(0.06)**
1851	*Nam-Powers* ranking	97.29		95.47	
1861	*Nam-Powers* ranking	96.03		93.75	
1851/1861 percentile change			**(1.26)**		**(1.72)**
1861	*Nam-Powers* ranking	96.03		93.75	
1871	*Nam-Powers* ranking	96.23		92.84	
1861/1871 percentile change			**0.20**		**(0.91)**
1871	*Nam-Powers* ranking	96.23		92.84	
1881	*Nam-Powers* ranking	96.69		92.44	
1871/1881 percentile change			**0.46**		**(0.40)**
1881	*Nam-Powers* ranking	96.69		92.44	
1891	*Nam-Powers* ranking	96.75		91.70	
1881/1891 percentile change			**0.06**		**(0.74)**
1891	*Nam-Powers* ranking	96.75		91.70	
1901	*Nam-Powers* ranking	97.48		91.26	
1891/1901 percentile change			**0.73**		**(0.44)**
1901	*Nam-Powers* ranking	97.48		91.26	
1911	*Nam-Powers* ranking	98.42		91.02	
1901/1911 percentile change			**0.94**		**(0.24)**

Table 1.5.5.: *Accounting Nam–Powers* rankings (1821 to 1911)				
Year		**Elite**		**Non-elite**
1821	*Nam-Powers* ranking	7/36		11/36
1831	*Nam-Powers* ranking	7/36		11/36
1841	*Nam-Powers* ranking	8/36		11/36
1851	*Nam-Powers* ranking	7/36		12/36
1861	*Nam-Powers* ranking	10/36		14/36
1871	*Nam-Powers* ranking	9/36		14/36
1881	*Nam-Powers* ranking	8/36		11/36
1891	*Nam-Powers* ranking	7/36		13/36
1901	*Nam-Powers* ranking	4/36		12/36
1911	*Nam-Powers* ranking	5/36		10/36

1.6.0. Analysis and discussion

The stated objective of this study was '*to adapt and employ the most appropriate occupational status measure to the British (English and Welsh) accounting discipline* during the formative decades of the nineteenth and early twentieth centuries. The stated outcome was *to construct a sequence of valid occupational status scores for the British (English and Welsh) accounting discipline based upon each of the decennial census dates from 1821 to 1911 and thus provide a valid measure of the incremental change in the occupational status of the emerging accounting profession* (Section 1.1.1.).

Given these objectives the primary test of the success or failure of the resultant *Nam-Powers* scale lies in its capacity to capture or reflect the changing occupational status of the accounting profession with respect to our current knowledge and interpretation of the events that characterised this period in accounting history.

The relatively invariant nature of occupational hierarchies identified within the sociology literature suggests a secondary indication of the validity of the resulting scales is their correspondence to the characteristics identified in later socioeconomic studies. As outlined in early sections of this study (Sections 1.2.0 to 1.2.5.) the results of previous occupational status investigations display some consistencies with regard the observable relationships between earnings measures, educational measures and occupational status scores. Even given that the majority of this study is set in nineteenth-century Britain (while later studies are predominantly located in twentieth-century United States of America) and that most studies reflect occupational status for relatively brief periods of time (rather than for an entire century) it is expected that the results should reflect these common attributes with regard the relationships between the composite measures identified and the resultant *Nam-Powers* measure constructed.

In addition, general *professions* literature and existing histories of British occupational groups both provide a qualitative base from which to further assess the propriety of the occupational status scores produced by this study.

Thus the success of this study is not the production of a series of de-

cennial numbers but their correspondence with the underlying occupational status literature, occupational histories and existing accounting history literature. Ultimately the utility of the *Nam-Powers* scores provided by this study is a function of their association with the known reality of the English and Welsh occupational hierarchies and accounting's ascendency during the nineteenth and early twentieth centuries (and whether the application of such socioeconomic scores can add to our overall understanding of this important period of accounting history).

1.6.1. Face validity: Occupational status literature

With regard to the occupational status literature, the results of this study reveal the following characteristics identified in previous studies:

1. Irrespective of which measure of occupational status is employed, the results of past occupational status studies that include data gathered from multiple census periods demonstrate a high degree of temporal stability in the relative status of all occupational groups within the occupational hierarchy of a nominated social location, (Davies, 1952; Kahl, 1957; Reiss, et al., 1961; Blau and Duncan, 1967; Hodge, 1981; Hodge, Seigal and Rossi, 1964).

Table 1.6.1. provides the following data: In Column 1: the standard deviations in *Nam-Powers* scores for each of the thirty-six occupational groupings for the ten decennial observations; In Column 2: the standard deviation in occupational ranking for each of the thirty-six occupational groupings for the ten decennial observations; In Column 3: the overall percentile changes in *Nam-Powe*rs scores for each of the thirty-six occupational groupings for the ten decennial observations.

The data provided in Table 1.6.1. is reflective of the results of previous occupational status studies in that most of the 36 occupational groups displayed only relatively moderate variations in both their *Nam-Powers* score and their relative rankings. The results provided in the table show the average standard deviation in *Nam-Powers* score was 7.17 percent across all thirty-six occupational groupings over the century covered by this study. With regard to occupational ranking, the data reflect an average deviation of only 2.61 places and the average overall change in *Nam-Powers* score is a reduction of (12.78) percent.

The results show that nineteen occupational groupings have a standard deviation of less than five percentage points over the century. Another seven groups varied by less the ten percentage points during the hundred year period covered by this study. Six additional groups displayed a standard devia-

tion of between ten and fifteen percentile points. Given that the data are derived from a period characterised as industrially *revolutionary* the distribution of occupational status still reflects a relatively stable hierarchy for most occupational groups.

The overall persistence of occupational status and occupational structure is confirmed by the results which indicate that 32 of the 36 *Nam-Powers* rankings moved less than four places over the entire ten decennial periods covering 1821 to 1911. Therefore even when an occupation's overall socio-economic status changed absolutely, its position within a hierarchy tended to remain stable. The results of this study do tend to reflect the overall stability of occupational status as indicated in previous occupational status research (Davies, 1952; Kahl, 1957; Reiss, et al., 1961; Hodge, Seigal and Rossi, 1964; Blau and Duncan, 1967; Nam and Powers, 1968; Sobek, 1996).

Of importance to this study, those occupations most often identified as professions display the most stability. *Legal* (both elite and non-elite), *Medical* (both elite and non-elite), *Teaching* (both elite and non-elite), *Accounting* (elite only) and *Engineers and surveyors* (both elite and non-elite) all display standard deviations under two percentage points. Of the relatively prestigious occupations, the most volatile were *Religious* (both elite and non-elite)*, Govt: civil official* (both elite and non-elite) and *Accounting* (non-elite only). These results appear to reflect the literature pertaining to professions (general: Ben-David, 1963; Collins, 1979; Abbott, 1988) and specific occupational histories. See for example, Abel, 1988 (*legal*); Routh, 1954 (*Civil Service*); Thompson, 1968 (*Engineers and Surveyors*); Gardner, 1995 (*Teaching*); Kelsall, 1955 (*Civil Service*); LeBold, Perrucci and Howland, 1966 (*Engineers and surveyors*)*;* Loudon, 1986 and Bates, 1974 (*Medical profession*).

These results confirm the reliance placed on the stability of occupational status by virtually all previous socio-historic studies that use 'occupation' as the main indicator of social standing (Sobek, 1996). The results of this study suggest that historic investigations which assume invariance in the status of most occupations over shorter periods (and in less volatile settings) are probably safe in this assumption.

Although Table 1.6.1. indicates high levels of stability in the status of most occupations it does highlight that very significant changes to the overall *Nam-Powers* scores have occurred to a small minority of occupational groups during the ten decennial periods.

Slocum states that significant changes to the status of certain specific occupations must occur, but only over substantial periods of time (1966) and Duncan's view is that significant changes to the status of certain specific occupations must occur but over substantial periods of time at *'glacial speeds'* (1968). The results of this study do not appear to support these views. Tables 1.6.1 and 1.6.2 indicate that a number of occupational groups experienced highly significant changes in socioeconomic status even between contiguous decennial observations. For example, the occupations *Metal trades* (elite: 1831 to 1841); *Domestic services and messengers* (elite and non-elite: 1851 to 1861); *Commercial delivery and postal services* (elite and non-elite: 1881 to 1891) all display significant shifts in socioeconomic standing.

Of the 324 observations (36 occupational groups x 9 changes in decennial *Nam-Powers* score from 1821 to 1911) made as a result of this study (see Appendix 5) only 20.9 percent of observations include a greater than five percent change in an individual occupation's score. With regard to relative occupational ranking, these changes in socioeconomic score resulted in only 12.9 percent of occupations changing their relative position by more than three places in the following occupational hierarchy[cxxii].

The short-term status shifts in occupational status could occur because of changes in the nature of the work undertaken by these occupational groupings (as driven by the industrialisation process) or changes to educational and workplace regulation. Perhaps some of the short-term status shifts result from the unreliability of measures used in this study or a minority of occupations did experience rapid change (particular during this period in England and Wales). This is an area that requires further research but overall it does not detract from the utility of the scale produced in this study, particularly in terms of its application to the investigation of the *Accounting* occupational group.

Treiman, in acknowledging that occupational status cannot be claimed as absolutely invariant, suggests *"the relative status of particular occupations*

does shift substantially" and importantly notes that any identified changes would be of significant importance to the study of those occupations (1976, p.299). Sobek also notes that certain occupations do *"change in economic status and require special considerations from researchers'* highlighting the importance of the '*movement of an occupation within the occupational structure*' as a variable that '*is often missing from analysis"* (1996, pps.170-71).

Table 1.6.1. reveals that only four occupational groupings displayed a standard deviation of greater than fifteen percentage points over the period 1821 to 1911. The occupations that are identified by this study as having undergone significant overall socioeconomic status changes are *Commercial delivery and postal services* (both elite and non-elite) and *Domestic services and messengers* (both elite and non-elite).

The results generated in Table 1.6.1. are supported by Routh who identifies significant demographic changes to each of these occupational groupings by the early decades of the twentieth century (1987). (He suggests that a large proportion of the commercial delivery services was increasingly undertaken by uneducated male youths by the turn of the twentieth century and that *domestic services* remained a primary employer for uneducated young woman well into the twentieth century). Also see, Freeman and Aldcroft, 1988 (*Transport trades*); Hammond and Hammond, 1917 (*General labouring*); Higgs, 1983 & 1995 (*Domestic servants and messengers*); Jackman, 1916 (*Transport trades*); Layton, 1908 (*Domestic servants and messengers*).

With regard to the occupational grouping *Police and prison guards* which also displays high levels of change, the use of *less than fifteen years of age* participation as a proxy for educational attainment for occupational groupings may have over-estimated the socioeconomic status of this grouping and thus also over-estimated the decline in its status over the period. The view taken in this study is that the lack of *less the fifteen years of age* participation in this specific occupational grouping, is unlikely to represent the educational requirements of the group but may have been based on the physical attributes required as a prerequisite to employment as a prison guard or police officer in the nineteenth century.

The results of the present study also appear to support the occupational status patterns identified by Sharlin in his critique of Treiman's studies (1979). He suggests that obviously elite occupations are consistently ranked at the top of the hierarchy and the equally obvious low status occupations are consistently ranked at the bottom of the hierarchy irrespective of social or temporal locations. Sharlin's replication of Treiman's prestige based study indicates that, while the average and overall volatility of an occupational hierarchy was low, because the *extremes* at each end of the hierarchy were relatively stable, the volatility of the status of the *middle* occupations within that hierarchy was much greater than the overall average.

By replicating Sharlin's process of eliminating twenty-five percent of occupational groups from both ends of the occupational hierarchy [thus leaving the middle-ranked fifty percent of occupational groups] the present study would remove the nine consistently highest ranked occupations [*Engineers and surveyors* (elite and non-elite), *Legal* (elite and non-elite), *Religious* (elite and non-elite) and *Medical* (elite and non-elite) *and Accounting* (elite only)], together with the nine consistently lowest ranked occupations [*Agricultural occupations* (elite and non-elite); *Mining occupations* (elite and non-elite); *Transport trades* (elite and non-elite); *Textile trades* (non-elite only); *Domestic services and messengers* (non-elite) *and General manufacturing and dealing* (non-elite only).

Table 1.6.2. compares the standard deviations of the remaining '*middle*' eighteen occupational groups (Column 2) to the eighteen '*extreme*' groups removed (Column 1). The data indicate the overall volatility of socio-economic status of the middle eighteen occupations, as measured by the *Nam-Powers* scale, is significantly higher than that of the entire 36 occupational groups, indicating that the extreme occupations are significantly less volatile.

The results reported in Table 1.6.2. conform to the pattern noted by Sharlin (1979) with the average standard deviation in *Nam-Powers* score for the extreme top and bottom ranked occupations being 4.19 percent while the middle eighteen occupational scores had an average standard deviation of

10.16 percent (against the overall average of 7.17 percent) across all 36 occupational groupings.

With regard to occupational ranking, the average deviation for the extreme top and bottom ranked occupations is 2.11 places but the middle occupation varied in their rankings by an average of 3.11 (against the overall average of 2.61 places). Finally, the average overall change in *Nam-Powers* score was a reduction of 12.78 percent but the average reduction in the extreme top and bottom ranked occupations was only 2.67 percent, meaning that the middle eighteen occupational groupings' *Nam-Powers* ranking declined by an average of 21.78 percent over the period 1821 to 1911.

Table 1.6.1.: Variations in *Nam-Powers* scores and ranking						
Occupational group	***Column 1*** ***Nam-Powers*** **(std dev)**		***Column 2*** **Ranking (std dev)**		***Column 3*** **Overall change in *Nam-Powers***	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	0.94	1.01	1.16	1.52	(2.73)	(2.68)
Medical	1.84	1.86	3.80	3.80	2.29	2.25
Accounting	0.71	2.12	2.01	1.37	0.75	(5.21)
Religious	2.56	2.71	2.98	2.59	(6.74)	(6.92)
Teaching	1.40	1.54	1.33	1.17	(3.00)	(3.74)
Govt: Civil official	2.99	3.12	2.07	1.83	(7.87)	(8.43)
Engineers and surveyors	0.38	0.46	1.25	1.39	0.05	(0.02)
Metal trades	10.77	10.39	5.25	5.18	(2.81)	(6.59)
Textile trades	9.07	7.89	2.79	2.36	(11.32)	(7.76)
Building trades	6.05	6.72	1.39	2.21	(12.35)	(14.92)
Transportation trades	3.66	3.75	1.05	0.87	(2.06)	(3.78)
Commercial delivery and postal services	29.88	30.79	7.63	7.73	(73.20)	(75.68)
Police, prison and guards	11.42	11.60	2.45	2.55	(31.84)	(32.40)
Printing trades	12.25	11.98	2.79	2.33	(22.65)	(24.85)
Domestic services and messengers	16.10	16.87	3.43	3.14	(42.74)	(43.85)
Mining occupations	5.82	4.23	3.56	2.88	13.45	7.53
General manufacturing and dealing	4.67	6.66	2.45	1.20	(12.37)	(14.22)
Agricultural occupations	4.06	9.99	1.81	0.64	(4.64)	20.96
Averages	**6.92**	**7.43**	**2.74**	**2.48**	**12.07**	**13.49**
Overall average	**7.17**		**2.61**		**12.78**	

Table 1.6.2.: Variations in *Nam-Powers* scores and ranking							
Column 1: Extreme quartiles (1 and 4)				**Column 2: Central quartiles (2 and 3)**			
Occupational group	***N-P* (std dev)**	**Rank (std dev)**	**Overall change in *N-P***	**Occupational group**	***N-Ps* (std dev)**	**Rank (std dev)**	**Overall change in *N-P***
Legal (elite)	0.94	1.16	(2.73)	*Accounting* (non-elite)	2.12	1.37	(5.21)
Legal (non-elite)	1.01	1.52	(2.68)	*Teaching* (elite)	1.40	1.33	(3.00)
Medical (elite)	1.84	3.80	2.29	*Teaching* (non-elite)	1.54	1.17	(3.74)
Medical (non-elite)	1.86	3.80	2.25	*Govt: Civil official* (elite)	2.99	2.07	(7.87)
Accounting (elite)	0.71	2.01	0.75	*Govt: Civil official* (non-elite)	3.12	1.83	(8.43)
Religious (elite)	2.56	2.98	(6.74)	*Metal trades* (elite)	10.77	5.25	(2.81)
Religious (non-elite)	2.71	2.59	(6.92)	*Metal trades* (non-elite)	10.39	5.18	(6.59)
Engineers and surveyors (elite)	0.38	1.25	0.05	*Textile trades* (elite)	9.07	2.79	(11.32)
Engineers and surveyors (non-elite)	0.46	1.39	(0.02)	*Building trades* (elite)	6.05	1.39	(12.35)
Transportation trades (elite)	3.66	1.05	(2.06)	*Building trades* (non-elite)	6.72	2.21	(14.92)
Transportation trades (non-elite)	3.75	0.87	(3.78)	*Commercial delivery and postal services* (elite)	29.88	7.63	(73.20)
Textile trades (non-elite)	7.89	2.36	(7.76)	*Commercial delivery and postal services* (non-elite)	30.79	7.73	(75.68)
Mining occupations (elite)	5.82	3.56	13.45	*Police, prison and guards* (elite)	11.42	2.45	(31.84)
Mining occupations (non-elite)	4.23	2.88	7.53	*Police, prison and guards* (non-elite)	11.60	2.55	(32.40)
General manufacturing and dealing (non-elite)	6.66	1.20	(14.22)	*Printing trades* (elite)	12.25	2.79	(22.65)
Agricultural occupations (elite)	4.06	1.81	(4.64)	*Printing trades* (non-elite)	11.98	2.33	(24.85)
Agricultural occupations (non-elite)	9.99	0.64	20.96	*Domestic services and messengers* (elite)	16.10	3.43	(42.74)
Domestic services and messengers (non-elite)	16.87	3.14	(43.85)	*General manufacturing and dealing* (elite)	4.67	2.45	(12.37)
Averages	**4.19**	**2.11**	**(2.67)**		**10.16**	**3.11**	**(21.78)**

Figure 1.6.0. gives a graphical representation of the *Nam-Powers* ranking scores for the elite and non-elite of all occupational groups for each of the ten decennial periods. It is the view of the current study that a greater appreciation and insight may be gained by representing an individual occupational group or an entire occupational hierarchy graphically. While the representation of the entire nineteenth-century British (English and Welsh) hierarchy often appears chaotic it provides an overall impression of the evolving occupational order in nineteenth-century Britain.

The current study refers to the lines representing the changing social status of each occupational classification as ***Set-lines*** **(‘*Socio-Economic Trend’* lines)**.

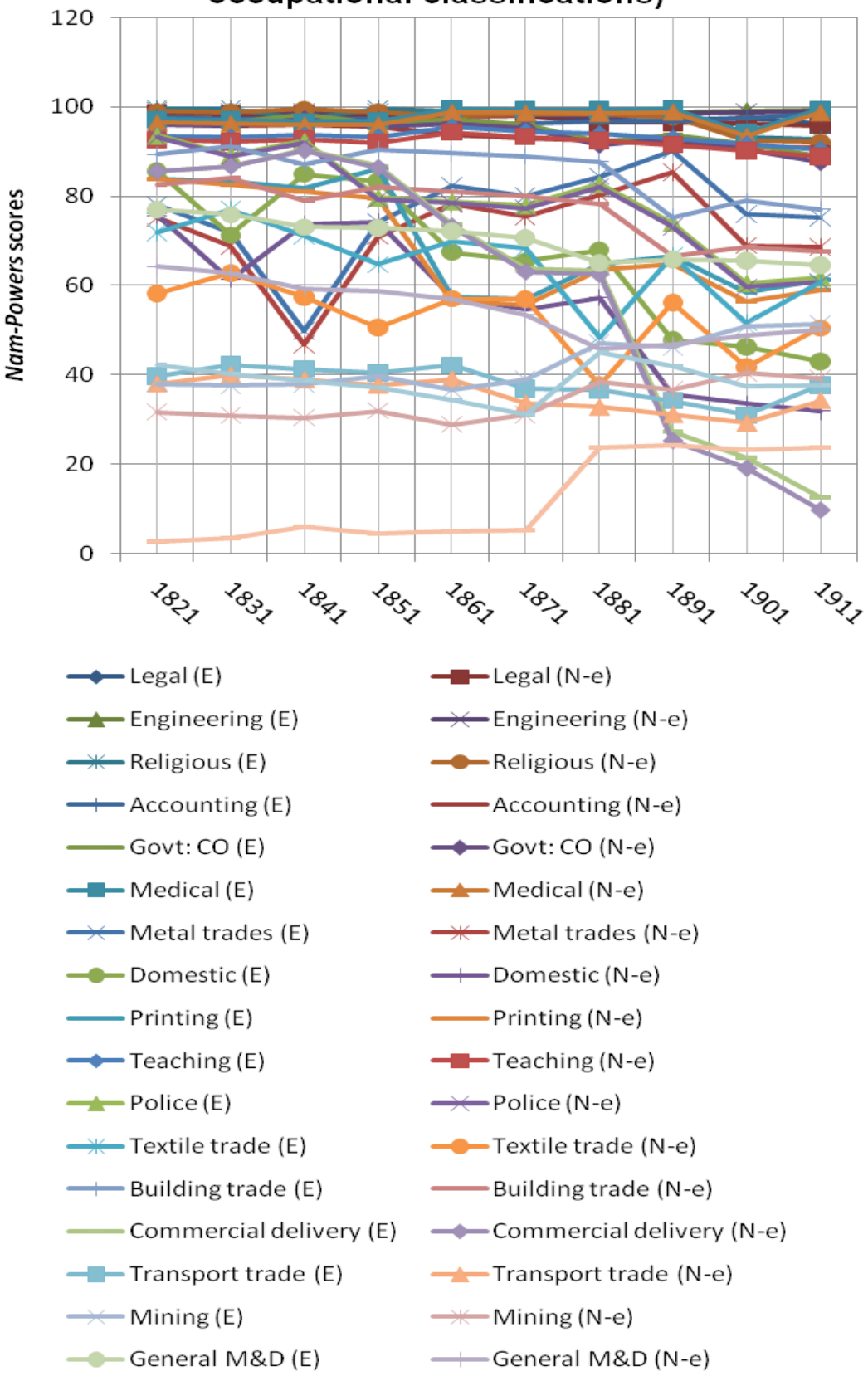
Figure 1.6.0. may be initially perceived as an accurate representation of the changing occupational hierarchy of Britain during the nineteenth century. A period characterised by major economic and social change, universally referred to as *revolutionary*. However given this socioeconomic context, the *Set-lines* depict the British occupational hierarchy as being relatively stable overall. The overall picture presented by the *Set-lines* shown in Figure 1.6.0. appears to particularly emphasise (even extend) Sharlin’s observations of Treiman’s prestige (rather than socioeconomic) scores (1980). The *Set-lines* representing those occupations that have *Nam-Powers* score either above the 75 percentile or below the 50 percentile bands appear to remain remarkable stable for prolonged periods given the turbulent socioeconomic environment. Even those groups within the middle range occupations often appear to maintain their ranking for significant periods of time. The *Set-lines* show that the decennial periods of the 1840s and 1880s appear to have been the most volatile with regard the overall occupational hierarchy.

Figures 1.6.0a. to 1.6.0c. investigate this phenomenon further by directly adopting Sharlin’s (1979) approach. These figures provide a diagrammatic representation of the two extreme quartiles of the occupational hierarchy (Figures 1.6.0a. and 1.6.0c.) and the central two quartiles (Figure 1.6.0b). The *Set-lines* provided in these graphs reveal the higher ranked *professional* occupations remain stable with only relatively small changes in ranking occurring in the early twentieth century. The *Set-lines* highlight how closely ranked

these occupations were for most of the period investigated by the current study, with some slight divergences occurring in latter census periods. The *Set-lines* also indicate that the lowest quartile of the occupational hierarchy was less stable than the highest ranked occupations. The changes occurring to lower quartile *Set-lines* appear to be of a higher magnitude and occur over a longer duration. Importantly the *Set-lines* appear to significantly converge towards the end of the period under observation.

Figure 1.6.0b. presents *Set-lines* for the two middle quartiles and reveals again another relatively stable depiction of the mid-ranked occupations of the British occupational hierarchy although more volatility is evident than was observed within the two extreme quartiles. The *Set-lines* also emphasise that the middle quartiles of occupations have diverged significantly as those occupations in the lower quartile came together.

Figure 1.6.0. *Nam-Powers* scores (All occupational classifications)



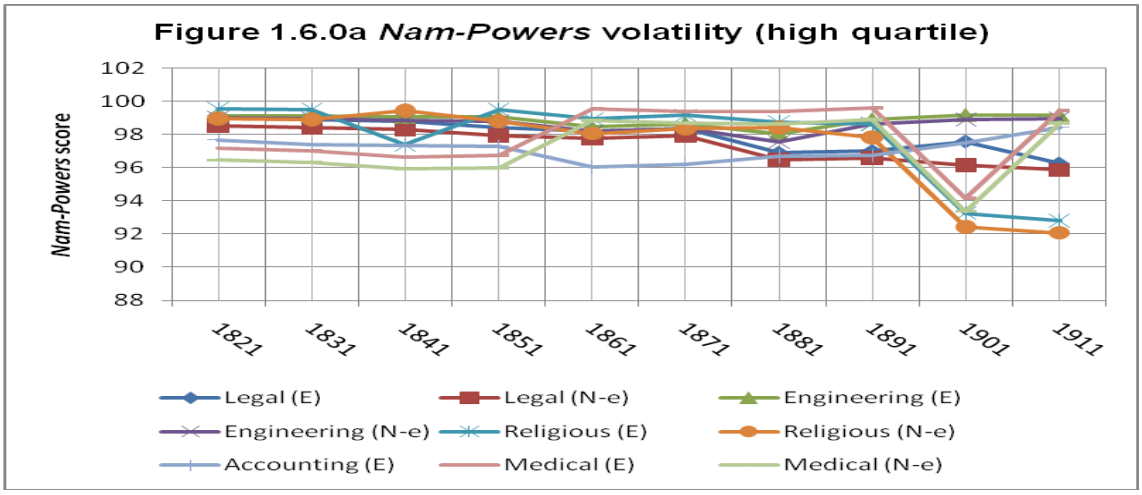


Figure 1.6.0a Nam-Powers volatility (high quartile)
Nam-Powers score
102
100
98
96
94
92
90
88
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Legal (E)
Legal (N-e)
Engineering (E)
Engineering (N-e)
Religious (E)
Religious (N-e)
Accounting (E)
Medical (E)
Medical (N-e)

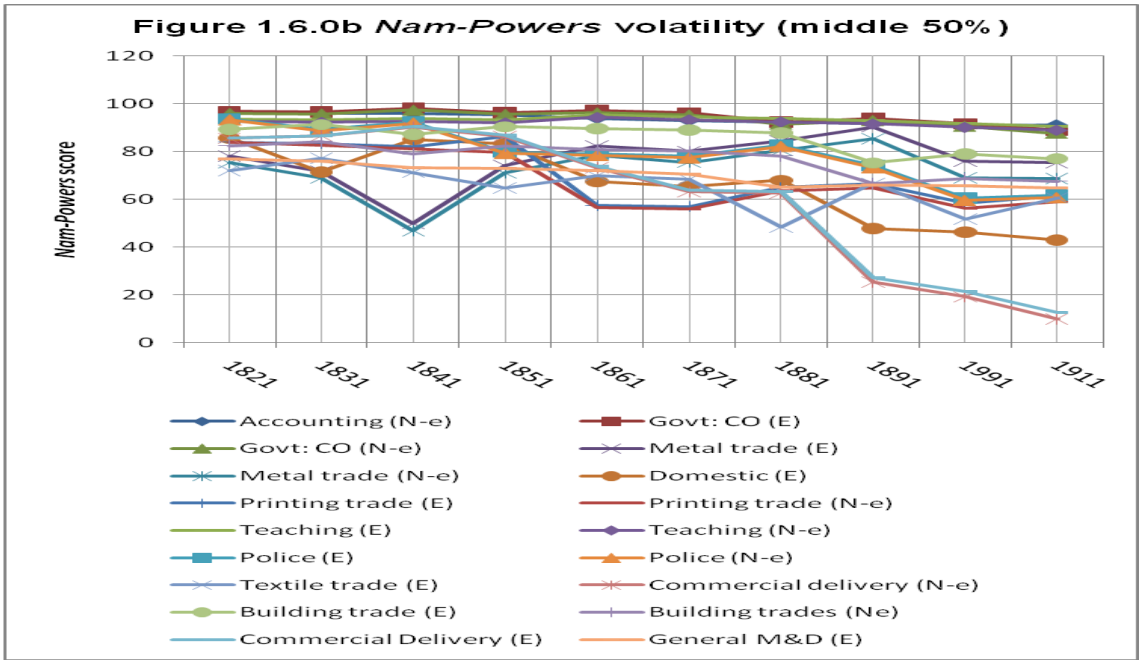


Figure 1.6.0b Nam-Powers volatility (middle 50%)
Nam-Powers score
120
100
80
60
40
20
0
1821
1831
1841
1851
1861
1871
1881
1891
1991
1911
Accounting (N-e)
Govt: CO (E)
Govt: CO (N-e)
Metal trade (E)
Metal trade (N-e)
Domestic (E)
Printing trade (E)
Printing trade (N-e)
Teaching (E)
Teaching (N-e)
Police (E)
Police (N-e)
Textile trade (E)
Commercial delivery (N-e)
Building trade (E)
Building trades (Ne)
Commercial Delivery (E)
General M&D (E)

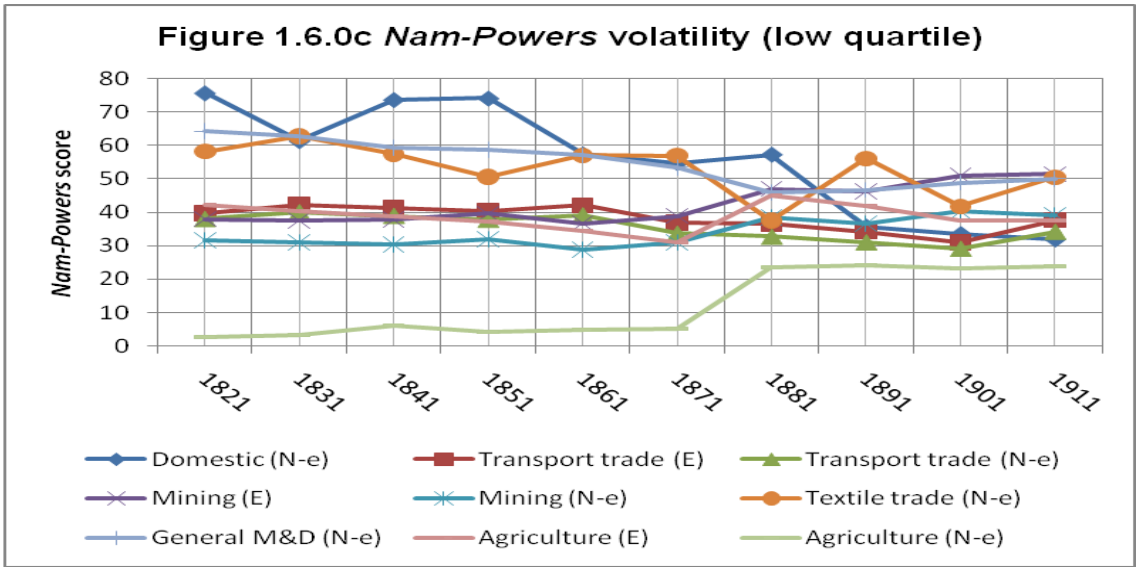


Figure 1.6.0c Nam-Powers volatility (low quartile)
Nam-Powers score
80
70
60
50
40
30
20
10
0
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Domestic (N-e)
Transport trade (E)
Transport trade (N-e)
Mining (E)
Mining (N-e)
Textile trade (N-e)
General M&D (N-e)
Agriculture (E)
Agriculture (N-e)

2. The results of past occupational status studies consistently found that of the small proportion of occupations that changed in status, the majority were revised down and that this downward revision resulted from relatively smaller *increases in both* education levels and earnings levels when compared to other occupational groups (Nam and Powers, 1968).

Table 1.6.3. provides absolute measures of the change in the *Nam-Powers* score for each of the 36 occupational classifications for the period 1821 to 1911. In addition, the table shows the absolute change in both the measures of earning and education for each of these groupings. The table demonstrates that of the 36 occupational groups that changed their score, a significant majority of 29 were revised down.

The results of this study appears to confirm to the observations of previous studies (*Nam and Powers,* 1968) which found that of those occupations that did change in socioeconomic status the majority were revised down.

Table 1.6.3. indicates that the 'downward' revisions were most pronounced in the *Commercial delivery and postal services* (both elite and non-elite); *Domestic services and messengers* (both elite and non-elite) and *Police and prison guards* (both elite and non-elite). In addition to these occupations, *Printing trades* (both elite and non-elite), *Building trades* (both elite and non-elite) and *Textile trades* (elite only) all appear to have decreased markedly in their socioeconomic standing. These results appear to correspond with those studies that specifically document the histories of these industry classifications (for example, Bowley, 1900 (*Building trades*); Galbi, 1997 (*Textile workers*); Tucker 1936 (*General Artisans*); Jackman, 1916 (*Transport trades*).

This result (in identifying a very high proportion of downward socioeconomic revaluations when compared to occupational status studies) again reflects the extended time period covered by this study and the more volatile underlying socioeconomic nature of employment opportunities within nineteenth-century England and Wales.

The results generated by Nam and Powers indicate that those occupational groups that decreased in social standing demonstrated small decreases

in both educational and earnings measures relative to other occupations (1968). The results of the present study again produced a similar outcome to previous studies in that, of the 29 occupational groups that suffered reduced socioeconomic scores, 20 demonstrated reductions in both relative earnings and educational attainment measures.

Table 1.6.3. shows disproportionate relative declines in both the educational and earnings measures for both *Commercial delivery and postal services* (both elite and non-elite) and *Domestic services and messengers* (both elite and non-elite). Other studies suggest that this is representative of a relative lack of growth in the educational and earning characteristics of the occupational members rather than any real decrease in either measure (Bowley, 1900). This again corresponds to the findings of Routh who identified substantive demographic changes in each of these occupational groupings by the early decades of the twentieth century (1987). Again also see, Freeman and Aldcroft, 1988 (*Transport trades*); Hammond and Hammond, 1917 (*General labouring*); Higgs, 1983 & 1995 (*Domestic servants and messengers*); Jackman, 1916 (*Transport trades*); Layton, 1908 (*Domestic servants and messengers*) for a complete history of each of these occupational groups.

Of the other nine occupations, seven declined in earnings only, with *Police, prison and guards* (elite only) being the most pronounced. (This result may again reflect the inappropriateness of the age-based proxy on the measurement of this group's educational attainment). Others with significant declines in earnings only include *General manufacturing and dealing* (elite only) and *Agriculture* (elite only). This result again appears to correspond to expectations given the recorded histories of these occupations. (For example, see, Brown and Hopkins, 1955; Snell, 1983; Hammond and Hammond, 1917 (*General labouring*); Jones, 1964, (*Agricultural trades*).

The two remaining occupations, *Legal* (both elite and non-elite) declined in relative education only, but these were marginal decreases given the period of the study.

Of the twelve occupations loosely defined as *professional* ten experienced a reduced *Nam-Powers* score. *Engineers and surveyors* (non-elite

only) recorded an almost static result while both *Teaching* and *Legal* decreased marginally.

The classifications *Govt: Civil officials* (both elite and non-elite), *Religious* (both elite and non-elite) and *Accounting* (non-elite) recorded relatively large reductions in socioeconomic status. While a decrease in relative education contributed to the decline in the socioeconomic position of these groups, reduced earnings had a significantly greater impact. Kuznets suggests this may reflect market changes to the supply of those wishing (and capable) of entering these occupations during the later stages of the British industrial revolution (1955).

In addition, the introduction of mandatory education may also be reflected in these results. The effect of rising average educational attainment levels throughout the nineteenth century was to reduce the '*educational gap*' between higher and lower occupational groups in Britain during this period. Those groups that started the century with very low relative educational attainment, for example, *Mining occupations* both elite and non-elite, *Agriculture occupations*, non-elite experienced rising education scores across the century at a greater rate than those occupations above them on the occupational hierarchy (thus decreasing the relative difference in ranking for the majority of groupings).

Table 1.6.3.: Decreases in *Nam-Powers* scores and relative changes in earnings and education

Occupational grouping	**Elite**			**Non-elite**		
Decreasing *Nam-Powers*	***Nam-Powers***	**Earn**	**Ed**	***Nam-Powers***	**Earn**	**Ed**
Legal	**(2.73)**	0.00	(5.47)	**(2.68)**	0.04	(5.40)
Accounting	Increasing *Nam-Powers*			**(5.21)**	(8.96)	(1.48)
Religious	**(6.74)**	(12.33)	(1.15)	**(6.92)**	(12.51)	(1.25)
Teaching	**(3.00)**	(2.36)	(3.64)	**(3.74)**	(2.81)	(4.67)
Govt: Civil official	**(7.87)**	(11.54)	(4.20)	**(8.43)**	(12.22)	(4.65)
Engineers and surveyors	Increasing *Nam-Powers*			**(0.02)**	(0.01)	(0.03)
Metal trades	**(2.81)**	(11.55)	5.93	**(6.59)**	(13.10)	(0.07)
Textile trades	**(11.32)**	(6.60)	(16.05)	**(7.76)**	(4.69)	(10.82)
Building trades	**(12.35)**	(4.69)	(20.00)	**(14.92)**	(7.09)	(22.76)
Transportation trades	**(2.06)**	(6.85)	2.73	**(3.78)**	(7.93)	0.36
Commercial delivery and postal services	**(73.20)**	(52.32)	(94.09)	**(75.68)**	(54.41)	(96.95)
Police, prison and guards	**(31.84)**	(63.67)	0.00	**(32.40)**	(64.60)	(0.20)
Printing trades	**(22.65)**	(24.12)	(21.17)	**(24.85)**	(26.90)	(22.81)
Domestic services and messengers	**(42.74)**	(30.71)	(54.78)	**(43.85)**	(33.96)	(21.17)
General manufacturing and dealing	**(12.37)**	(26.25)	1.51	**(14.22)**	(26.53)	(1.92)
Agricultural occupations	**(4.64)**	(30.44)	21.15	Increasing *Nam-Powers*		

3. The results of past occupational status studies indicate that only a small minority of occupations experience a relative increase in socio-economic status. Of this minority most increase in *both* relative earnings and education levels and therefore only very few changed status as a result of changes in only one of the income or education measures (Nam and Powers, 1968).

Table 1.6.2. provides an absolute measure of the change in the *Nam-Powers* score for each of the 36 occupational classifications for the period 1821 to 1911. In addition the table shows the absolute change in both the measures of earning and education for each of these groupings. The table indicates that the results of this study reflect those of later socioeconomic studies with only seven occupational classifications enjoying increases in their status from the period 1821 to 1911.

Table 1.6.4. shows that, of those few occupations that increased in social standing, no group experienced an increase in earnings only. Three groups had substantial increases in education level accompanied by equally substantial decreases in earnings and the remaining four occupations experienced increases (often marginal) in both relative earnings and education levels. Thus, as was the case with previous occupational status research, the majority of upward revaluations were based on increases in both earnings and education.

Interestingly, four of these occupations are professions: *Medical* (both elite and non-elite), *Engineers and surveyors* (elite only) and *Accounting* (elite only). Of these *Medical* enjoyed the most substantial increase. While a marginal increase in relative education contributed to the elevated socioeconomic position of both *Medical* groups (both elite and non-elite), increased earnings had a significantly greater impact. Again, *Engineers and surveyors* (elite only) while nominally increasing remained relatively static and *Accounting's* (elite only) elevation were primarily due to an increase in educational attainment. Again the present study's results align with the historic studies of these occupational groups and professions which indicate that this period in British history was characterised by the emergence and consolidation of a variety of

skilled professional groups (Kuznets, 1955; Collins, 1979; Abbott, 1988; Anderson, 1992; Burrage and Torstendahl, 1990; Carr-Saunders and Wilson, 1933; Routh, 1954; Thompson, 1968; LeBold, Perrucci and Howland, 1966; Loudon, 1986.

The three non-professional groups that increased their socioeconomic scores, *Mining occupations* (both elite and non-elite) and *Agricultural occupations* (non-elite only) all enjoyed substantial increases in their educational scores. This has been attributed predominantly to changes in British educational and workplace (child-labour) reforms that occurred during the period under observation (Braudel, 1981; Craig, 1981 specifically for *Mining occupations* (elite and non-elite), see Flinn, 1984 specifically for *Agriculture occupations* (non-elite), Hasbach, 1966; Jones, 1964).

Table 1.6.4.: Increases in *Nam-Powers* score relative to changes in earnings and education

Increasing *Nam-Powers*	Elite			Non-elite		
	Nam-Powers	Earn	Ed	***Nam-Powers***	Earn	Ed
Medical	**2.29**	4.48	0.10	**2.25**	4.46	0.04
Accounting	**0.75**	0.20	1.31	Decreasing *Nam-Powers*		
Engineers and surveyors	**0.05**	0.04	0.04	Decreasing *Nam-Powers*		
Mining occupations	**13.45**	(17.77)	44.66	**7.53**	(26.25)	41.31
Agricultural occupations	Decreasing *Nam-Powers*			**20.96**	0.00	41.93

4. The results of past occupational status studies indicate that '*income based*' measures are more volatile over time because they are more susceptible to fluctuating market forces. *Educational* measures are less volatile over time and therefore tend to dampen any change in occupational status caused by the volatility of earnings (Duncan, 1968; Treiman, 1977).

Table 1.6.5. compares the standard deviation of the earnings measure (1821 to 1911) to the standard deviation of the educational measure (1821 to 1911) for each of the 36 occupational groups. The table indicates that in nineteen of the occupational groups, the educational attainment measure was less volatile than the earnings measure. The results of this only weakly reflect the relationship between the volatility of earnings measures and the volatility of educational measures observed in later socioeconomic studies of later periods.

The table highlights that of the professionalised occupations only two, *Legal* (elite and non-elite) display greater volatility in the educational measure than the earnings measure. The other twelve groups reflect greater volatility in earnings. The groupings *Govt: Civil official* (both elite and non-elite), *Medical* (both elite and non-elite), *Religious* (both elite and non-elite) and *Accounting* (non-elite) display significantly more variation in earnings than the other high status groups.

Williamson explains this outcome by citing the Kuznets' *curve* effect on those occupations with established skill levels as an explanation of volatility in their earnings (demand outstrips supply for skilled labour during times of rapid industrial development and thus the prices paid for this type of labour rises rapidly but falls when supply eventually responds to the market's force - (1982).

In addition the mandatory educational and child labour reforms that occurred throughout the nineteenth century would have had little destabilising impact on the already skilled professions' educational status for the majority of the period. Only towards the end of the century were changes introduced by the professional associations with regard the educational requirements of these occupations (see, for example, Brown, 1905; Collins, 1979; Abbott,

1988; Anderson, 1992; Burrage and Torstendahl, 1990; Carr-Saunders and Wilson, 1933; Torstendahl, 2005). Therefore the relative volatility of earnings when compared to education would have been most pronounced in the skilled professions. Other occupational groups may have been subject to more comparable volatility in both education and earnings measures.

While the professions display more volatility in earnings rather than education, Table 1.6.5. shows that the opposite can be observed for the remaining occupational groups. The table shows that fifteen of the remaining 24 groupings displayed higher levels of educational volatility than earnings volatility. Again much of this educational volatility may be attributed to both the British Government's education reforms and perhaps also to the gradual recognition of the economic value of a skilled workforce throughout the century (by both employers and the parents of potential employees). For example see the commentaries provided by Schofields (1968) and Musgrave (1971) and the findings of successive *Commissions in Children's Employment* during the nineteenth century (cited in Schofield, 1968).

Nam-Powers scores provide rankings of occupations within the hierarchy rather than measures of absolute values. Figure 1.6.1. (education) and Figure 1.6.2. (earnings) provide a visual comparative of the relative volatility of the percentile rankings of each of the composite measures of all 36 classifications in the British occupational hierarchy.

The *Set-lines* presented in Figure 1.6.1. emphasise the dichotomy present in the British occupational hierarchy of the major socioeconomic determinant 'education'. The *Set-lines* show that those occupations occupying the higher echelons of the hierarchy display virtually no volatility in the ranking of the educational attributes of their members. The members of these occupational groups were consistently among the highest educated people in the occupied workforce for the entire period covered by this study and variation in rankings between groups was minimal. The *Set-lines* illustrate that while the *Legal* (elite and non-elite) occupational groups had greater volatility in its educational than its earnings ranking this was probably due to its' consistent 'number one' ranking in earnings throughout the period covered by this study rather than any substantive variations in the underlying educational profile of

its membership. Figure 1.6.1. also again highlights the stable educational rankings of those occupations in the very lower echelon of the hierarchy. This probably confirms that low-ranked occupational groups such, as the non-elite of *Agricultural occupations*, while benefiting from an overall increase in educational levels across the English and Welsh population, were able to gain a relative higher ranking than other groups.

The *Set-lines* highlight how mid-ranked occupations within the hierarchy consistently changed their educational rankings throughout much of the nineteenth century. Given the study is set during an *industrial revolutionary* period, it is not surprising that the relative educational rankings of *Transport trades*, *Building trades*, *Metal trades* and *General Manufacturing and dealing* changed across the century as demand and supply of educated labour changed as the technical basis for these industries evolved.

The *Set-lines* presented in Figure 1.6.2. reflect the volatility in earnings ranking for each of the 36 occupational groups. The overall picture of earnings' rankings appears less chaotic than the educational rankings shown in Figure 1.6.1. but as Table 1.6.5. indicates marginally more groups display higher levels of change in their ranking.

Table 1.6.5.: Comparative volatility in *earnings and education*				
Occupational group	**Elite**		**Non-elite**	
	***Earnings* (std dev)**	**Education (std dev)**	***Earnings* (std dev)**	**Education (std dev)**
Legal	0.00	1.90	0.04	2.05
Medical	3.71	0.20	3.72	0.20
Accounting	1.02	0.69	3.26	1.19
Religious	4.79	0.55	4.81	1.67
Teaching	2.12	1.09	2.24	1.35
Govt: Civil official	5.03	1.74	5.17	1.80
Engineers and surveyors	0.62	0.43	0.66	0.51
Metal trades	3.62	21.88	4.13	20.97
Textile trades	7.32	14.99	6.96	13.33
Building trades	2.78	10.56	3.58	11.22
Transportation trades	6.93	1.83	7.32	1.82
Commercial delivery and postal services	20.90	39.95	21.58	41.13
Police, prison and guards	22.86	0.00	23.17	0.07
Printing trades	11.81	16.31	2.12	1.09
Domestic services and messengers	12.01	21.47	13.31	21.52
Mining occupations	6.41	17.80	9.03	16.93
General manufacturing and dealing	9.25	4.15	10.45	5.21
Agricultural occupations	11.25	13.83	0.00	19.99

Figure 1.6.1. Education volatility: All occupational classifications

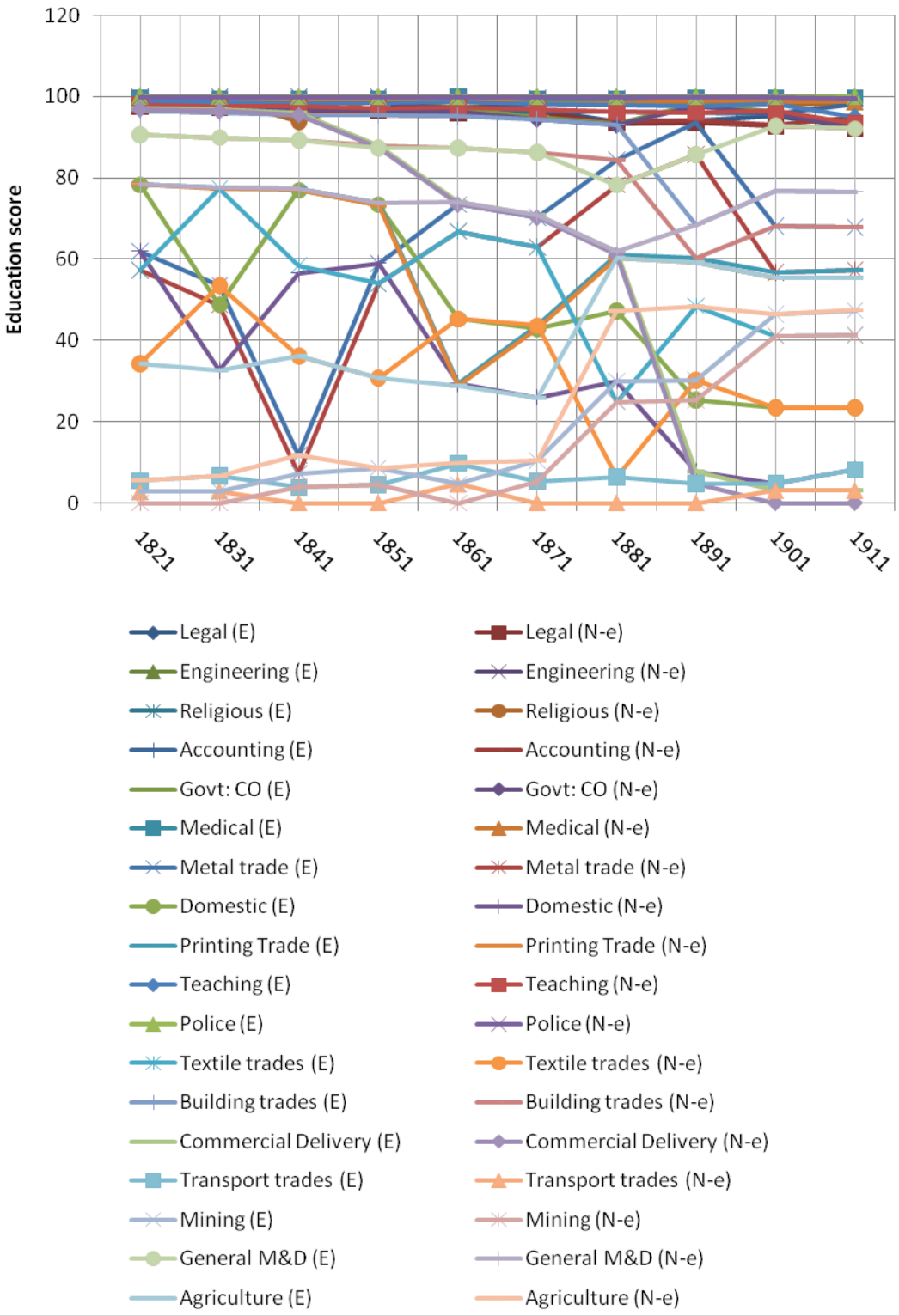
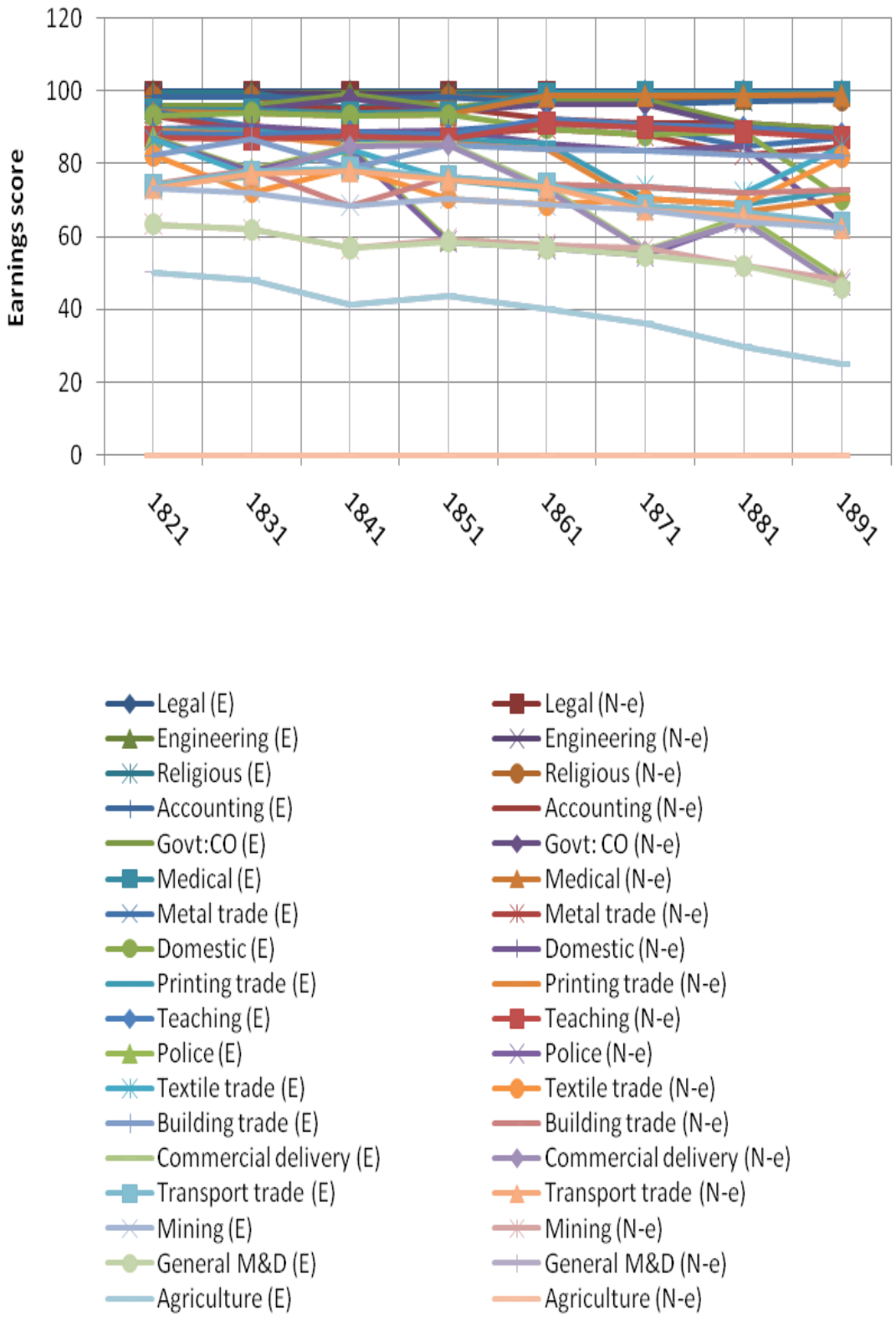


Figure 1.6.2. Earnings volatility: All occupational classifications



5. The results of past occupational status studies indicate a consistent tendency for those occupations with relatively large populations to be more stable in terms of relative earnings measures used in the determination of occupational status (Sobek, 1996).

Table 1.6.6. provides a comparison between the relative earnings stability (as measured using the standard deviation of occupational earnings) and average occupational size (as measured by the average percentage of occupied workforce) for each of the eighteen classifications. Eighteen rather than 36 occupational classifications are used as the *size* variable cannot differentiate the elite and non-elite sections of each industry cohort.

The table also provides a ranking for each of the eighteen groupings for both the earnings variation and size. Those occupations with higher standard deviations in earnings are ranked highest (1 to 18) and those with relatively largest size are also ranked highest (1 to 18).

The results of this study initially suggest that the correlation between size and earnings stability was not strong in nineteenth-century Britain over the ten decennial periods from 1821 to 1911. The current study found a correlation of -0.32 between occupational earnings and average occupational size. However a 0.56 correlation may be observed between the ranked-order of these variables.

This result may not be unexpected given the 'post-industrial revolution' setting of this study. Economic studies of this period indicate a redistribution of wealth and activity across sectors within the British economy (Ashton, 1955; Deane and Cole, 1962).

An examination of the data contained in Table 1.6.6. show those larger occupational groupings such *Domestic services and messengers* and *Agricultural occupations* do display particularly low levels of volatility in earnings over the century under examination. While not quite as stable in an absolute sense, the earnings of those workers categorised in *General manufacturing and dealing, Building trades, Mining trades* and *Textiles trades* (all relatively large industry sectors) also show relatively stable earnings patterns when compared to the majority of smaller groupings. The results indicate that those

smaller, more defined, occupational groupings displayed less stability in terms of earnings. For example, *Medical*, *Legal* and *Engineers and surveyors* all show significantly greater levels of variation in their earnings. This relationship (for skilled occupations) is perhaps again explained by Kuznets as resulting from changing market forces driven by industrial development (1955).

This examination of these data indicates that two classifications *Police, prison and guards* and *Commercial delivery and postal services* account for much of the unexpected result. If these two small groupings are removed from the data set then the correlation between earnings and size increases to -0.51 and the correlation in rankings rises to 0.81. Both of these groups appear to display very stable earnings and yet are quite small in terms of relative occupational population. Kuznets' hypothesis would suggest that it is the unskilled nature of these groups (even given a small population that explains their lack of earnings movement) (1955).

As previously stated Routh identifies significant demographic changes to *Commercial delivery and postal services* by the early decades of the twentieth century (1987). (The large proportion of uneducated male youths employed within the commercial delivery services were perhaps drawn from large industries such as *Mining occupations*, *Agriculture occupations* and *Domestic services and messengers* late in the nineteenth century, substantially changing its demographic and thus introducing more volatility into the classification's earnings). Similarly the history of policing in nineteenth-century Britain suggests that a changing perception of the role of this cohort may account for the lack of earnings change across the ten observation periods (Holdaway, 1979).

Apart from those examples, for the majority of the occupational classifications the relationship between size and earnings volatility observed in this study appears consistent with observations made by previous occupational status studies.

Table 1.6.6.: Occupational earnings volatility and average occupational size				
Occupational group	***Average Size (percentage)***	***Rank***	**Earnings (std dev)**	***Rank***
Agricultural occupations	26.45	1	5.3932	3
General manufacturing and dealing	15.57	2	10.1696	6
Textile trades	12.17	3	15.926	11
Domestic services and messengers	10.65	4	2.3882	1
Building trades	8.56	5	14.218	10
Mining occupations	8.45	6	11.295	7
Metal trades	4.33	7	12.0252	8
Accounting	3.55	8	19.521	12
Transportation trades	2.93	9	12.544	9
Printing trades	1.31	10	8.6924	5
Teaching	1.25	11	30.0036	14
Commercial delivery and postal services	1.03	12	4.4604	2
Govt: Civil official	0.90	13	34.048	15
Religious	0.75	14	26.9292	13
Medical	0.74	15	131.4768	17
Police, prison and guards	0.64	16	6.785	4
Legal	0.45	17	314.6824	18
Engineers and surveyors	0.26	18	77.861	16

6. The results of past comparative occupational status studies indicate a relatively high average correlation exists between educational and earnings measures.

Table 1.6.7. provides a list of the correlation coefficients between measures of earnings and measures of education for all occupational groups (divided into elite and non-elite) for each year for the period 1821 to 1911.

The results of this study show an average correlation of 0.51 between the measure of educational attainment and earnings for the years 1821 to 1911. The table indicates that the relationship between earnings and education remained relatively stable across the century under investigation, although does appear to decline during the early twentieth century.

When the overall result is compared with Treiman who found an average correlation of 0.77 between educational attainment and income in his comparative cross-cultural (mid-twentieth century) study, the lower average correlation between earnings and educational measures displayed in this study is not unexpected (1976, p.290). This result appears to again reflect those observations made by educational historians, based on successive pronouncements made by the *Committee of the Council of Education* (1868/1869; 1884/1885; 1891/1892; 1895/1896) and studies such as Schofields, (1968) and Musgrave (1971), that all cited a general disregard for the economic value of educational attainment for much of the nineteenth century in Britain. Williamson also indirectly attributes market forces to this decline in the relationship between skill (related to education) and earnings capacity (1982).

Interestingly, the data outlined in Table 1.6.7. indicate that a stronger relationship between education and income existed amongst the non-elite of each occupational grouping when compared to the elite for the first six decades observed by this study. This result reflects that for most of the nineteenth century a stronger relationship existed between a relative lack of education and relative lower remuneration for those employed in the non-elite occupations within each occupational classification.

It is possible that those in more elite occupational roles (within each oc-

cupational classification) may have gained entry on the basis of non-educational criteria. This would appear to correspond to the views originally expressed by Parson and Shil, who suggest that early within the process of industrialisation family-based networks were more influential on social variables (such as occupation) than were individual accomplishments such as education (1951).

The results indicate that by the last two decades of the nineteenth century the relationship between education and earnings had strengthened in the elite of each occupational group and declined in the non-elite. This conclusion corresponds to the views of Musgrove who showed a changing perception of educational attainment during the century, due to the increasing numbers of educated people in general, particularly from the middle-classes (1959).

The current study indicates a declining relationship between earnings and education for the first two decades of the nineteenth century. This result is probably more indicative of the impact of successive mandatory schooling legislation and the increasing educational requirements demanded by the representative bodies of the more elite occupations (Ellis, 1973; Stone, 1969; Schofields, 1968; Musgrave, 1971). Table 1.6.8. provides data on individual occupational groups and the results appear to reflect this view.

Table 1.6.8. contains a list of the overall correlations of measures of earnings and measures of education for each of the 36 occupational classifications for the period 1821 to 1911. The table also differentiates the earnings to education correlations for the first five observations (1821 to 1861) and the last five (1871 to 1911) for each occupational grouping.

The results show a declining correlation between earnings and education for both the elite and non-elite of the higher status occupations general (with the exception of *Engineers and surveyors*) across the period reflected in this study.

The results generated in Table 1.6.8. also confirm other evidence which suggests that various industry groupings became more closely aligned with literacy. For example manufacturing-based occupations appeared to have placed higher economic value on workers who displayed the ability to read and write while agricultural and mining based employment was associated

with workers with lower levels of education (see for examples, Cunningham, 2000; Nardinelli, 1990).

Table 1.6.7.: Yearly earnings and education correlation 1821 to 1911										
	1821	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Elite	0.552	0.481	0.480	0.503	0.465	0.539	0.510	0.508	0.434	0.445
Non-elite	0.618	0.580	0.523	0.589	0.538	0.574	0.486	0.495	0.429	0.441
Total	0.585	0.531	0.502	0.546	0.502	0.557	0.498	0.502	0.432	0.443
Average	0.5098									

Table 1.6.8.: Earnings and education correlations						
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
	1821 to 1911		**1821 to 1861**		**1871 - 1911**	
Legal	0.00	(0.69)	0.00	0.36	0.00	(0.85)
Medical	(0.11)	0.03	0.99	0.99	(0.49)	(0.30)
Accounting	0.37	0.76	0.76	0.55	0.23	(0.18)
Religious	0.56	0.32	(0.05)	0.99	0.46	0.67
Teaching	0.47	0.46	0.61	(0.23)	0.47	0.53
Govt: Civil official	0.43	0.49	(0.40)	(0.42)	0.00	0.09
Engineers and survey-ors	0.05	0.22	(0.07)	(0.08)	0.77	0.79
Metal trades	(0.17)	(0.14)	0.68	0.66	0.22	0.34
Textile trades	0.23	0.13	(0.04)	(0.04)	0.21	0.20
Building trades	0.46	0.52	0.01	0.00	0.49	0.44
Transportation trades	0.09	(0.02)	(0.52)	(0.62)	0.55	(0.54)
Commercial delivery and postal services	0.92	0.92	0.25	0.28	0.82	0.81
Police, prison and guards	(0.00)	0.64	0.00	(0.69)	0.00	0.40
Printing trades	0.41	0.44	0.70	0.66	(0.10)	(0.11)
Domestic services and messengers	0.84	0.84	0.52	0.49	0.99	0.95
Mining occupations	(0.97)	(0.97)	(0.62)	(0.54)	(0.97)	(0.96)
General manufacturing and dealing	(0.20)	0.38	0.77	0.68	0.79	(0.51)
Agricultural occupations	(0.81)	0.00	0.33	0.00	0.88	0.00

7. The results of past professionalism and professionalisation studies suggest that *old professions* such as the *church*, *medicine* and the *law* were already established by the late eighteenth century in Britain (England and Wales) and as such their position on a nineteenth century occupational hierarchy would reflect their elevated status (see for example, Collins, 1990). However while such elite professions were highly ranked, overall their relative status may have changed across the century (Routh, 1987; Treiman, 1976).

Table 1.6.9. provides both the overall *Nam-Powers* score and ranking for the *Medical* (elite and non-elite), *Religious* (elite and non-elite) and *Legal* (elite and non-elite) occupational groupings. Figures 1.6.3a. and 1.6.3b. provides a diagrammatical representation of the results contained in Table 1.6.9.

Table 1.6.9. shows that these higher status occupations were consistently among those recorded as having the highest socioeconomic scores. All three occupational groupings (in terms of both their elite and non-elite cohorts) remained in the top quartile band throughout the ten decennial observations of this study. The *Nam-Powers* scores generated by this study appear to conform to those of Collins who provides evidence that *status professions* such as the *church*, *medicine* and the *law* had already established high levels of social standing in pre-industrial revolution Britain (1990).

Table 1.6.9. captures the relative variation in these three occupational groups. The table also shows that, while the relative rankings of each of the groups changed, all stayed within the top ten groupings for the entire period covered by the study. The *Nam-Powers* scores show that the *Medical* grouping increased its status (elite: 2.29; non-elite: 2.25) during the ten periods while *Religion* declined (elite: (6.74); non-elite (6.92)). The *Legal* classification remained the most stable, with its elite declining only 2.73 percent and its non-elite declining only 2.68. Interestingly, (as highlighted earlier) Treiman suggests that the relative status of the medical and legal professions changed from the nineteenth century to the late twentieth century in the USA (1976, p.299). The emergence of the medical profession's relative status as a social phenomenon appears to be reflected by the *Nam-Powers* scores obtained in

this study for the British *Legal* and *Medical* groupings also. Rankings indicate that *Medical* started the century ranked well below *Legal* but consistently outranked all its other professional counterparts by the early decades of the twentieth century.

The results of this study however cannot support other conclusions drawn by Collins who notes some occupations raised their social profiles concurrently with the social changes that characterise this period. He specifically identifies *Accounting*, *Actuarial science*, *Architecture*, *Engineering*, *Pharmacy* as having 'professionalised' within this environment during the nineteenth century (1990).

While it is undoubtedly true that the *Accounting* elite increased its profile during the nineteenth century this study would indicate that their occupational status as measured by the *Nam-Powers* score remained relatively unchanged. The non-elite of the *Accounting* classification, however appears to have lost a significant measure of status (which will be discussed in a subsequent section).

The results of this study also reflect that over successive census periods a high degree of stability in the relative status of *Engineers and surveyors* was evident for both the elite and non-elite of this group. In partial support of Collins, this study shows that the *Accounting* (elite) and *Engineers and surveyors* (elite) were two of only seven groups whose socioeconomic status did not decline during the nineteenth century (Table 1.6.4.).

This study does not specifically identify actuarial science, architecture or pharmacy groupings but given the degree of internal homogeneity (with regard educational attainment and earnings) between individual occupations within each of the *Accounting*, *Engineers and surveyors* and *Medical* industry groups it may be possible to hypothesis that both *Actuarial science* and *Architecture* remained relatively stable (similarly to *Accounting* and *Engineers and surveyors* respectively) and that *Pharmacy* may have reflected a rise in status (similarly to both the *Medical* elite and non-elite).

Table 1.6.9.: *Nam-Powers* scores (ranking) for *Medical*, *Legal* and *Religious*										
	1821	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Legal (elite)	99.00 (3)	98.88 (5)	98.82 (3)	98.41 (5)	98.19 (5)	98.36 (6)	96.91 (7)	97.01 (8)	97.58 (3)	96.27 (6)
Legal (Non-elite)	98.54 (6)	98.40 (6)	98.30 (4)	97.94 (6)	97.75 (8)	97.94 (8)	96.48 (9)	96.57 (9)	96.15 (5)	95.86 (7)
Medical (elite)	97.15 (8)	97.01 (8)	96.66 (10)	96.76 (8)	99.56 (1)	99.39 (1)	99.37 (1)	99.62 (1)	94.16 (6)	99.44 (1)
Medical (Non-elite)	96.45 (10)	96.31 (10)	95.91 (12)	96.00 (10)	98.85 (3)	98.67 (3)	98.63 (3)	98.91 (2)	93.37 (7)	98.70 (4)
Religion (elite)	99.55 (1)	99.52 (1)	97.37 (6)	99.50 (1)	98.94 (2)	99.15 (2)	98.74 (2)	98.62 (5)	93.26 (8)	92.81 (8)
Religion (Non-elite)	98.95 (5)	98.89 (4)	96.67 (9)	98.80 (3)	98.06 (7)	98.35 (7)	98.41 (4)	97.81 (6)	92.44 (9)	92.07 (10)

Figures 1.6.3a. and 1.6.3b. both provide a visual comparative of the percentile *Nam-Powers* rankings of the high-status classifications within the British occupational hierarchy. The figures indicate that the *Nam-Powers* scores for rankings of these occupations were both relatively static and consistently very high for the period covered by this study. Figure 1.6.3a. is included as its *Set-lines* illustrate that while these professions do change social rankings on the occupational hierarchy they do so only within a very small range and at the very apex of the hierarchy. Figure 1.6.3a. effectively contextualises any change to the social rankings of the *Medical* and *Legal* classifications. It emphasises that while the overall socioeconomic dominance of the *Legal* group is challenged by the *Medical* group by the beginning of the twentieth century both remained extremely highly rewarded and educated groups relative to the other 95 percent of the occupational hierarchy.

The *Set-lines* revealed by Figure 1.6.3b. provide a more focused view on the relationship between these high-status groups and are important in that they do reflect an emerging trend. While their relative rankings do remain in small range, they do change. The *Set-lines* provide an initial indication that the *Medical* classification, while always highly ranked, gradually climbed even higher in the British hierarchy during this period. *Legal* classification remained constantly high but the *Religious* grouping, while also maintaining a relatively high socioeconomic ranking, began to significantly decline relative to the *pro-*

fessions of the twentieth century (but not necessarily when compared to all other occupational groups). While not the focus of this study, the gradual rise in the *Medical* group and the decline in *Religious* group are of importance to scholars of those disciplines and therefore the socioeconomic ranking process undertaken in the current study may provide them with some fresh insight. For example, the sudden decrease in the *Nam-Powers* rankings for both *Medical* and *Religious* groups in the 1890s (with *Medical* immediately rebounding) warrant further investigation but are outside the parameters of the current study.

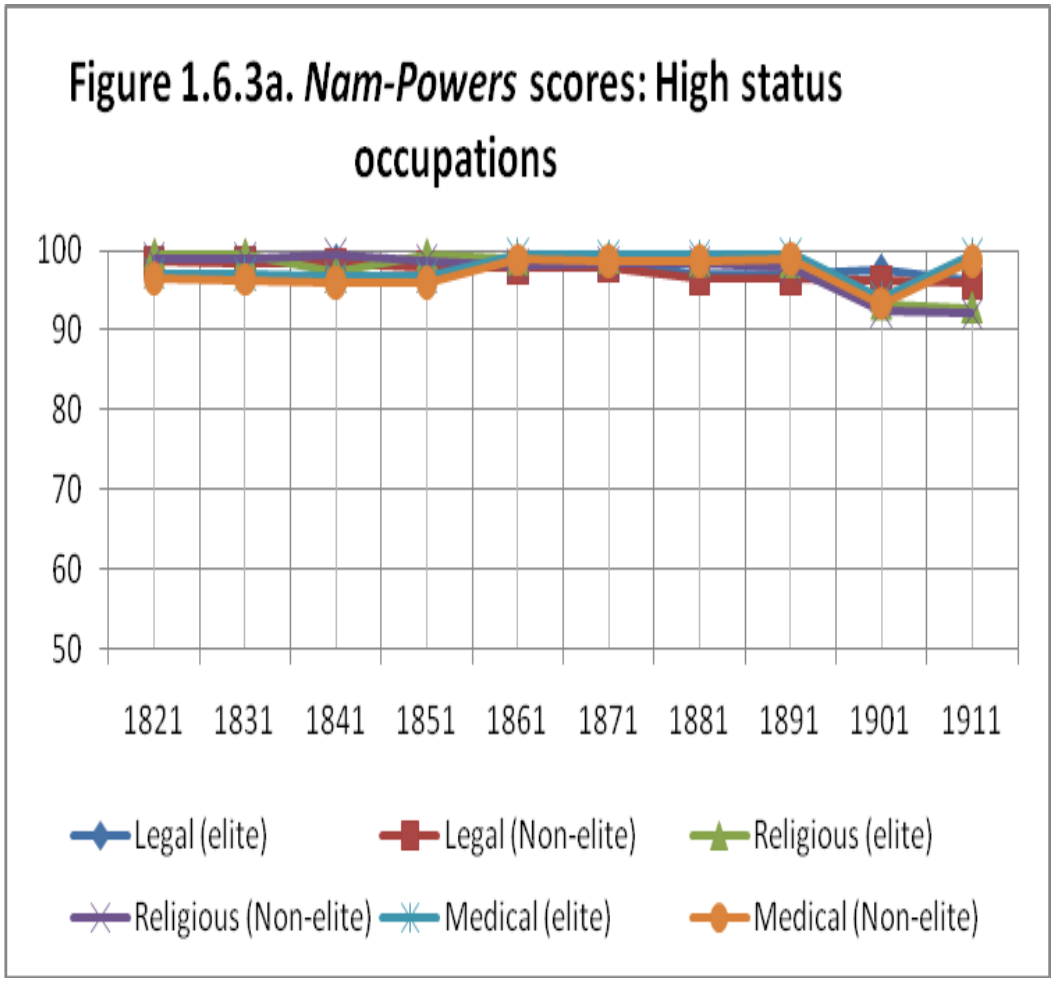
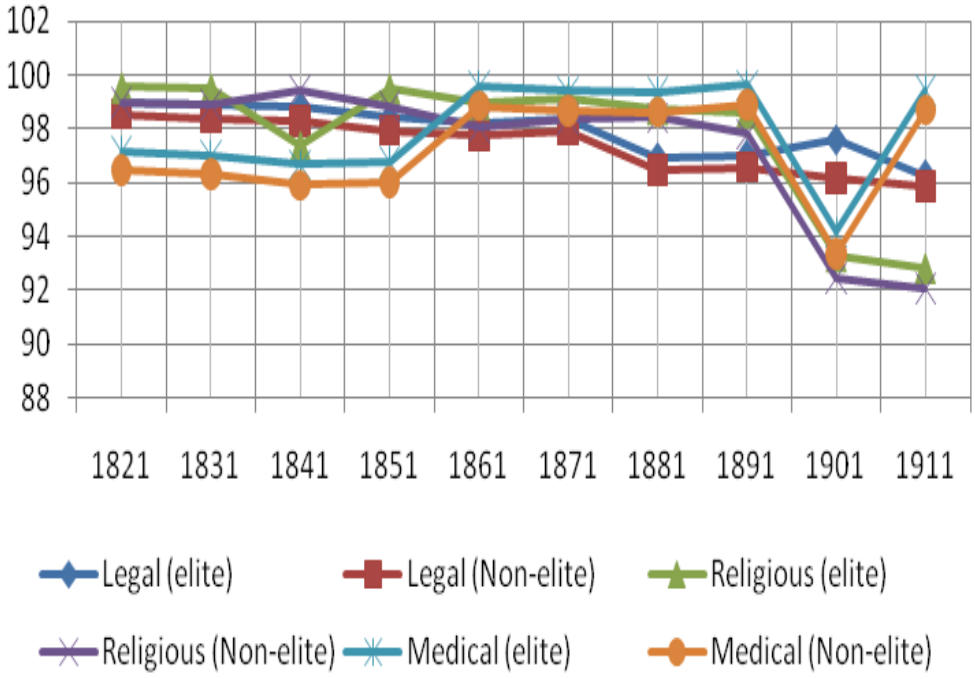


Figure 1.6.3b. *Nam-Powers* scores: High status occupations



8. The rankings provided by the *British Registrar General's Scale* (1913) are the only specific, existing contemporaneous evidence of the relative occupational status of all notional occupational groups from 1911 onwards.

Table 1.6.10. provides a comparison between the British Registrar General's hierarchy and the rankings derived by this study. The table offers an indicative sample of those occupations classified into each of the British Registrar General five social classes (Professions; Intermediates; Skilled non-manual; Skilled manual; Intermediates: Partly skilled; Unskilled) allocated to the occupational groups used in this study (based on Booth and Williamson). The table lists the occupational groupings used in this study based on the rankings each achieved using the 1911 *Nam-Powers'* score and highlights its correspondence to the British Registrar General's hierarchy.

The overall results of this study for the decennial period ending in 1911 appear to reflect the status of most occupational groups as it was subsequently ranked by the British Registrar General's Scale (BRGS) in 1913 (as at 1911).

A simple comparison between the occupational rankings produced by this study for 1911 (Column 1, Table 1.6.6.) and the social classes designated by the Registrar General (Column 3, Table 1.6.6.) indicates a high degree of correspondence. Twenty-nine of the 36 groups identified in this study share a significant proportion of occupational titles when ranked sequentially with the classes identified by the Registrar General. Of 195 occupations identified from the BRGS, 132 (or 68 percent) are ranked similarly by the *Nam-Powers* approach used in this study.

The *Professional* class (as identified by the Registrar General) contains all those occupations ranked by the *Nam-Powers*' scale adopted in this study. Interestingly, *Building trades* (elite) are included in the *Professions (class I)* by the Registrar General and is ranked similarly (fifteenth) by this study.

An examination of the two studies shows that seven occupational groups account for the entire differential between the two social ranking systems. In each of the seven cases the *Nam-Powers* approach adopted by this

study shows a higher social ranking than the BRGS. Those seven occupational groups are:

- *Textile trades* (both elite and non-elite): The *Nam-Powers* method ranks both elements of the textile occupational groupings at 23rd and 26th (from 36) placing them amongst the *Class III. Skilled: Manual* classification of the BRGS. The Registrar General however ranks occupations such as *spinners*, *winders* or *weavers* as belonging to the lower *Class IV. Intermediates: Partly Skilled* industrial rank.

- *Mining occupations* (both elite and non-elite) are ranked using *Nam-Powers* at 25th and 29th (from 36) placing them amongst the *Class III. Skilled: Manual* classification of the BRGS. Again the Registrar General ranks occupations such as *miners* as belonging to the lower *Class IV. Intermediates: Partly Skilled* industrial rank.

Interesting, Szreter quotes (Registrar General) Stevenson from 1928, who is said to have claimed that:

> *"special industrial classes were created to cater for those forms of employment that would not fit into the broad scheme'* of five social rankings ….. *he explained that textile workers and miners (particularly coal and iron) were each removed from the analysis for the separate reasons …. that it was felt to be quite impossible to judge, within these numerically large occupational categories the average level of skill* (and thus requisite status) *they contained"* (1996, p.259).

Given Stevenson's commentary on the mining and textile trades, the present study would suggest that the difference in results between the *Nam-Powers* scale (developed here) and those provided by the BRGS do not de-

tract from the utility of the findings provided by this study with regard to the development of a socioeconomic measure for the accounting discipline.

- *Metal trades* (non-elite): The *Nam-Powers* method ranks the non-elite element of this occupational grouping highly at 17 (from 36) placing them amongst the *Class II. Intermediate* classification of the BRGS. The Registrar General however ranks occupations such as *metal machinists* or *boilermakers* as belonging to the lower *Class III. 'Skilled: Manual* industrial rank.

- *Building trades* (non-elite) is ranked using *Nam-Powers* at 17th (from 36) placing it amongst the *Class II. Intermediate* classification of the BRGS. Again the Registrar General however ranks occupations such as *carpenters*, *plumbers* or *bricklayers* as belonging to the lower *Class III. Skilled: Manual* rank.

As the differential between the two social ranking approaches for (non-elite) *Building trades* and (non-elite) *Metal trades* is only one BRGS class, a possible explanation for this difference is that the *Nam-Powers* scale is a socioeconomic measure rather than the BRGS purely social ranking. While highly correlated, the results of this study may reflect changes or fluctuations in these occupation's relative earnings during this period. For example, non-elite builders and metal trade workers (and textile or mining workers) may have increased their socioeconomic ranking based on changes to their relative earnings score, as compared to their relative educational score.

- *Police, prison and guards* (elite): Finally, this grouping is ranked by *Nam-Powers* at 29th (from 36) placing them amongst the *Class III. Skilled: Manual* classification of the BRGS. Again the Registrar General ranks *police* as belonging to the lower *Class IV. Intermediate: Partly skilled* industrial rank.

As previously stated, the view taken in this study is that the elevated ranking of the grouping *Police and prison guards* is more likely to be a function of the methods used in this study to attribute educational attainment than a true reflection of the group's socioeconomic standing.

Table 1.6.10.: Comparative ranking: *British Registrar General's Scale* (1913) and *Nam-Powers* (1911)

Nam -Powers		***British Registrar General's Scale***	
1911 Rank	Occupational grouping	Class	Examples: Occupational grouping
1	Medical (elite);	I. Professions	Physicians; Surgeons; Registered GPs; Dentists, Chemists
2	*Engineers and surveyors* (elite);	I. Professions	Civil and mining engineers, Architects
3	*Engineers and surveyors* (non-elite);	I. Professions	Engineering assistants;
4	*Medical* (non-elite);	I. Professions	Dental assistants, Druggists
5	*Accounting* (elite);	I. Professions	Accountants, Bank officials
6	*Legal* (elite);	I. Professions	Barristers, Solicitors
7	*Legal* (non-elite);	I. Professions	Law clerk
8	*Religious* (elite);	I. Professions	Clergy
9	*Religious* (non-elite);	I. Professions	N/a
10	*Accounting* (non-elite);	I. Professions	Bank clerks; Commercial business clerks; Insurance clerk; Railway clerk; Auctioneers, valuers and house agents; Commercial travellers and brokers;
11	*Teaching* (elite);	I. Professions	Teachers (university); Scientific pursuits;
12	*Teaching* (non-elite);	I. Professions	Teachers (school);
13	*Govt: Civil official* (elite);	I. Professions	Civil servants (officers)
14	*Govt: Civil official* (non-elite)	I. Professions	Civil servants (clerks)
15	*Building trades* (elite);	I. Professions	Builders
16	*Metal trades* (elite);	II. Intermediates	Goldsmiths, Silversmiths
17	*Metal trades* (non-elite);	II. Intermediates	N/a
18	*Building trades* (non-elite);	II. Intermediates	N/a
19	*General manufacturing and dealing* (elite);	II. Intermediates	Dealers in: Jewellery, watches and gold, Drapers and linen; Textile, clothier/outfitter, Boot/shoe; Tobacco, Iron; Timber; Grocer; Hotel / publican / Beverage; Milk; Furniture dealers; Bread/confection; fishmongers; poulterers; Butchers; Corn/flour; Coal/coke; Merchants undefined,
20	*Police, prison and guards* (elite);	III. Skilled manual	N/a
21	*Printing trades* (elite);	III. Skilled non-manual	Printers; Hand compositors
22	*Police, prison and guards* (non-elite);	III. Skilled manual	Railway guards;
23	*Textile trades* (elite);	III. Skilled manual	Upholsterers;
24	*Printing trades* (non-elite);	III. Skilled non-manual	Others in printing;
25	*Mining occupations* (elite);	III. Skilled manual	N/a
26	*Textile trades* (non-elite);	III. Skilled manual	Wig makers, Leather, saddlers; Harness makers; Shoe makers

27	*General manufacturing and dealing* (non-elite);	III. Skilled manual	Piano/organ makers; Club service, Waiters; Scissor makers; Cutters; Electrical apparatus makers; Cycle makers;
28	*Domestic services and messengers* (elite);	III. Skilled non-manual	Domestic indoor servants; Domestic drivers; Hairdressers;
29	*Mining occupations* (non-elite);	III. Skilled non-manual	N/A
30	*Transportation trades* (elite);	III. Skilled non-manual	Motor vehicle mechanics and builders; Shipwrights, Ship plate riveters, Coach/carriage makers; Railway drivers and stokers; Tram drivers/workers; Wheelwrights; rail-coach; Wagon makers;
31	*Agricultural occupations* (elite);	IV. Partly skilled	Farm bailiff, Nursery and seedsmen; market gardeners; fisherman; shepherds
32	*Transportation trades* (non-elite);	IV. Partly skilled	Harbour / dock workers, pointsmen, crossing operators; wharf labourers; shipyard labours
33	*Domestic services and messengers* (non-elite);	IV. Partly skilled	Caretaker, Domestic coachmen and grooms; domestic gardeners
34	Agricultural occupations (non-elite);	V. Unskilled	Horsekeepers (non-govt), agricultural labour
35	*Commercial delivery and postal services* (elite);	V. Unskilled	Civil service messengers, postmen, porters
36	*Commercial delivery and postal services* (non-elite);	V. Unskilled	Messengers, (non-govt),
Adapted from Szreter, S., (1996, Appendix C, pps.608-613.			

General Observations with regard accounting classification

The eight characteristics identified from existing occupational status literature appear to give support to the validity of the social status scores generated using the *Nam-Powers* method in this study (given the limitations outlined in the following section).

Sections 1.4.0. and 1.5.0. outlined the educational, earnings and overall *Nam-Powers* results for *Accounting* (summarised in Tables 1.4.4. and 1.5.3. to 1.5.5.). What do the general observations provided from the validation of the *Nam-Powers* methodology indicate specifically about the accounting profession?

The results contained in the following extract from Table 1.6.1. indicate that the elite of *Accounting* were highly-ranked and that this ranking persisted throughout the period under consideration. Both its ranking and score remained relatively constant from 1821 to 1911. The non-elite of *Accounting* experienced more volatile results and while initially scoring highly, suffered a significant reduction in its socioeconomic standing over the same period.

Extract from Table 1.6.1.: Variations in *Nam-Powers* scores and ranking

Occupational group	***Nam-Powers* (std dev)**		**Overall change in *Nam-Powers***	
	Elite	**Non-elite**	**Elite**	**Non-elite**
Accounting	0.71	2.12	0.75	(5.21)

The results contained in the following extract from Table 1.6.3. indicate that the non-elite of the *Accounting* occupational group, was among the majority of groups that suffered a decrease in its socioeconomic score and the this was a result of a reduction in both relative educational and earnings measures. The major contributing factor to its reduced *Nam-Powers* score was a significant reduction in the group's relative earnings over the period 1821 to 1911.

Extract from Table 1.6.3.: Decreases in *Nam-Powers* score and relative changes in earnings and education						
Occupational grouping	**Elite**			**Non-elite**		
Decreasing *Nam-Powers*	**Nam-Power**	**Earn**	**Ed**	**Nam-Power**	**Earn**	**Ed**
Accounting	Increasing *Nam-Powers*			**(5.21)**	(8.96)	(1.48)

By contrast, the results contained in the following extract from Table 1.6.4. shows the elite of the *Accounting* discipline were one of very few occupational groupings that enjoyed an increase in its socioeconomic standing. The elite of *Accounting* increased very marginally due to a slight increase in its relative educational measure.

Extract from Table 1.6.4.: Increases in *Nam-Powers* score relative to changes in earnings and education						
Increasing *Nam-Powers*	**Elite**			**Non-elite**		
	Nam-Power	Earn	Ed	**Nam-Power**	Earn	Ed
Accounting	**0.75**	0.20	1.31	Decreasing *Nam-Powers*		

The following extract from Table 1.6.5. shows that the earnings and educational measures of elite accountants were both more stable than those of non-elite accountants. The relative earnings of the non-elite within the *Accounting* grouping were significantly more volatile than those of the elite during this period.

Extract from Table 1.6.5.: Comparative volatility in *earnings and education*				
Occupational group	**Elite**		**Non-elite**	
	***Earnings* (std dev)**	**Education (std dev)**	***Earnings* (std dev)**	**Education (std dev)**
Accounting	1.02	0.69	3.26	1.19

Overall the *Nam-Powers* scores and rankings provide a picture of the *Accounting* discipline during the formative period 1821 to 1911 but how well does this correspond to the accounting history literature?

1.6.2. Face validity: Accounting history literature

Do the results of this study correspond (and thus support) the substantial body of literature that identifies nineteenth-century Britain as the social location of the *professionalisation* of accountants?

1. Past accounting history and professionalism studies suggest that both the elite and non-elite of the *Accounting* cohort were more highly educated than most other occupational groups throughout the nineteenth century in England and Wales (Britain) (Jones, 1981 & 1995; Kettle, 1982; Brief, 1954; Cornwell, 1993; Routh, 1987; Booth, 1886; Anderson, 1976; Boots, 1999; Musgrove, 1959; Edwards, 1985).

Table 1.6.11. provides both the *Accounting* elite and non-elite cohort's educational scores and overall ranking for each of the ten decennial periods.

These results reveal that the elite of the *Accounting* classification was consistently amongst the highest educated of occupations during the period 1821 to 1911, falling only below the 96th percentile band in 1901. Their ranking is very stable across the entire century, indicating that the changes to English and Welsh employment and educational legislation that occurred during the nineteenth century had little impact on the group's minimum educational standing. The only real change to this dimension appears to occur in the final decennial ranking (1911) when the largest increase in educational attainment appears to have occurred. As Appendix 4 (Section A4.3.4.) shows, the majority of occupational groups, (including specifically those deemed professional) appear to be relatively stable in educational ranking between 1901 and 1911 (*Legal* both elite and non-elite, actually declines). This change in *Accounting's* educational level may reflect specific actions taken by the professional accounting bodies to cement in place minimum educational standards for professional admission.

Seen as a predominantly social measure, the stability of the educational ranking reconciles with those studies that suggest the accounting discipline's

elite were (for the period even prior to the formation of professional associations) a group of *reputable, gentlemen accountants* who were socially advantaged, relatively well-educated and well connected individuals from established families with backgrounds in either English (or Scottish) society (Jones, 1981; Edwards, 1985; Sikka and Willmott, 1995; MacDonald, 1984; Kedslie, 1990; Stewart, 1975; Mitchell and Sikka, 2004).

With regard to the non-elite of the *Accounting* discipline, the results confirm a number of observations made by a variety of studies that focus on both accountants and clerical workers. The results indicate that early in the nineteenth century there was little relative difference in educational attainment between all who would be categorised within the *Accounting* occupational grouping. Both the elite and non-elite cohorts were relatively highly educated, being both literate and numerate when compared to the general occupied population. By the 1840s the differential between the ranking of the elite and non-elite of *Accounting* is at its lowest (96.79: 96.09 respectively).

However, as the *Set-lines* from Figure 1.6.4. graphically demonstrate, by the middle decades of the nineteenth century those in the non-elite *Accounting* cohort could not maintain their elevated position. From the 1840 observation onward the margin between the elite and non-elite accountant gradually increased. The elite *Accounting Set-line* remains relatively stable until the beginning of the twentieth century (although slightly dipping in the 1840s and 1850s. The *Set-line* representing the non-elite of the discipline also begins to dip from the 1840s but continues to decline until the early 1900s. As the general population (particularly a growing middle-class) gain educational status the relative educational ranking of those involved in clerical-based *Accounting* occupations slip in their ranking within the hierarchy (Anderson, et al, 2005; Parker, 2004). Not all clerks were in the non-elite of the *Accounting* occupation (Boot, 1999) but the results of this study conform to those studies that suggest that there was a proliferation of working and lower-middle class people seeking office work who, while possessing basic educational skills, were not substantially superior to many other groups within the occupied population (Anderson, 1976; Hans, 1951; McLachlan, 1931; O'Day, 1982).

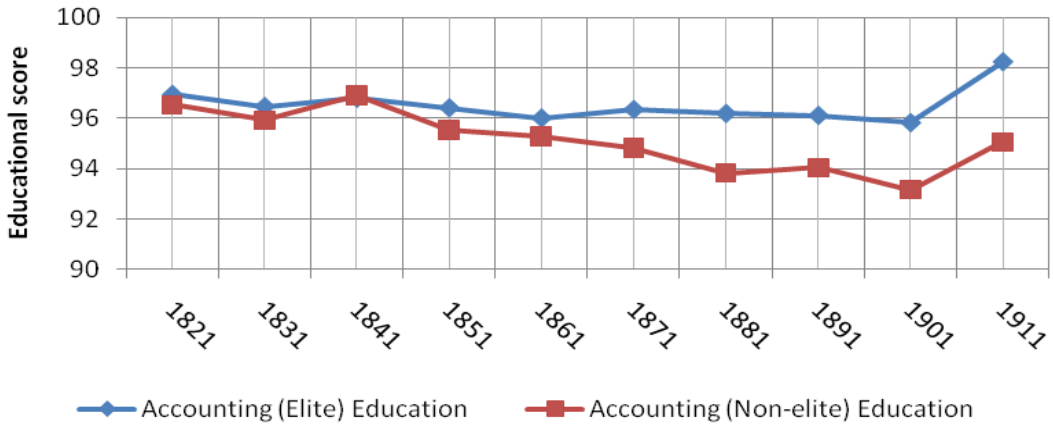
By highlighting the separation of the educational measure of the elite and non-elite cohorts in *Accounting* Figure 1.6.4. particularly places emphasis on the systematic emergence and expansion of differential educational participation often cited as being driven by elite professional interest groups from the second-half of the nineteenth century. The *Set-lines* illustrate that even when the education ranking of the non-elite *spikes* upward early in the twentieth century the differential between the elite and non-elite of *Accounting* does not diminish (see Spudford, 1979; Vovelle, 1981; Collins, 1979; Runeby, 1981; Schwarz, 2004). It must also be noted that even given the spike in rankings enjoyed by the non-elite accountants in the early 1900s the group never regain the educational rankings it achieved in the early decades of the 1800s.

Alternatively the spike in the relative educational ranking that occurs in the first decade of the twentieth century of both the elite and non-elite of *Accounting* may have resulted from the relative reduction in educational attainment of those occupational groups formally ranked above *Accounting* (such as *Govt: Civil officials* and *Teaching*) rather than any specific increase in the educational profile of either *Accounting* group.

Table 1.6.11.: *Accounting* classification educational ranking

Year	**1821**	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Elite	96.94	96.46	96.79	96.41	96.00	96.34	96.18	96.10	95.81	98.25
Non-elite	96.53	95.92	96.09	95.54	95.27	94.83	93.82	94.03	93.16	95.05
Overall Average ranking	9	9	8	8	8	7	6	7	7	5

Figure 1.6.4. Accounting classification educational score



2. Past accounting history and professionalism studies suggest that both the elite and non-elite cohorts of the *Accounting* occupational grouping, were also more highly remunerated than most other occupational groups throughout the nineteenth century in Britain (England and Wales) (Jones, 1981 & 1995; Kettle, 1982; Brief, 1954; Cornwell, 1993; Routh, 1987; Booth, 1886; Anderson, 1976; Boots, 1999; Musgrove, 1959; Edwards, 1985).

Table 1.6.12. provides both the *Accounting* elite and non-elite cohort's earning's scores and overall ranking for each of the ten decennial periods. It shows that the elite of the *Accounting* group were particularly well-remunerated. Earnings for the group are depicted as being relatively high (within the highest two percentile bands) from the earliest decades of the nineteenth century. (Figure 1.6.5. shows the earnings of the elite maintaining relatively high levels throughout the period, dipping in the 1840s but recovering to even higher levels in the second half of the century).

This again appears to reconcile with a number of historic studies that indicate the elite and entrepreneurial of the discipline were amongst the highest income earners of the period (for example, Jones, 1981 & 1995; Brief, 1954; Cornwell, 1993; Parker, 1986; Edwards, 1985 & 1989; Kedslie, 1990b; Anderson, et al., 1996; Edwards, et al., 2007; Matthews, 2006b; Kettle, 1982; Edwards, Edwards and Matthews, 1997; Chandler and Edwards, 1996).

Although it is not possible to empirically test the relativity between the firm data and the earnings scores provided by this study[cxxiii], growth in the relative earnings ranking of the elite from the 1850s as reflected in Figure 1.6.5. appears to approximate the observable growth in fees outlined in accounting firm histories (For example, Jones, 1981 & 1995; Brief, 1954; Cornwell, 1993).

Figure 1.6.5. also appears to highlight the observations made by other studies which suggest that the relative earnings of the non-elite of the discipline progressively declined during the nineteenth century (Musgrove,1959; Boot,1999; Anderson, et al., 2005; Schwarz, 2004; Parker, 2004; Edwards, 1985). The *Set-lines* from Figure 1.6.5. may again reflect the impact of the

rapid growth of the *Accounting* discipline over the nineteenth century (given its attraction to the newly-educated and aspirational working classes) and the negative impact this had on the earnings of those workers employed in non-elite accounting positions from the middle of the century (Kirkham and Loft, 1993; Routh, 1987; Anderson, 1976). The graph shows that both the elite and non-elite of the *Accounting* classification suffer a decline in relative earnings during the 1850s but this marked the beginning of a trend for only the non-elite. Deane and Cole characterised the 1850s as a period of economic depression and this may explain the reduction in both *Accounting* group's earnings (1962). (The further contextualisation of the results of this study will be discussed in a subsequent section).The *Set-line* representing the elite of *Accounting* reflects a recovery from the 1860s and the gradual improvement in the group's earnings ranking, while the line representing the non-elite's ranking continues to decline.

Overall these figures confirm the results of those studies suggesting that, while the *Accounting* group, as a whole, was more highly-paid than most other service-industry groups, there is great diversity and a growing gap between the earnings of the minority of elite accountants and those of the burgeoning group of non-elite accountants (Routh, 1987; Boot, 1999; Anderson, 1976).

Table 1.6.12.: *Accounting* classification earnings ranking

Year	**1821**	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Elite	98.38	98.31	97.84	98.16	96.06	96.12	97.19	97.40	99.15	98.58
Non-elite	95.93	97.75	94.96	95.40	92.23	90.86	91.06	89.37	88.62	86.98
Overall average ranking	4	4	4	4	6	6	5	5	3	4

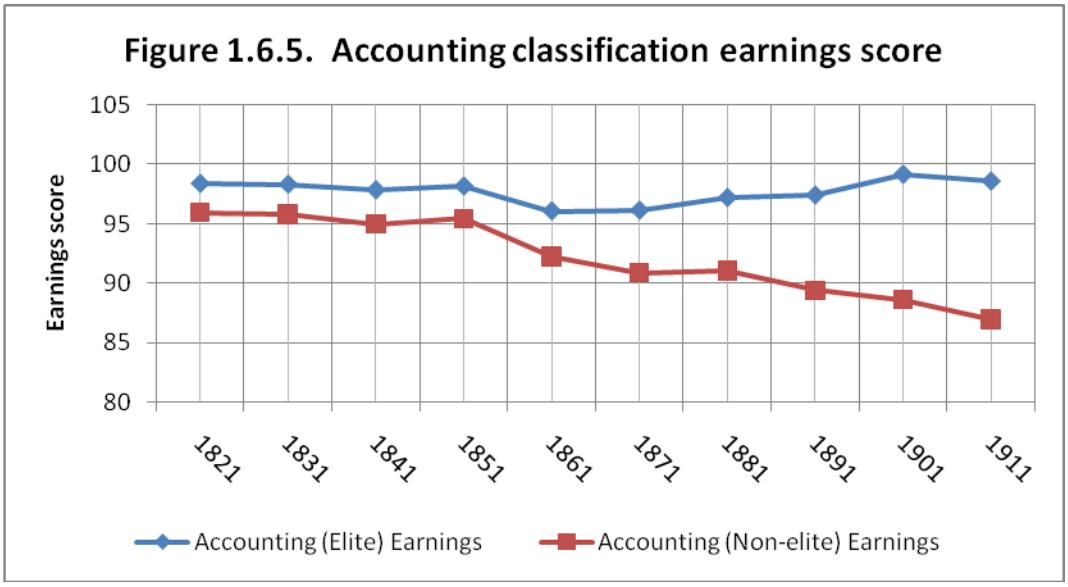


Figure 1.6.5. Accounting classification earnings score
Earnings score
105
100
95
90
85
80
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Accounting (Elite) Earnings
Accounting (Non-elite) Earnings

3. The results of accounting history studies suggest that a small group of individuals were accorded the benefits of heightened social recognition from as early as the late eighteenth century in England and Wales and this was maintained throughout the nineteenth century (Cornwell, 1991 & 1993; Armstrong, 1985 & 1987; Kedslie, 1990; Walker, 1988 & 1991 & 1993).

While the data upon which this study is based does not extend to the late eighteenth century (as neither earnings nor educational data is available), Table 1.6.13. illustrates that for the period 1821 to 1911 the elite of the *Accounting* group were ranked within the top four percentile band of all occupations in terms of their relative socioeconomic position.

Early *Nam-Powers* scores from this sequence, for the decennial periods 1821 (97.67) and 1831 (97.39) both reflect higher results than those from the periods 1841 to 1891. It is only by 1901 (97.48) that the *Nam-Powers* measure for elite accountants eclipses the score for 1831. The score for 1911 (98.42) is the only measure to exceed the 1821 score. This would indicate that the socioeconomic status of the elite accountant was marginally declining from 1821 to 1901 and thus was in all probability higher in the final decades of the eighteenth century.

This result appears to align with Cornwell's (1993) view that early practitioners were professional and that their actions were consistent with the possession of a *privileged* position and Armstrong's (1987) observation that members of the *accounting* elite were involved in those tasks associated with professional accounting as early as the late eighteenth century.

Figure 1.6.6a. and Figure 1.6.6b. both provide a visual representation of the percentile *Nam-Powers* rankings of the elite of the *Accounting* classification. These figures both highlight that the group's *Nam-Powers* scores were relatively static and consistently very high for all of the period covered in this study. The *Set-lines* provided in Figure 1.6.6a. illustrate that, while the elite accountant's social rankings on the occupational hierarchy does change, it does so only within a very small range and at the very summit of the hierarchy. Figure 1.6.6a. effectively contextualises any change to the social rank-

ings of the elite *Accounting* classifications. It emphasises that this group were extremely highly rewarded and educated when compared to all other classifications within the British occupational hierarchy and remained so for the entire period covered by this study.

The *Set-lines* revealed by Figure 1.6.6b. provide a more focused view on the evolving status of the *Accounting* elite. The figure depicts a *valley* in the relative occupational status of the group. Declining during the first five periods covered by the study (particularly suddenly during the 1850s), again perhaps all accountants were more affected by economic or social events than other groups during this period (see discussion from Section 1.9.1.). The elite accountant's *Set-line* reflects a recovery from 1861 onwards, climbing in rankings for the remainder of the nineteenth and early twentieth centuries. The shape of the *Set-line* exposes that while the decline in socioeconomic status of the *Accounting* elite was quite gradual from 1821 to 1851 the recovery in ranking from 1861 onwards appears to gather pace more quickly and (as stated above) surpasses its original 1821 ranking.

Table 1.6.13.: *Accounting*: *Nam-Powers* scores (and ranking)

	1821	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
***Accounting* (elite)**	97.67 (7)	97.39 (7)	97.32 (8)	97.29 (7)	96.03 (11)	96.23 (9)	96.69 (8)	96.75 (7)	97.48 (4)	98.42 (5)

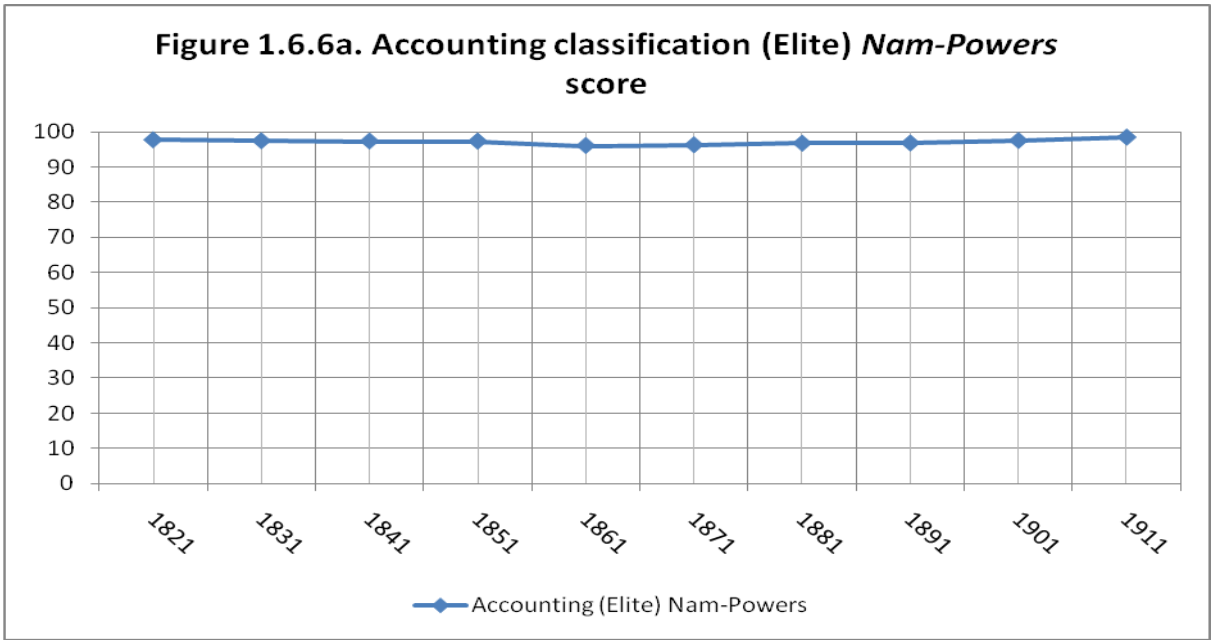


Figure 1.6.6a. Accounting classification (Elite) *Nam-Powers* score
100
90
80
70
60
50
40
30
20
10
0
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Accounting (Elite) Nam-Powers

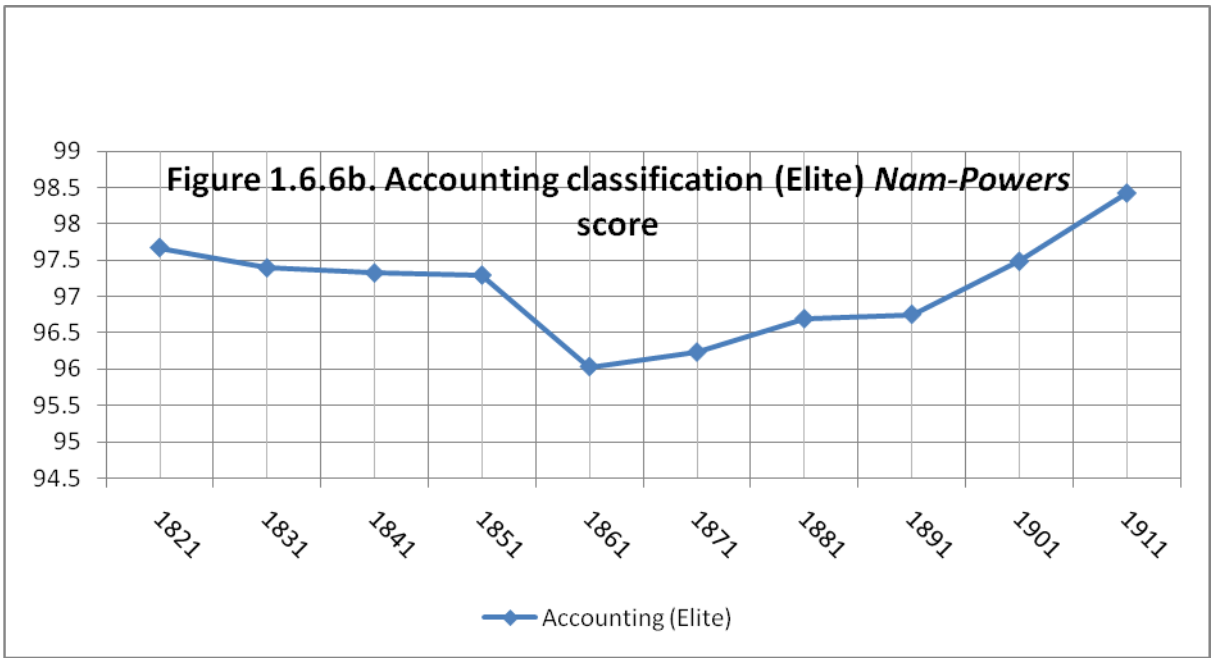


Figure 1.6.6b. Accounting classification (Elite) *Nam-Powers* score
99
98.5
98
97.5
97
96.5
96
95.5
95
94.5
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Accounting (Elite)

4. The results of a cross-sectional analysis of the intra-occupational status of various sub-classifications within the '*accounting*' occupational group, provide some indication of the overall social standing of these classes within the *Accounting* occupational group as at the mid-point (1851) of the nineteenth century (Walker, 2002).

Walker provided a cross-sectional analysis of the intra-occupational status of those identified with accounting using a variety of demographic indicators to locate the social status of accountants (2002). His results indicate a broad range of social outcomes, with some accountants being identified as belonging to the higher social echelons, but most accountants being associated with 'commercial' rather professional activities (Walker, 2002, p.396).

Table 1.6.14. outlines the relative *Nam-Powers* score and ranking for both the elite and non-elite of the *Accounting* occupational group for 1851 and includes each cohort's respective measures for both education and earnings, highlighting the difference between each cohort's scores.

The data contained in Table 1.6.14. and displayed in Figures 1.6.7 to 1.6.9 shows that in 1851 *Accounting* as an occupational grouping was more differentiated in terms of relative earnings than in terms of relative educational attainment. While both the elite and non-elite of *Accounting* are represented as enjoying relatively high socioeconomic status there is a significant gap beginning to appear between the two cohorts within the discipline by 1851. This gap is pronounced when compared to the other professionalised occupational groups due to the increasing size of the grouping.

The *Nam-Powers* scores provided by this study appear to confirm Walker's view that *Accounting*, as a single occupational group, "*encompasses a wide range of occupational experiences and employment statuses"* (2002, p.377). Walker's study also suggested that by the mid-nineteenth century a small group of elite accountants were identified as belonging to the higher socioeconomic groups (as measured by their use of demographic indicators such as the *use of domestic servant'*; *intergenerational mobility* and *residential details*). The 1851 *Nam-Powers* score of 97.29 provided by the current study ranks elite *Accounting* seventh, placing them between non-elite *Legal* (sixth) and elite *Medical* (eighth). This would confirm that this cohort of the

Accounting occupational group could be labelled as being genuinely '*professional*' at this point in the century.

Walker's results suggest that in 1851 most accountants were associated with clerical rather professional activities and were generally perceived as being part of the "*commercial rather the upper-middle"* classes (2002, p.396). While it is difficult to definitively suggest that the *Nam-Powers* scores developed by this study locates the non-elite accountant specifically amongst the commercial classes it is also possible to draw certain inferences from the classifications of those occupations ranked closest to this cohort within the occupational grouping. The non-elite of the *Accounting* occupational group are ranked twelfth; five places lower than the elite. Rather than professionals, the non-elite of *Accounting* are ranked behind non-elite Govt: *Civil officials* and ahead of *Teaching* (elite).

A ranking of twelfth places the non-elite of *Accounting* well outside the '*stable*' top twenty-five percent of occupations identified in the analysis of Sharlin (1980) and thus not universally recognised as being towards the higher end of most occupational status scales. The second quartile of occupations identified in this study for 1851 includes *Medical* (non-elite only); Govt: *Civil officials* (non-elite only); *Teaching* (elite and non-elite); *Building trades* (elite); *Printing Trades* (elite only) and *Commercial delivery and postal service* (elite and non-elite). The results of this study also appear to conform to Walkers findings, placing the non-elite cohort of the *Accounting* occupational group (with other lessor vocations) amongst the elite of the artisans and commercial occupations. Sharlin [in the context of discussing the difficulty in assuming an invariant occupational hierarchy] specifically suggests that the relative social status of *clerks and skilled artisans* often varies' across both time and social location and is therefore difficult to generalise as they are ranked closely in most studies (1980).

In addition it is interesting to compare the *Nam-Powers gap* indicated by the 1851 data (see Table 1.5.1.) between the elite and non-elite cohorts of professions such as *Legal* (0.47); *Engineers and surveyors* (0.25); *Religious* (0.70); *Medical* (0.76) and *Accounting* (1.82). The results indicate the burgeoning non-elite cohort in accounting is disproportionally spreading the so-

cioeconomic gap within the overall occupational group. The *Nam-Powers* scores provided by this study again appear to correspond and thus confirm the findings of Walker (2002).

Table 1.6.14.: 1851 Relative education, earnings and *Nam-Powers* ranking for *Accounting* elite and non-elite.

	Education	**Earnings**	***Nam-Powers* score**	***Nam-Powers* ranking**
Elite	96.41	98.16	97.29	7/36
Non-elite	95.54	95.40	95.47	12/36
Difference	0.87	2.76	1.82	5/36

The *Set-lines* shown in Figures 1.6.7. and 1.6.8. highlight the lack of any substantive demarcation between elite and non-elite accountants in 1851 and, as such, provide a visual reconciliation with the results of the current study and those of Walker's 2002 study. Figure 1.6.9. confirms that the overall difference between the socioeconomic status of elite and non-elite accountants is marginal at the beginning of the 1850s. Walker's observations as to the general perceived lack of difference between the two accounting cohorts reflects the closeness of the two group's socioeconomic rankings across the first four decennial periods covered by this study. Importantly however, Figure 1.6.9. also reveals that it is from this point the *Set-lines* representing the *Nam-Powers* ranking between the elite and non-elite of *Accounting* appear to gradually diverge. A reduction in socioeconomic ranking occurs for both groups between the 1851 and 1861 decennial periods but is slightly less pronounced in the elite *Accounting* group. It is from this point onwards these *Set-lines* indicate greater socioeconomic separation between the two accounting groups.

Figure 1.6.7. Accounting classification educational score 1851 census

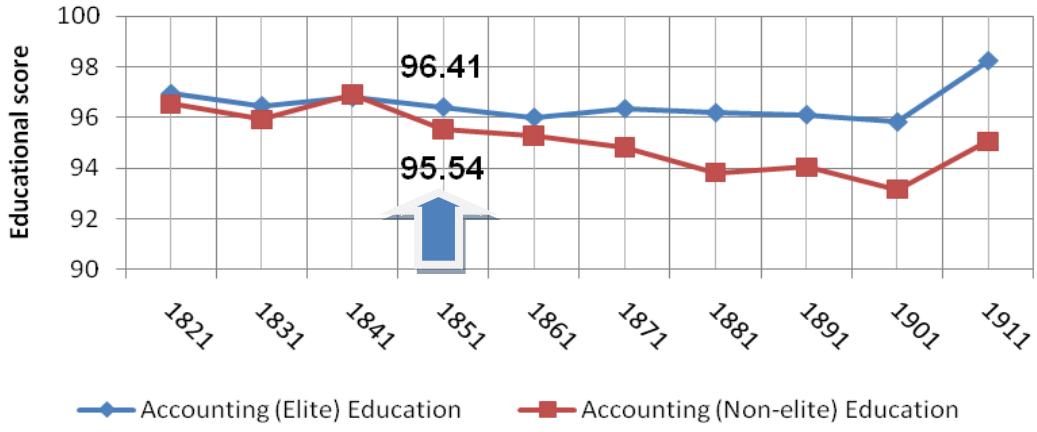
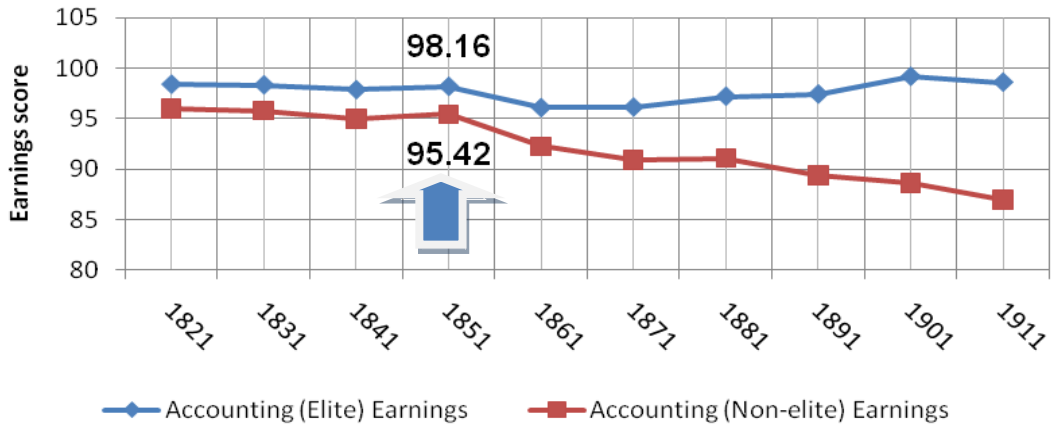


Figure 1.6.8. Accounting classification earnings score 1851 census



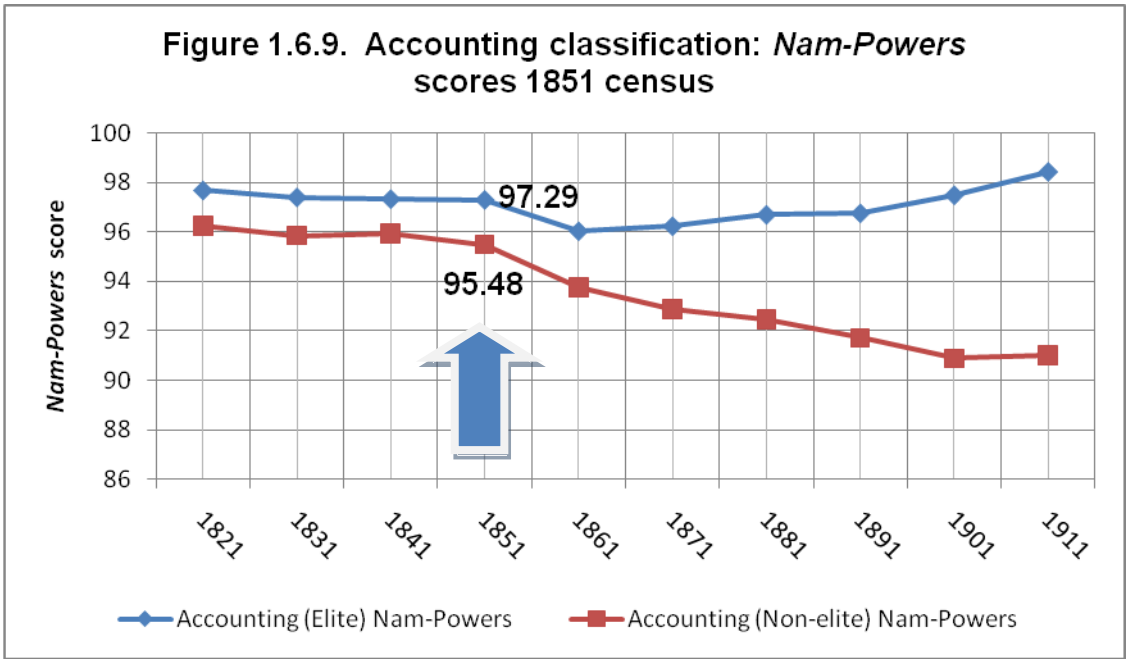


Figure 1.6.9. Accounting classification: Nam-Powers scores 1851 census
Nam-Powers score
100
98
96
94
92
90
88
86
97.29
95.48
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Accounting (Elite) Nam-Powers
Accounting (Non-elite) Nam-Powers

5. The results of past studies of accounting professionalism suggest that the lack of actual or perceived demarcation between the clerical and accounting occupations led those elite accountants to implement strategies so as to differentiate themselves from the non-elite within the occupational group (Kirkham and Loft, 1993).

Table 1.6.15. provides a comparison of the earnings rankings for both elite and non-elite sectors of the *Accounting* occupational group. In addition the table shows the growth in the difference in that earnings ranking between the two cohorts over the ten decennial periods.

Table 1.6.15. shows the narrow differentiation between the earnings of elite and the non-elite of the *Accounting* occupational group during the early period of the nineteenth century (1821 to 1841), with the rapid expansion in demand for accounting disciplinary services actually appearing to force a slight decline in the earnings differential by the 1851 decennial period. From that point, (1861 to 1911) the differentiation between the elite and non-elite becomes increasingly more prominent. By the final four census periods (1881 to 1911) this difference in earnings has manifested into a significant decline in the earnings ranking of non-elite (from 91.06 to 86.98) while simultaneously the earnings of the elite *Accounting* occupational group grew (from 97.19 to 98.58).

Table 1.6.16. provides a comparison of the elite and non-elite cohorts of the *Accounting* occupational group by educational ranking. The table highlights the growth in the difference in the educational ranking between the two cohorts over the ten decennial periods. The differential in educational ranking between the elite and non-elite is relatively trivial for the early periods of the nineteenth century (1821 to 1841) but grows from this point until, during the last four decennial periods (1881 to 1911) growth in educational difference becomes prominent (96.18 to 98.25). Both the elite and non-elite are relatively well-educated but the differential ranking has grown from 0.41 (1821) to 3.20 (1911). The table also shows a similar trend in earnings rankings.

The data in Tables 1.6.15. and 1.6.16. appear to again correspond to the numerous accounting histories that highlight the initial lack of demarcation

between the elite and non-elite of the *Accounting* occupational grouping in the early, decades of the nineteenth century (Jones, 1981; Anderson, 1976).

The relatively ambiguity observed between clerical and accounting roles is represented by the minor differential in the educational and earnings characteristics displayed in these tables, or as Kirkham and Loft state, accountants and clerks may be *"represented as occupationally equivalent"* (1993, p.518; also see Edwards and Walker, 2007; Jones, 1981; Boot, 1999; Hanlon, 1994; Routh, 1987).

Chatfield also shows that for the early decades of the nineteenth century the lack of a socially visible educational 'marker' for the recognition of an individual as an accountant did not diminish the social standing of the profession's leaders. Rather than educationally differentiated, elite accountants were held in esteem often because they tended to come from *well-to-do* families and thus derived the greater portion of their earnings from their social connections (1977; see also MacDonald, 1984; Kedslie, 1990).

The data in Tables 1.6.15. and 1.6.16. illustrates that downward pressure on earnings and educational status was associated with the rapid expansion of the service sector described by Anderson (1976) and appears to reflect Cooper's (1921) suggestion that the number of people describing themselves as accountants increased most significantly during the middle period of the nineteenth century (see the extract from Table 3.3.0. Appendix 3, presented in Section 1.4.5.). While the data reflects downward pressure on earnings, the educational differential appears to remain relatively static from 1821 to 1861. However from 1871 onwards the educational differential between elite and non-elite increases dramatically. This supports Anderson, et al.'s contention that the formal organisation and recognition of the discipline in the latter half of the nineteenth century was based on a credentialism that focussed on educational differentiation (2007).

The 1871 to 1911 data in Tables 1.6.15. and 1.6.16. appear to correspond to the summation provided by Anderson who states that during the nineteenth century the occupational classifications accountant, bookkeeper and clerk signified a person of similar standing with regard to education and

social status but that by the early twentieth century these classifications were no longer regarded as equivalent (1976 & 1988).

Table 1.6.17. specifically shows how the relative changes in education and earnings for both the elite and non-elite are captured by the *Nam-Powers* scores over the ten decennial periods.

Table 1.6.15.: *Accounting* earnings: Differentiating elite and non-elite										
	1821	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Accounting (elite)	98.38	98.31	97.84	98.16	96.06	96.12	97.19	97.40	99.15	98.58
Accounting (Non-elite)	95.93	95.75	94.96	95.40	92.23	90.86	91.06	89.37	88.62	86.98
Difference	**2.45**	**2.56**	**2.88**	**2.76**	**3.83**	**5.26**	**6.13**	**8.03**	**10.53**	**11.60**

Table 1.6.16.: *Accounting* education: Differentiating elite and non-elite										
	1821	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Accounting (elite)	96.94	96.46	96.79	96.41	96.00	96.34	96.18	96.10	95.81	98.25
Accounting (Non-elite)	96.53	95.92	96.09	95.54	95.27	94.83	93.82	94.03	93.16	95.05
Difference	**0.41**	**0.54**	**0.70**	**0.87**	**0.73**	**1.51**	**2.15**	**2.07**	**2.65**	**3.20**

Table 1.6.17. : *Nam-Powers* of *Accounting*: Differentiating elite and non-elite										
	1821	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Accounting (elite)	97.67	97.39	97.32	97.29	96.03	96.23	96.69	96.75	97.48	98.42
Accounting (Non-elite)	96.23	96.83	95.53	95.47	93.75	92.84	92.44	91.70	91.26	91.02
Difference	**1.44**	**0.56**	**1.79**	**1.82**	**2.28**	**3.39**	**4.25**	**5.05**	**6.22**	**7.40**

The *Nam-Powers*' scores reflected by the *Set-lines* in Figures 1.6.10. and 1.6.11. dramatically illustrate Anderson's commentary on the growing differential in social status of accountants and clerks during the nineteenth and early twentieth century (1976; also see Anderson, 1988; Kirkham and Loft, 1993). Figure 1.6.10. highlights a rapidly growing earnings' ranking differential that easily out-paces the educational ranking difference between the elite and non-elite of *Accounting.*

The results illustrated in Figure 1.6.11. show a slight decline in the marginal difference between the ranking of the elite and non-elite of the *Accounting* discipline between the census in 1821 and 1831 but from the 1841 census the gap between clerk and accountant is represented by a continually growing *Nam-Powers* differential ranking for the entire period covered by this study. The results of this study appear to reflect Jones' statement that "*If it is possible to argue a particular decade was critical for the development of the accounting profession, then it was the 1840s*" (1981, p.28). However, as the current study indicates, the effects were not seen until after 1851.

The results of the current study, however suggests that while the difference between the socioeconomic standing of the elite and non-elite appears to have diminished during the 1820s it re-emerged during the 1830s. This may imply events associated with the emergence of the accounting profession (such as the introduction the *1844 Joint Stock Companies Act;* see Appendix 2) were a reflection of the growing separation of elite and non-elite accountants during the preceding decade. The 1840s appear to be an important period in accounting history that set in train the differentiation between the two *Accounting* groups. The *Set-lines* highlight that from 1851 there was evidence of an increasing differentiation between the two groups for the remaining periods covered by the current study.

By the 1911 census the occupational status of the elite of the *Accounting* occupational group was 7.40 percent higher than that of the non-elite. Of all the '*professional*' occupational groups at that time this differential had become the largest ('*Medical*' = 0.74; '*Legal*' = 0.41; '*Engineers and surveyors*' = 0.2; '*Religious*' = 0.740).

In Figure 1.6.12a. (which restates Figure 1.6.9. without highlighting the 1851 data), the *Set-lines* explicitly show that after three decades of marginal socioeconomic differentiation the elite accountants appear to maintain (and very gradually grow) their ranking while the non-elite accountants appear to consistently (and ever more rapidly) lose their socioeconomic position on the British occupational hierarchy.

Figure 1.6.10. Accounting classification: Elite v non-elite differentiation of earnings and education

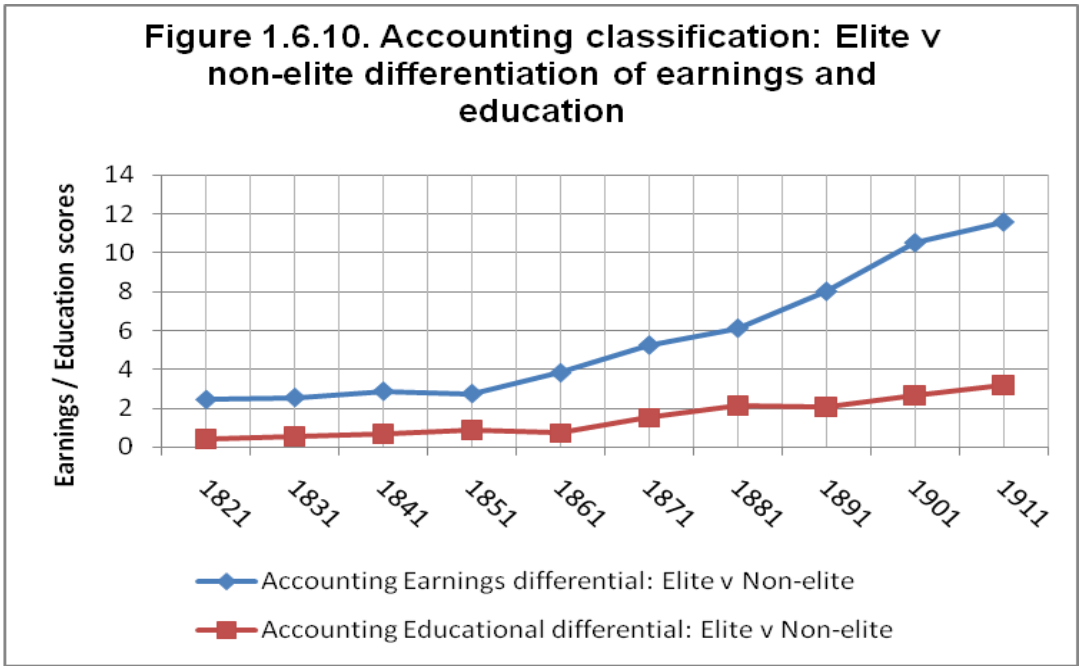
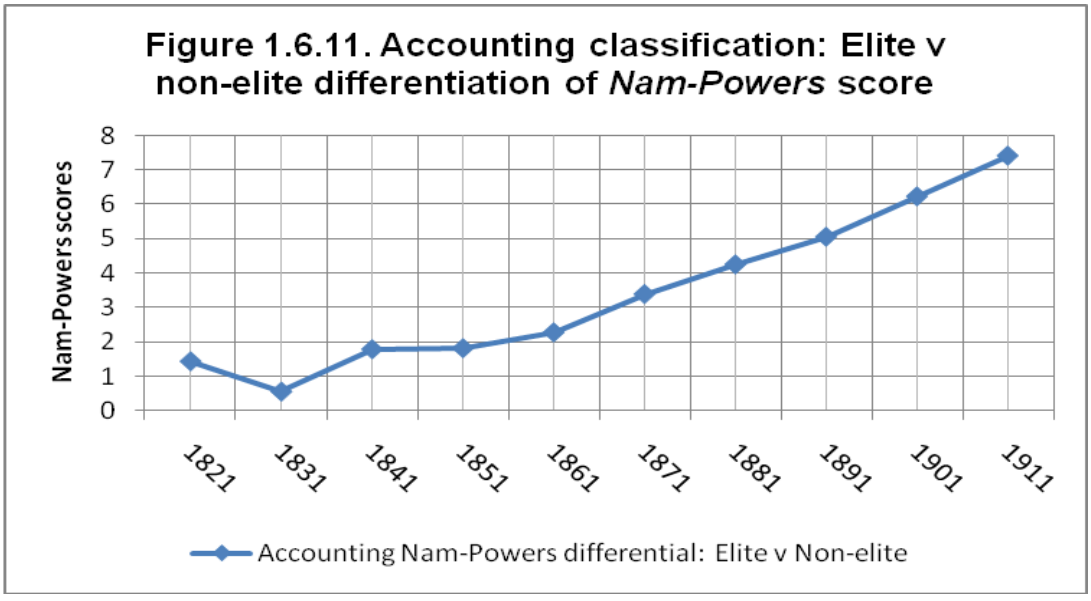


Figure 1.6.11. Accounting classification: Elite v non-elite differentiation of *Nam-Powers* score



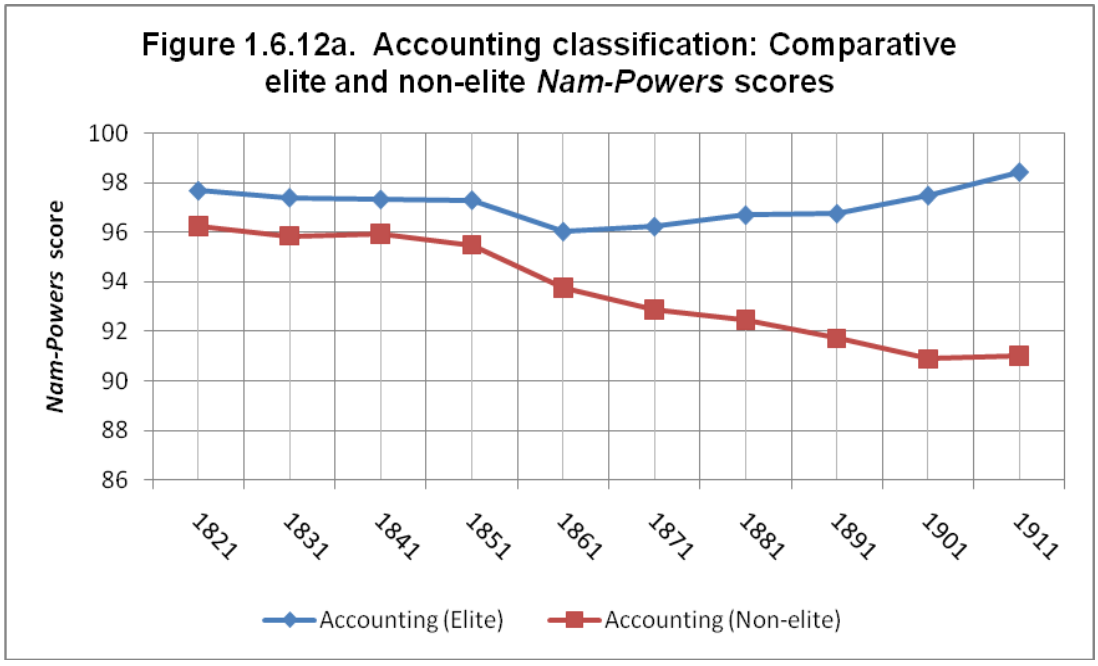


Figure 1.6.12a. Accounting classification: Comparative elite and non-elite Nam-Powers scores
Nam-Powers score
100
98
96
94
92
90
88
86
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Accounting (Elite)
Accounting (Non-elite)

6. The results of other accounting history and professionalism studies suggest that the *professionalisation* of the discipline may be viewed as an extended process and thus draw attention to the importance of the periods both before and after the formation of the professional organisations in the analysis of the social re-evaluation of accountant's occupational status (Abbott, 1988; Edwards, et al., 2007; Carnegie and Edwards, 2001).

The data contained in Table 1.6.17., in conjunction with Figures 1.6.11. and 1.6.12a. (see above) appears to correspond to those studies that suggest the professionalisation of the accounting discipline occurred over an extended period (Carnegie and Edwards, 2001). The data suggests that, while the demarcation between elite and non-elite within the *Accounting* discipline was beginning in the 1830s, the overall elevation of the elite accountant (relative to all occupational groups) occurred from 1861 onwards and continued for the duration of the periods covered by this study.

Figure 1.6.12a. shows that from the early to mid-nineteenth century the socioeconomic standing of the *Accounting* elite appears to be quite static (although very marginally declining) in relative terms until 1861. However from 1851 (around the period in which the first provincial accounting bodies were formed) the differences in socioeconomic scores between elite and non-elite began to grow and by the 1870s the elite accountant's *Nam-Powers* score begin to climb quickly and eventually surpass their initially rankings.

The data displayed in Figure 1.6.12a. corresponds to the results of those studies which suggest that the elite's organisation into professional bodies was a reaction to the threat imposed by the growth in the non-elite of the *Accounting* group (for example, Kirkham and Loft, 1996; Edwards, et al., 2007; Routh, 1987; Booth, 1886; Glenn and Feldberg, 1977; also see Roberts and Coutts, 1992, re: feminisation).

The results of the present study appears also to correspond to the evidence provided by Walker supporting the view that the formation of the representative bodies was driven primarily by a need to preserve the differentiation between professional accountants and the *swarm of pettifoggers* attracted by

the potential earnings associated with bankruptcy and insolvency work (1995 & 2003; also see Musgrove's 1959 study, that examines the growth in middle-class education, the expansion of the commercial clerk and its implication for related labour markets).

Walker's study suggests that the affirmation of the professional or elite accountant was to come through membership of the newly formed amalgamated institute and the function of that organisation was to protect and advance the status of the elite accountants (2004). The results of this study would appear to indicate how successful the strategy was.

Overall the effect of the professionalisation of the elite accountants is starkly displayed in Figure 1.6.12a. and corresponds with the bulk of descriptive British accounting histories of the nineteenth century (Brown, 1905; Brief, 1954; Kedslie, 1990b; Jones, 1981 & 1995; Kettle, 1982; Cornwell, 1993; Parker, 1986; Edwards, 1985 & 1989; Anderson, et al., 1996; Chandler and Edwards, 1996; Matthews, 2006; Edwards, et al., 2007).

Table 1.6.18. illustrates a significant turnaround (from negative to positive) in the growth in the differential between the earnings of elite and non-elite accountants from 1861 onwards. The table also shows an equally significant but lagged growth in the educational differential between the two cohorts, but not until 1871. The result is a growing socioeconomic differential between elite and non-elite accountants. The data appear therefore to capture empirically the emergence of the elite profession from within the broader *Accounting* occupational grouping.

Table 1.6.18. documents a relative decline in the socioeconomic status of the *Accounting* elite until the census of 1871 when the socioeconomic status of the elite begins to grow positively. This growth was initially slow but gained momentum by the turn of the twentieth century. Again the data appear to accurately reflect the numerous historic accounting studies that attribute the 'professionalisation' of accounting to formation of the accounting representative bodies (Edwards, 1985 & 1989; Anderson, et al., 1996; Chandler and Edwards, 1996; Matthews, 2006; Edwards, et al., 2007).

Changes in both intra- and inter-occupational socioeconomic measures appear to correspond with the establishment of these professional associa-

tions. The results of this study would appear to reflect the view that in the last three decades of the nineteenth-century accountants in England and Wales began *formal* implementation of a professionalisation project, successfully gaining market control and thus socioeconomic mobility (Edwards, et al., 2007; Larson, 1977; Macdonald, 1995).

Nobes and Parker's (1979) chronology of the establishment of the professional accounting bodies beginning in 1853 (in Scotland) and the subsequent establishment of a number of regional bodies across Great Britain over the next year culminating in the formation of the *Institute of Chartered Accountants in England and Wales* (ICAEW) in 1879 appears to correspond to the 'turnaround' periods outlined in Table 1.6.18 (also see Boys, 1994).

The enhanced socioeconomic scores recorded for the elite accountants in the periods from 1881 appear to reconcile completely with the profession's ICAEW Charter application that was aimed at promoting the perception that Institute membership conveyed appropriate skill and training for practice as an accountants (Kedslie, 1992; see also Macdonald, 1984; Selander, 1990). The scores appear to support the view of Macdonald who stated that this period encompassed the formation of accounting organisations which would define, protect and advance the market position of those who were included in their membership (1984; see also Stacey, 1954).

Figure 1.6.12b. (based on Figure 1.6.9.) simply highlights the periods in which the regional accounting representative bodies began to become established culminating in the ICAEW's receipt of the Royal Charter. The *Set-lines* in this figure reveal that it was during this professionalisation period that the socioeconomic trends for the next thirty years (perhaps longer) were established. The elite accountants reverse a potentially disastrous steadily declining socioeconomic ranking by differentiating themselves and securing a gradually increasing social standing. Simultaneously the non-elite's declining status appears also to become entrenched as the education and earnings rankings between the two groups become increasingly more apparent. (See Appendix 2 for a more comprehensive discussion of the establishment of the accounting bodies and the professionalisation of accounting).

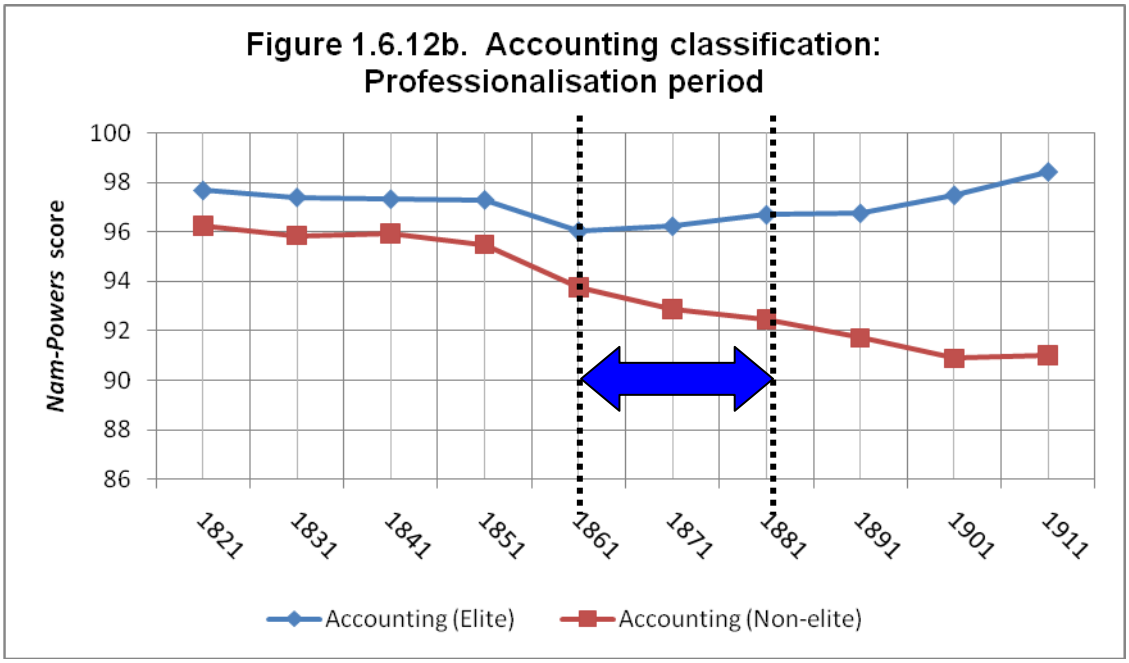


Table 1.6.18.: Growth in differentiating *Accounting* elite from non-elite and overall changes to *Nam-Powers* scores										
Earnings	**1821**	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Difference	2.45	2.56	2.88	2.76	3.83	5.26	6.13	8.03	10.53	11.60
Growth	n/a	0.11	0.32	(0.12)	1.07	1.43	0.87	1.90	2.50	1.07
Education	**1821**	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Difference	0.41	0.54	0.70	0.87	0.73	1.51	2.15	2.07	2.65	3.20
Growth	n/a	0.13	0.16	0.17	(0.14)	0.78	0.64	(0.08)	0.58	0.55
Nam-Powers	**1821**	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Difference	1.44	0.56	1.79	1.82	2.28	3.39	4.25	5.05	6.22	7.40
Growth	n/a	(0.88)	1.23	0.03	0.46	1.11	0.86	0.80	1.17	1.18
Overall changes to Elite *Accounting Nam-Powers* scores										
Nam-Powers	**1821**	**1831**	**1841**	**1851**	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**
Growth	N/a	(0.28)	(0.07)	(0.03)	(1.26)	0.20	0.46	0.06	0.73	0.94

7. The results of past studies, in identifying nineteenth-century England and Wales as an important period and site of professionalisation for the accounting elite, commonly highlight the unification of an organisational body and the granting of Royal Charter as a visible public signal of its occupational ascendency (Carnegie and Edwards, 2001; Edwards, et al., 2007).

In 1879 the membership of five existing accounting bodies incorporated into a single entity under the ICAEW's Royal Charter. The formation and formal recognition of this organisation served as a visible public signal of the occupational ascendency of the accounting elite (for example, Carnegie and Edwards, 2001; Edwards, et al, 2007; Boys, 1994; Stacey, 1954).

Table 1.6.18. and Figure 1.6.12c. (repeats Figure 1.6.9 but highlights the *post-Charter* period) indicate that significant underlying changes must have already occurred prior to the 1881 census. The *Nam-Powers* ranking of elite accountants, after four decennial periods of negative change, displays a slight increase for the period 1861/1871 of 0.20. This increase in socioeconomic score more than doubles during the period 1871/1881 to 0.46 and subsequently continues to grow into the early decades of the twentieth century.

As previously cited the differential between elite and non-elite accountants also grows significantly both in terms of earnings, education and therefore *Nam-Powers* ranking.

Each of these measures appear to signify change in the two decennial periods prior to 1881 and thus prior to the granting of Royal Charter. The data after 1881 reflect the acknowledged conformation of the 'professional' status of the *Accounting* elite, both in term of absolute values and the continued rate of change to the earning and educational measures.

The results of this study therefore appear to reflect the success of accountants in acquiring indicators of professionalism of which the granting of Royal Charter during this period was a major manifestation.

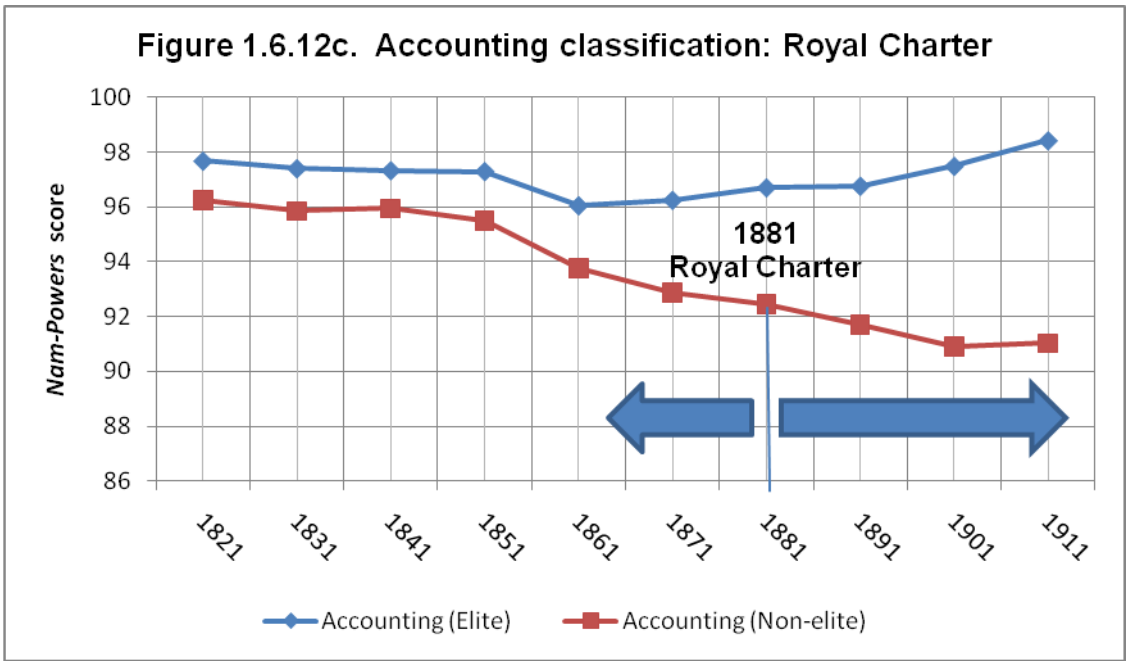


Figure 1.6.12c. Accounting classification: Royal Charter
Nam-Powers score
100
98
96
94
92
90
88
86
1881
Royal Charter
1821
1831
1841
1851
1861
1871
1881
1891
1901
1911
Accounting (Elite)
Accounting (Non-elite)

8. The rankings provided by the British Registrar General's Scale (1913) include classifications for both the elite (professional accountants) and the non-elite (Clerical occupations) for the first decade of the twentieth century.

Table 1.6.10. provides a comparison between the British Registrar General's hierarchy and the rankings generated in this study. The table offers an indicative sample of those occupations classified into each of the British Registrar General five social classes (*Professions; Intermediates; Skilled non-manual; Skilled manual; Intermediates: Partly skilled; Unskilled*) and the occupational rankings used in this study (based on Booth and Williamson).

Finally, an extract taken from Table 1.6.10. shows that the *Nam-Powers* scores derived in this study for the final decennial observation in 1911 rank both the elite and non-elite of *Accounting* within the top 10 occupational groupings. This result reflects the rankings placed on both these cohorts by the British Register general subsequent to the census of 1911.

By the time of the 1911 census, the occupational status of the elite *Accounting* occupational cohort, using the *Nam-Powers* measurement technique, is at its greatest (7.40 percent higher than the non-elite). Figure 1.6.13, provides the *Nam-Powers* rankings for both the elite and non-elite of *Accounting* with linear trend lines superimposed. Although the trend of the ten *Nam-Powers'* scores produced in this study reflects the growing differential in the social status of accountants and clerks during the nineteenth and early twentieth century (Anderson, 1976 & 1988; also see Kirkham and Loft, 1993), the 1911 scores still rank the non-elite within the leading ten occupational groups and on the border of Sharlin's top 25 percent of occupations (1980). Using *Holt*'s linear method again, but this time to project the 1921 *Nam-Powers* scores for *Accounting,* the present study estimates the elite of the discipline would continue to maintain its elevated ranking, with a projected score of 98.10, while the non-elite's socioeconomic score is projected to drop further to 90.50 (increasing the difference between the two accounting cohorts to 7.60). The projected results indicate that the non-elite of *Accounting* would

appear to be on the verge of dropping out of this professional classification (as indicated by the British Registrar General's Scale).

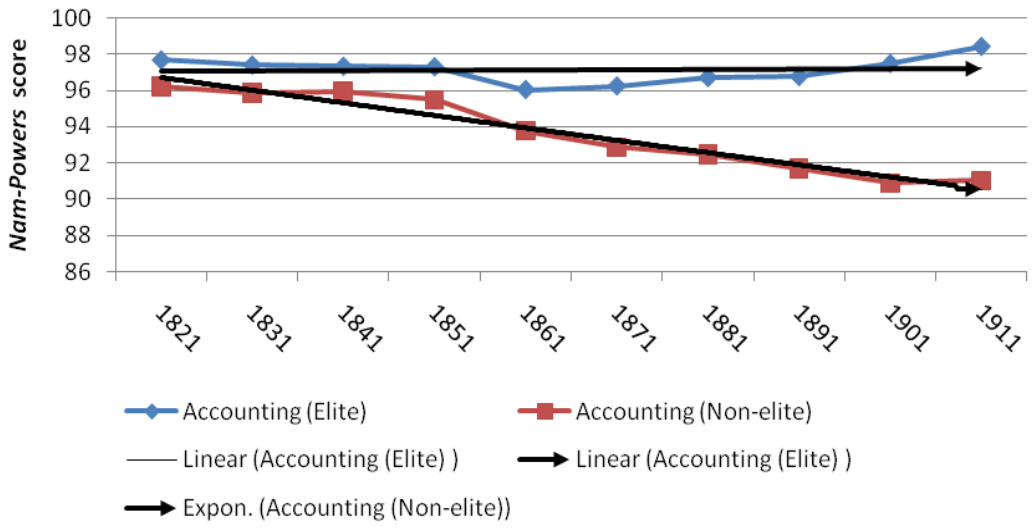
If we again compare the *Nam-Powers gap* indicated by the 1911 data (see Table 1.5.0.) between the elite and non-elite cohorts of professions, such as *Legal* (0.41); *Engineers and surveyors* (0.20); *Religious* (0.74); *Medical* (0.74) and *Accounting* (7.40), it appears that the *Nam-Powers gap* remained static for professions other than *Accounting* from 1851. The growing gap between the elite and non-elite accounting occupation's *Nam-Powers* scores indicates a trend which would see the demotion of non-elite accountants from the British Registrar General's professional classification.

Again the data provided by this study appear to conform with the views of Kirkham and Loft (1993) that traced the changing census classification of the accountant and confirmed the changing social perception of accounting during the period prior to the 1911 census. They show how the non-elite accounting occupations remained in the same professional classification as chartered accountants throughout this period. In subsequent twentieth century censuses the elite accountants remained classified as professional (virtually half a century after the establishment of the major professional representative body) but the non-elite were officially relegated into the non-professional commercial classes.

Extract from Table 1.6.10.: Comparative ranking: *British Registrar General's Scale* 1913 and *1911 Nam-Powers*

Nam-Powers		***British Registrar General's Scale***	
1911 Rank	Occupational grouping	Class	Examples: Occupational grouping
5	*Accounting* (elite);	I. Professions	Accountants, Bank officials
10	*Accounting* (non-elite);	I. Professions	Bank clerks; Commercial business clerks; Insurance clerk; Railway clerk; Auctioneers, valuers and house agents; Commercial travellers and brokers;

Figure 1.6.13. Accounting classification: Trends elite and non-elite *Nam-Powers* scores



9. Do the *Nam-Powers'* scores provided by this study reflect the substantive body of literature that identifies the nineteenth century as the temporal location of the professionalisation of English and Welsh accountants?

Overall, the resultant *Nam-Powers* score provided by this study appear to *capture* the professionalisation process of the elite of the *Accounting* occupational group as it occurred from the period 1821 to 1911 through the identification and representation of the following:

- The changing educational and earnings characteristics of both the elite and non-elite cohorts of the *Accounting* occupational group;

- The changing differential between the elite and non-elite cohorts of the *Accounting* occupational group;

- Through absolute changes to the relative positioning of the *Accounting* disciplinary group with the British occupational hierarchy as measured by the *Nam-Powers* ranking process;

The resultant *Nam-Powers* scores and their graphical representations provide empirical measures of the professionalisation of the *Accounting* elite from the period 1821 to 1911 (As depicted in numerous studies, for examples, Larson, 1977; Abbott, 1988; Willmott, 1986; Walker, 1988 & 1995; Jones, 1981; Kedslie, 1990; Lee, 1990; MacDonald, 1984; Robson and Cooper, 1990).

1.7.0. Limitations:

All empirical studies have limitations.

The initial limitation is philosophical with regards to the objective of this study. Is a single, albeit composite measure of a complex phenomenon such as occupational status sufficient to provide historians with additional insights to the social changes that occurred within and around the accounting discipline during this period? This issue stems from the ongoing debate about whether a phenomenon such as occupational status can or cannot be simply reduced into a single measure[cxxiv] (see Hodge, 1981 and for the alternative view see Loehr and Powelson, 1981). For example, Hauser and Logan suggest that a single measure may not be appropriate for the analysis of all associations but observe that the use of such tools is valuable given a specific context (1992). Mathias eloquently provides a counter view, suggesting the emphasis on quantitative analysis in socioeconomic history:

> "*has been encouraged by the incursion of economists armed with empty boxes needing data and models to be tested; statisticians pushing back into the past conceptual series derived largely from present enquires and even historians wanting to weigh general hypotheses which so often have been substitutes for analysis in concrete terms*" (1957, p.30[cxxv]).

The current study acknowledges the criticisms of reductionism and accepts that a single measure of the socioeconomic status of an occupation cannot reflect every attribute of an occupational group that might be relevant to all social or economic studies, but the objective of this study is to take the first steps and provide a simple empirical tool for those who wish to further examine the emergence of the professional accountant in Britain or elsewhere.

The desirability of using socioeconomic rankings for occupations (rather than the alternative *subjective-prestige* based indicators of their social status) has always been (and continues to be) an issue in sociological research. As previously mentioned, Hauser and Warren provide a number of potential con-

siderations and possible methodological limitations in using such scores (1997)[cxxvi]. The appropriateness of the arbitrary weighting of earnings and education inherent in the *Nam-Powers* approach has been particularly questioned (Hauser and Warren, 1997, p.193; also see Hodge, 1981). Even though the current study suggests that no alternative approaches are available at present, such considerations and limitations must be noted prior to the application of *Nam-Powers* rankings to subsequent research.

The results of the current study provide additional confirmation that the elite of the accounting discipline were in effect professionalised prior to the nineteenth century even in the absence of a formal professional organisation (Cornwell, 1993; Armstrong, 1987). Greater utility may have been provided by the study had it sought to identify the socioeconomic rankings of accounting during both the eighteenth and nineteenth centuries. The extension of the study would have presented significant difficulties in terms of data availability and the effect of the Napoleonic Wars would have distorted the results for the later decades of the eighteenth century. Although Williamson provides some earnings data prior to the nineteenth century, little evidence is available for the estimation of educational attainment prior to the early census collections of 1801 to1831 (1982).

It must also be noted that although ending the ranking processes at the last census period prior to World War One was an appropriate approach based on the rationale provided in the body of the study, the effect of the First World War should be considered when interpreting the study's results. Contemporary studies present evidence that the accounting discipline's contribution during World War One changed the perceived value of the accounting occupational group in Britain during this period (see Kirkham and Loft, 1993, pps.532 to 544; Jones, 1981, pps.122-140; Loft, 1986 & 1988; Matthews, Anderson and Edwards, 1998, (chapter 5). The views expressed by those studies were reflected in the status of accountants in the British Registrar General's Scales of 1921 and 1931. The current study's correlation of ranking with those provided by the British Registrar General's Scale is evidence of the *Nam-Powers* score's ability to represent the accounting discipline's social

status up to the beginning of the twentieth century (the impact on accounting of the First World War however should be noted).

Given the lack of alternative relevant data the use of Williamson and Booth's industry-based approach appears justified.[cxxvii] However, again the limited number of occupational groupings employed affects the precision of the results obtained and their utility in terms of a number of applications to which the results may be applied.

As outlined in the body of this study the process of occupational categorisation will always be problematic[cxxviii]. The reclassification of a number of occupational sub-classifications was a difficult and subjective process. The study acknowledges that others may have derived a marginally different set of occupational classes using the same data. With regard to the objectives of this study, it is the author's view that such changes would not have significantly altered the resultant rankings for accounting. (A revised approach to classifying occupational groups may however have a significant impact if one's focus was to provide a ranking for other occupations, particularly those below accounting in the occupational structure.

The broad, inclusive representation of accountants does reduce the precision of the resultant socioeconomic scores. Again, data availability determined the approach taken. However, the nominal ranking of each occupational group into *elite* and *non-elite* that resulted from the classification process adopted does provide additional insight into the changing socioeconomic status of occupations.

The process of validating the study's results was largely based on two approaches. The first matched the overall attributes of this study to those characteristics identified in more recent socioeconomic studies. The second approach identified the degree of correspondence between the rankings produced by this study and the findings of existing historic research pertaining to the accounting classification. These approaches are the most commonly used way of validating unknown socioeconomic ranking results. This study however acknowledges the degree to which the ranking is validated depends on how well the characteristics of the nineteenth-century British occupational structure corresponded to more contemporary structures and the underlying accu-

racy of existing historical accounting research. In addition one must remember comparisons between the characteristics displayed in studies are based on potentially different occupational groupings. Again given this process has not been undertaken prior to this study such validation is the only means of assessing the success of this adaptation of the *Nam-Power* ranking process.

It must always be remembered that data obtained from early census periods (prior to 1841) is always questionable (even the data contained in 1841 used by Booth is often cited as unreliable (For example, Routh, 1987; Lawton, 1978). Booth himself states *"Our picture of what has happened would be much more complete if we could go back to 1801, but we can only do this by drawing largely upon the imagination"* (1886, p.328). The lack of data for the periods 1821 and 1831 has meant a number of attributes pertaining to the estimation of educational attainment have had to be estimated. Although these estimates correspondent to related data identified in existing social and economic histories, they remain estimates and again must be relied upon accordingly.

The measurement of educational attainment has been consistently cited as problematic in attributing socioeconomic scores (for example, Treiman, 1976, p.291; Treiman and Yip, 1989). The present study uses the proportion of occupational members who are *less than fifteen years of age* as a proxy for *years of schooling* (which is an accepted measure of educational attainment). Again, while this study proposes this to be a valid representation of educational attainment within an occupational group, it is acknowledged that the direct measure of the proportion of members reaching a determined number of *years schooling* would have been preferable. As previously expressed, the view held in this study is that the elevated ranking of the grouping *Police and prison guards* is more likely to be a function of the methods used in this study to attribute educational attainment than a true reflection of the groups socioeconomic standing. (Given that the *Police and prison guards* represent only a small proportion of the occupied population, the impact of the overestimation of this classification's educational status is unlikely to have significantly impacted upon the results of other classification).

As with all such measures, the percentile ranking provided by this study for *Accounting* has both positive and negative aspects and is therefore limited in its utility. The resultant index will be most useful to those who understand and acknowledge the trade-offs involved in its creation and can appreciate the impact that those trade-offs have on any particular application. Ultimately future scholars must decide what the specific research question they are asking is and whether this adaptation of the *Nam-Powers* ranking process will allow them to answer it!

This study sought to *retrospectively adapt and employ the most appropriate of these measures to the accounting discipline to develop specific measures that could provide insight for and assistance to those researchers wishing to further examine the emergence of professional accountants within the context of nineteenth-century Britain* (Section 1.1.1.). Even allowing for the above limitations the present study has achieved that objective.

1.8.0. Overall conclusion

Few sociological studies have attempted to retrospectively employ those empirical metrics developed by sociologists to conceptualise, measure and document a historical occupational hierarchy. No study has successfully attempted to produce an extended series of occupational hierarchies retrospectively within a specified social location. No preceding study has attempted to develop, validate and subsequently apply a retrospective measure of occupational status for any specific occupational group. No prior study has endeavored to measure the changing status of the accounting discipline during this formative period of the occupational group's history. This study has undertaken these tasks.

The primary objective of this research was the development of a measure of the occupational status of the accounting discipline from 1821 to 1911. Given the importance of nineteenth-century Britain to scholars of the history of accounting and the professionalisation of its incumbents, the development and validation of such a research tool may prove useful to future researchers.

The output of this study has been the construction of an extended sequence of ten *Nam-Powers'* socioeconomic occupational status scores for eighteen industry-based occupational groups based upon each of the decennial census dates throughout this formative period of accounting history. Each of the eighteen groupings has been subsequently divided into both their elite and non-elite constituents. This extensive process has facilitated the measurement of the relative socioeconomic standing of the accounting discipline.

As no prior study provides any direct comparison, this study has attempted to reconcile its results with other studies that focus on occupational status, accounting history and professionalisation.

The result of this study conform to the results of past status studies with regard to the following characteristics:

- Degree of stability in the relative status of disciplinary groups within the occupational hierarchy;
- The incidence of occupations that changed in status;

- The direction of occupational status change;
- The relationship between education levels and income levels;
- The relationship between education levels and income levels and occupational status change;
- The relationship between occupational size and income levels;
- The known status of nominated occupational groups;
- The relative rankings of all occupational groups provided by the British Registrar General's Scale as at 1913;
- The known educational and earnings data pertaining directly to the elite and non-elite of the *Accounting* occupational group;
- The timing of the professionalisation of the elite of the *Accounting* occupational group;
- The differentiation and social standing of the *Accounting* occupational group at the mid-point of the nineteenth century;
- The demarcation between a non-elite and elite of the *Accounting* occupation group;
- The timing of the professionalisation of the elite of the *Accounting* occupational group;
- The relationship between the establishment and recognition of a representative accounting organisation and changing occupational status;
- The relative rankings of the elite and non-elite *Accounting* cohorts provided by the British Registrar General's Scale as at 1913;

Overall the preceding sections of this study indicate there is a high degree of correspondence between the attributes identified from within the extensive body of sociology literature concerned with the measurement of occupational status in the twentieth century and the characteristics of the nineteenth-century socioeconomic scale that has been created as a result of this study. The relationships between the composite measures that combine to form such a scale appear to conform to those measures generated by subsequent studies, given their differing temporal and social locations.

Importantly the events and attributes identified within the English and Welsh (British) accounting professionalisation and history literature appears to support and justify the socioeconomic scale developed as a result of this study.

Given this degree of association, the scale or ranking created by this study appears to provide an appropriate retrospective measure of the occupational status of the accounting discipline within the temporal and social location of nineteenth-century England (and Wales) and thus provides a valid measure of the changing socioeconomic status of the accounting discipline for the ten decennial periods from 1821 to 1911.

Through a construction of a sequence of occupational status scores this study provides valid evidence with regard to the incremental rate, magnitude and timing of change in accounting's occupational status within the temporal and social location of nineteenth-century England and Wales.

Given the limitations inherent in the retrospective development and application of occupational status scores to the accounting discipline (as identified in the previous section) the scale created as a product of this research may be applied to a variety of future studies. The following sections identify several potential applications where such occupational status scores may provide a significantly useful research tool.

1.9.0. Future research: Extension and application of N-P scores

The current study has sought to introduce a new agenda into accounting history research. The results of the current study represent only an initial attempt to apply the *Nam-Powers* socioeconomic ranking process to nineteenth-century England and Wales. Given greater resources, future studies may improve and extend the techniques used here. For example an obvious next phase of this study is to extend the series of *Nam-Powers* scores for the *Accounting* discipline from 1911 to the present.

In addition the current study suggests limitations, such as the small number of occupational classifications, will be overcome only with the discovery of new (as yet undiscovered) data. However other refinements may enhance the utility of the ranking process. For example the current study has adopted a simplified approach to the differentiation of the elite from the non-elite in each of the occupational groups. Future research may seek to refine this process by identifying weightings for both elite and non-elite cohorts from each of the eighteen classifications[cxxix]. Future study will determine if some refinement to intra-disciplinary differentiation is possible and can be applied across all occupations.

The following sections outline how the results of this study may be applied to achieve better understanding of the development of the accounting profession in nineteenth-century England and Wales.

1.9.1. Event analysis

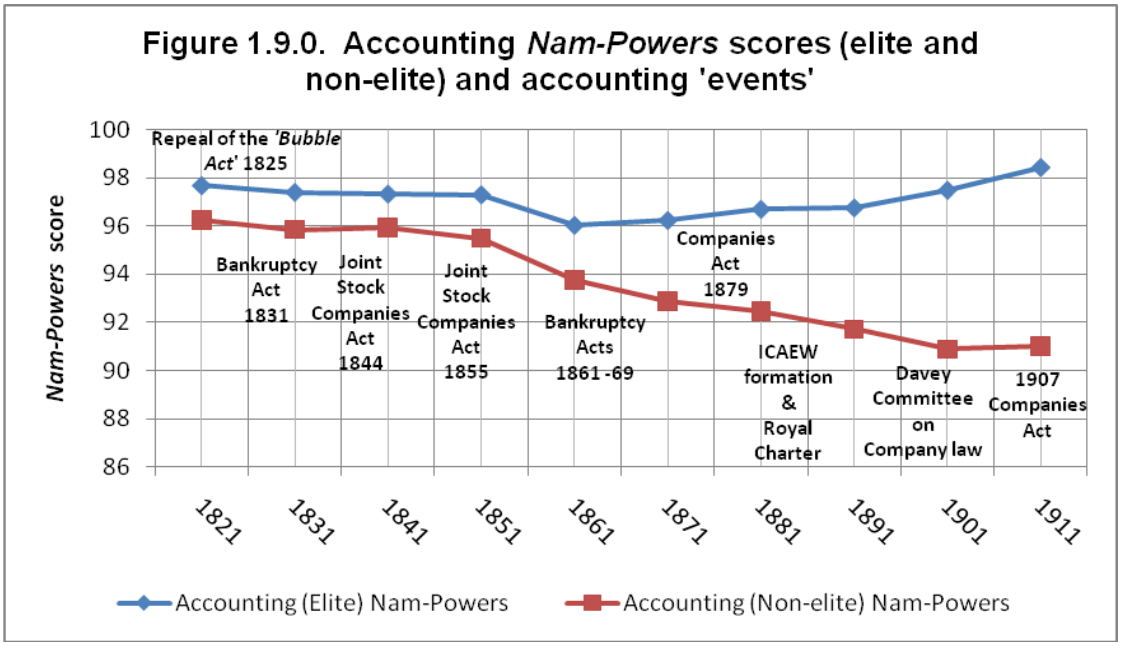
Section 1.3.2. shows that a large number of historic studies of the accounting discipline have focus on one or more episodes of change during the nineteenth century, often identifying and describing the occurrence of certain events as pivotal in the British occupation's professionalisation. For example:

- The organisation and eventual amalgamation of representative professional accounting bodies (Willmott, Puxty and Cooper, 1993; Willmott, Sikka and Puxty, 1994; Walker, 2004; Mitchell and Sikka, 2004; Edwards, Anderson and Chandler, 2005 & 2007; Anderson, Edwards and Chandler, 2005);
- The enactment of significant commercial and bankruptcy legislation (Pixely, 1896 & 1897; Hein, 1978; Napier and Noke, 1992; Jones and Aiken, 1995; Edey, 1956; Edey and Panitpakdi, 1956; Gower, 1969; Duffy, 1985; Bryer, 1998);
- The substantial capital investment in a number of influential industries (Hill, 1979; Barnes and Firman, 2001; Dubrois, 1971; Coombs and Edwards, 1996; Morris, 1993; Pollins, 1956; Gourvish, 1973 & 1988; McCartney and Arnold, 2002 & 2003; Bryer, 1991);
- The establishment and rapid evolution of what have subsequently become major international accounting firms (Brief, 1954; Kettle; 1982; Richards, 1981; Richards, 1950; Matthews, Anderson and Edwards, 1998; Hopkin, 1980; Jones 1981 & 1995);
- A series significant commercial failures (Palgrave, 1984; Markham Lester, 1995; Stewart, 1986; Kedslie, 1990; Barnes and Firman, 2001).

Table 1.9.0. (and Appendix 2) provides a brief summary of nineteenth-century accounting history and is based on the chronologies provided by both Lee (1979) and Nobes and Parkers (1979)[cxxx]. The table divides this era into the census periods 1821 to 1911 and locates a number of accounting events within each of these periods. Figure 1.9.0. replicates Figure 1.6.12. (Section 1.6.2.) but this time superimposes the regulatory events onto its depiction of the period. The result appears to suggest that the period associated with the *Bankruptcy Acts* was particularly important to the accounting profession's development (see Section A2.2.5., Appendix 2). A future study will attempt to

comprehensively develop a timeline of the professionalisation events and their relationship to the changing social status of the accounting profession.

Table: 1.9.0.: *Accounting* event chronology (1821 – 1911)					
Census period: Economic characterisation	**1811- 21: Deep depression**	**1822- 31: Slow revival**	**1832- 41: Recession to depression**	**1842- 51: Depression**	**1852- 61: Prosperity**
Accounting Event	***Bubble Act*:** Corporate limitations.	**Repeal of the Bubble Act:** The emergence of corporations. London Stock Exchange trading in company securities.	***1831 Bankruptcy Act:*** Identification of accountants as potential '*official assignees*'.	***1844 Joint Stock Companies'* Act:** Legislative Period.	***1855 Joint Stock Companies'* Act:** Granted limited liability: Era of deregulation'.
Census period: Economic characterisation	**1862- 71: Uneven prosperity'**	**1872- 81: Prosperity**	**1882- 91: Mild prosperity**	**1891-1901 Prosperity**	**1901- 11: Mild depression**
Accounting Event	***1861-69 Bankruptcy Acts:*** *Introduction of 'the accountants' friend'!*	***Companies* Act (1879)**: Financial disclosure and annual audit compulsory for banking companies incorporated with limited liability.	***ICAEW's Royal Charter*:** Existing organized accounting bodies incorporated under the one organisational structure.	***Davey Committee on Company Law Amendment* (1895)** and the ***Select Committee on the Companies Bill* (1896-1898)**: Reforms to the auditing and financial disclosure.	***1907 Companies Act*.**

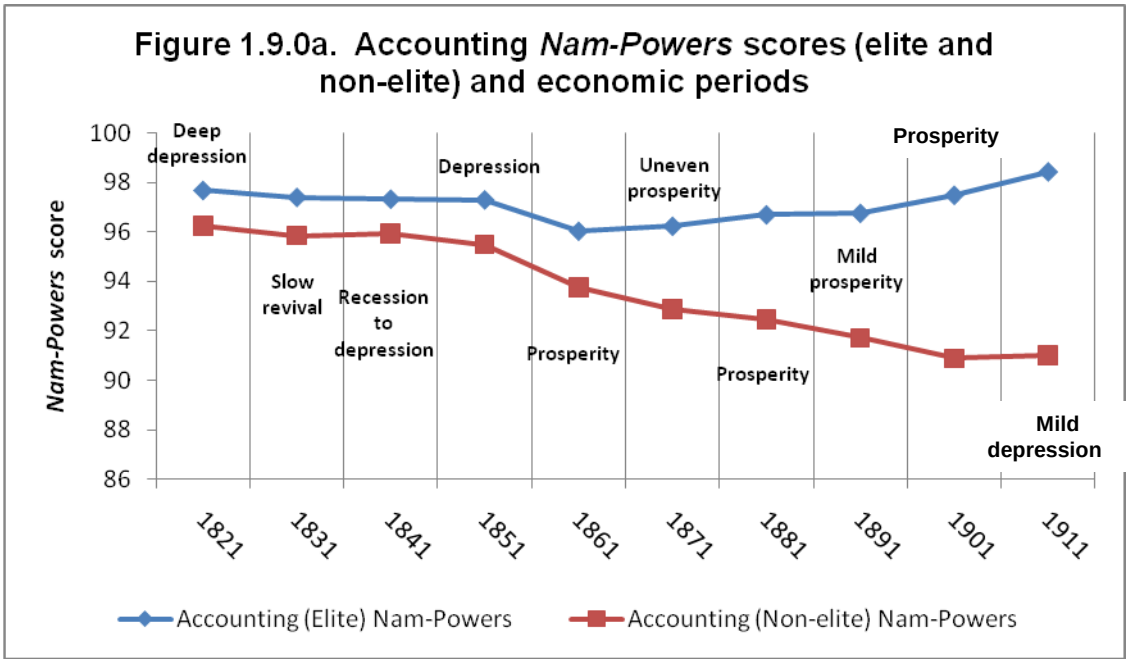


A future study will seek to identify a number of empirical measures for each of these events using a variety of datasets compiled from a selection of historical sources. For example, Todd, (1932) provides data with regard to companies' registration under *Joint Stock Companies* legislation, while Hawke and Reed (1969) calculate the investment in railway capital in the United Kingdom in the nineteenth century (both share capital and debt). Phelps-Brown provides empirical evidence of the survival of companies registered in Britain during the nineteenth century (1936).

By locating measures of these events in each of the decennial periods and employing a variety of quantitative methods, a future study could identify correlations and associations between both the magnitude and timing of the changing socioeconomic status of both elite and non-elite accountants and these events. The results may then be used to evaluate the relative impact of those aforementioned events on the evaluation of the accounting discipline's social status.

In addition a literature review indicates that while cultural and environmental issues in the development of accounting practices, and their impact on accountants have been the subject of many studies, there has been little empirical research undertaken as to how specific economic factors impacted on the socioeconomic standing of accountants. For example, Arpan and Radebaugh's 1985 study broadly examined the implications of specific economic influences on accounting such as inflation, rate of economic growth, income per capita, private consumption, gross capital formation, balance of trade, exchange rate changes and the level of economic development[cxxxi] but did not examine their impact on the accounting profession itself.

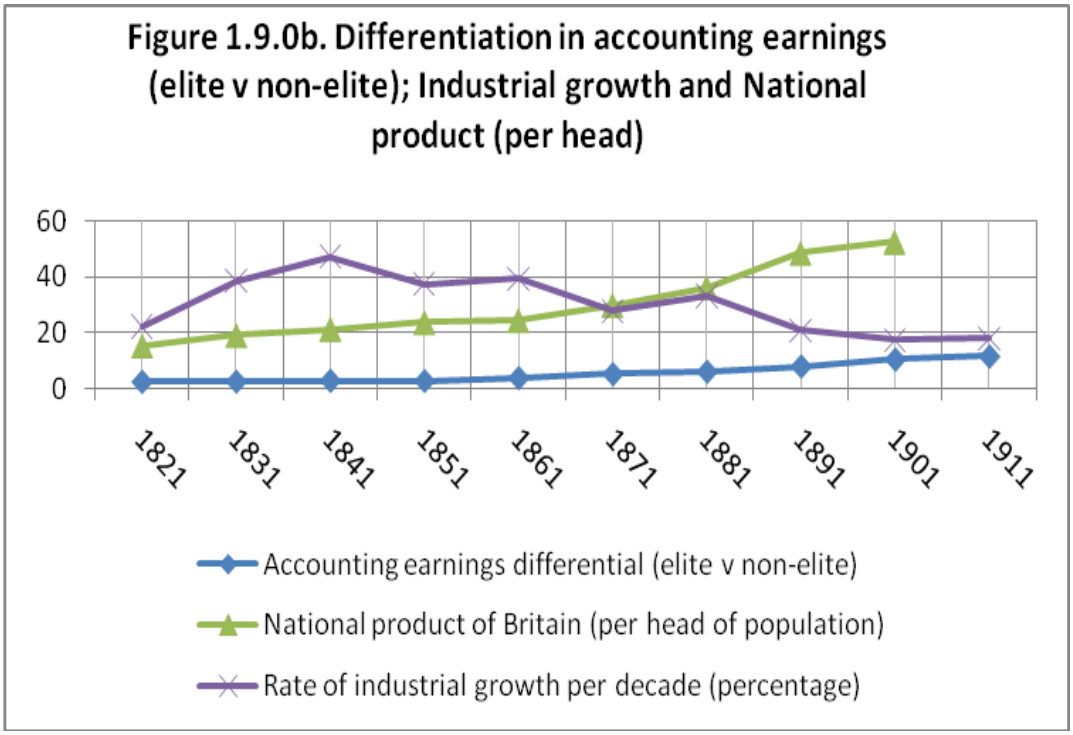
Table 1.9.0. in dividing this era into the census periods 1821 to 1911 also outlines how these periods were characterised by the economic benchmarking provided by Deane and Cole's *British Economic Growth*[cxxxii] (1962). The economic characterisation of each of the periods provides a brief indication of the economic background into which the accounting events and the changing socioeconomic status may be contextualised. Figure 1.9.0a. provides a simple depiction of this.



Routh suggests the members of the workforce involved in commerce and finance similarly increase, stating that this increasing proportion of the labour force is

> "*an index of industrial development…they are the recorders, calculators and communicators within whose ambience the decision makers make their decisions, lenders lend, borrowers borrow and, of course, repay, and administrators administer*" (1987, p.22).

Figure 1.9.0b. compares the differentiation in earnings between *Accounting's* elite and non-elite to both the rate of British industrial growth and its growing national product per head (Deane and Cole, 1962). The figure suggests the professionalisation of accounting may not be as strongly related to industrial growth as some studies have previously suggested (with national production seemingly more correlated).



Preliminary observations, relying primarily on Williamson's data, would suggest that, rather than simply industrial development, a relationship exists between the change in the socioeconomic standing of the accounting discipline and the change in the degree of equality of wealth distribution within nineteenth century British society (ie: the proportion of income received relative to the number recipients)[cxxxiii].

Much research has been undertaken within the discipline of economics to establish valid retrospective measures of income distribution in Britain. Often these studies represent income distribution by a *Lorenz* curve and *Gini* index[cxxxiv] (Ashton, 1955; Deane and Cole, 1962; Jackson, 1987; Feinstein, 1988; Williamson, 1980; Lindert and Williamson, 1983).

These primary observations suggest that as the level of income inequality declines the perceived value of accounting knowledge increases, as does the social worth (reflected in education and earnings) of the controller of that knowledge, the accountant (see the functionalist discussions outlined in Appendix 2). As a greater proportion of people within a community share in the wealth generated by that community, knowledge about social functions such

as taxation, auditing, bankruptcy and corporate reporting become increasingly more important to a wider cross section of the population[cxxxv].

Perhaps as wealth increases in society more people can differentiate the elite from the non-elite of the accounting discipline. As the underlying theoretical constructs of these social functions are closely aligned with the knowledge set of accountants (although the application of that knowledge may be quite different in each case) an increasing proportion of society is forced to interact with accountants. The increased demand for their specialised knowledge reconstructs the relationship between that community and its accounting practitioners and this may be reflected in the socioeconomic standing of accountants (as suggested by the relationship between occupational prestige and an occupation's socioeconomic standing).

This perspective suggests that the legislative and commercial changes and the professionalisation of accounting are in fact all symptoms of an underlying socio-economic change. They did not cause a change in the socio-economic value of accounting but were themselves the result a greater social change.

Future studies may seek evidence to suggest that such social change produces the preconditions to empower accountants by causing a re-evaluation of the value of their knowledge and although the actions of accountants may have aided this process, it was not its cause.

1.9.2. Inter-professional analysis:

The history and nature of professional groups has been the subject of ongoing debate (see for example, Carr-Saunders and Wilson, 1933; Freidson, 1986; Johnson, 1972; Krause, 1971; Larson, 1977). In recent times the relationships between professional groups has become an important area of investigation. Abbott has been particular influential for the work of accounting historians interested in inter-profession interactions (1988, see for example, Dezalay, 1995; Neu, 1999; Willmott, et al., 1993).

Abbott's study of expert labour moved debate from the organisational structure of professional bodies toward the *processes* involved in professionalisation (1988). Abbott links a profession to its work (tasks), characterising this as its *jurisdiction*, suggesting neighbouring occupational groups perpetually compete over *emergent or vulnerable jurisdictions* (1988). Abbott highlights the importance of this inter-professional competition in the process of formation and development of professional bodies (1988, p.2). "*It is the history of jurisdictional disputes that is the real, determining history of professions. Jurisdictional claims furnish the impetus and the pattern of organisational development*" (Abbott, 1988, p.20).

Abbott points specifically to the jurisdictional confrontations experienced between accountants and lawyers during the period from the 1870 to 1950[cxxxvi] (1988, pps.25-26 and pps.267-271). Sugarman concurs suggesting what we would today identify a number of occupational groups (including accountants) that are in continual competition with each other and with solicitors over certain types of work and importantly, *"in their minds and the minds of many members of the public these vocations were in certain respects and in specific situations blurred and interchangeable"* (1995, p.228). Earlier, Reader, stated that "*inside the eighteenth century attorney were half a dozen later professional men – the accountant, the land agent, the company secretary and others … struggling to get out"*[cxxxvii] (1966, p.27).

Parker showed that there were many opportunities for non-lawyers to find work and increase their social status on the boundary between law and commerce, quoting Birks who suggested accountants were more prepared than solicitors to take advantage of emerging business opportunities *"instead*

of mastering the intricacies of balance sheets and tax allowances the average solicitors left accountants to learn the law relating to companies and income tax" (2004, p.82). Walker looked at the impact of insolvency and bankruptcy laws on the inter-occupational relationships surrounding the law and the accounting professions[cxxxviii] (2004; also see Kedslies, 1990; MacDonald, 1985; Parker, 1986; Walker, 1988; Stewart, 1977; Allen, 1991). Walker outlines how traditionally accountants appeared to have used the experience (and reputation) of lawyers in their attempts to acquire Royal Charter[cxxxix] (2004; also see, Kedslies, 1990; Walker, 1988; Cornish and Clark, 1989).

While the focus is placed often upon the relationship between law and accounting, Chandler and Edwards suggest:

> *"the late nineteenth century was a period when accounting was struggling to achieve a position among the new professions (engineering, architecture, pharmacy, veterinary surgery, dentistry and actuarial science) emerging in the aftermath of the industrial revolution, in competition with some of these as well as the first three senior professions, namely law, medicine and the church"* (1996, p.7).

Collins suggests that these occupations allowed the British middle-classes to exercise some control and thus establish their own occupational status (1979). Table 1.9.1. shows Williamson's occupational weightings and the growth therein for the major professional groups: *Medical, Religious, Engineers and surveyors and Legal* compared with *Accounting* for the period 1821 to 1911. Whilst all these professional groups appear to grow at similar rates from 1821 to 1851, thereafter there is a rapid growth in *Accounting's* non-elite occupations, both in absolute and relative terms, whereas in the other groups a more modest growth or even a decline in numbers is observed.

Table 1.9.1.: Williamson's occupational weightings and the growth of professional groups											
Occupational classification	1821	1831	1841	1851	1861	1871	1881	1891	1901	1911	**Total % growth**
Religious	12.6	17.3	22.1	30.4	34.5	39.5	44.0	47.9	50.9	52.4	
Change (%)		37.30	27.75	37.56	13.49	14.49	11.39	8.86	6.26	2.95	**315.87**
Accounting	33.6	46.2	59.0	81.0	118.5	173.4	221.5	339.4	463.1	546.4	
Change (%)		37.5	27.71	37.29	46.30	46.33	27.74	53.23	36.45	17.99	**1526.19**
Legal	6.7	9.2	11.7	16.4	16.1	15.8	17.4	20.0	21.0	21.3	
Change (%)		37.31	27.17	40.17	(1.83)	(1.86)	10.13	14.94	5.0	1.43	**217.91**
Medical	9.2	12.7	16.2	22.6	23.1	23.7	26.0	26.8	30.6	33.0	
Change (%)		38.04	27.56	39.51	2.21	2.60	9.70	3.08	14.18	7.84	**258.70**
Engineers and surveyors	2.9	4.1	52	7.3	6.7	6.10	14.8	15.4	17.4	12.2	
Change (%)		41.4	26.8	40.4	(8.2)	(9.0)	142.6	4.1	13.0	(29.9)	**420.70**

Figures 1.9.1. and 1.9.2. present a comparison between the *Nam-Powers* scores for both the elite and non-elite of the *Law* and *Accounting* classifications. The figures provide an interesting picture of the relationship between the two disciplines. The elite accountant's socioeconomic status ranks below the elite lawyer for the all but the final census period. The difference between the two groups increases during the middle decades of the nineteenth century but reduces as the twentieth century begins. In contrast the gap between the non-elite of *Accounting* and *Legal* progressively widens throughout the period covered by this study. Future studies may contextualise this data into the events outlined briefly in Appendix 2 of this study.

Sikka and Willmott point out that accountant's have also sought to colonise other groups, particularly engineers (1995; also see Dezalay, 1991; Collins, 1990). Chandler and Edwards suggest that accounting was involved in an ongoing conflict with engineering and they quote an editorial of *The Mechanical Engineer* (dated 5th February 1898, p.41) entitled *The pretensions of accountants* (1996, pps.7-8). The editorial criticised accountants for the proliferation of the practice of biannually producing costing information on behalf of their clients. The engineering editorial (written in response to an article pub-

lished in the *Accountant* journal) stated that it was hardly possible to understand the pretentious nature of the claims made by accountants without considering the change that has come over the practitioners of accountancy. The editor contrasts "*the recent transition from the accountant as a practical man to an exam based culture where preliminary examinations became so severe that no one but a youth fresh from school, and the terrors of Latin declensions and pontes asinorum, could hope to pass them…*"[cxl]

Figures 1.9.3. and 1.9.4. present another comparison of the *Nam-Powers* scores, this time for both the elite and non-elite of the *Engineers and surveyor* and *Accounting* classifications. Again these figures provide a different perspective on the relationship between these two disciplines. Future studies may employ the measures provided by the present study to investigate this relationship more fully.

Cooper and Robson suggest that there are few comparative studies between the professionalisation of accountants and occupations other than the legal profession, citing only a few event studies regarding actuaries, consultants and financial advisors for example, Radcliffe, Cooper and Robson's 1994 study (2006, p.420). The scores provided by this study may facilitate the research into the accounting profession's relationship with a number of other occupational groups.

Future studies may seek to employ the socioeconomic rankings, not only of law or engineering but other groups such a building or manufacturing, to more fully understand the changing relationships between each of these groups and the accounting discipline. While Larson warns against adopting a completely empirical approach to the investigation of inter-professional relationships (1977)[cxli]. The view taken in this paper is that empirical data, such as 'socioeconomic' rankings, can only assist in the historical analysis of the interaction between these professional groups (remember Freidson's commentary on the need to identify "*the empirical instances of* individual *occupations*" (rather than just the construction of a general meta-theory) to truly assist in the analysis of the professionalisation of all occupational groups) (1983, p.26).

Figure 1.9.1. *Nam-Powers* comparison: *Accounting* (Elite) and *Legal* (Elite)

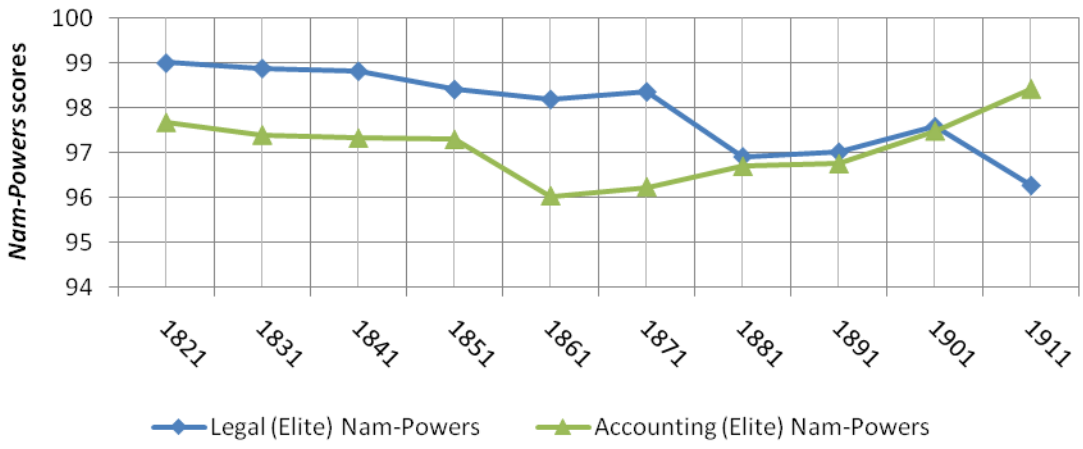


Figure 1.9.2. *Nam-Powers* comparison: *Accounting* (Non-elite) and *Legal* (Non-elite)

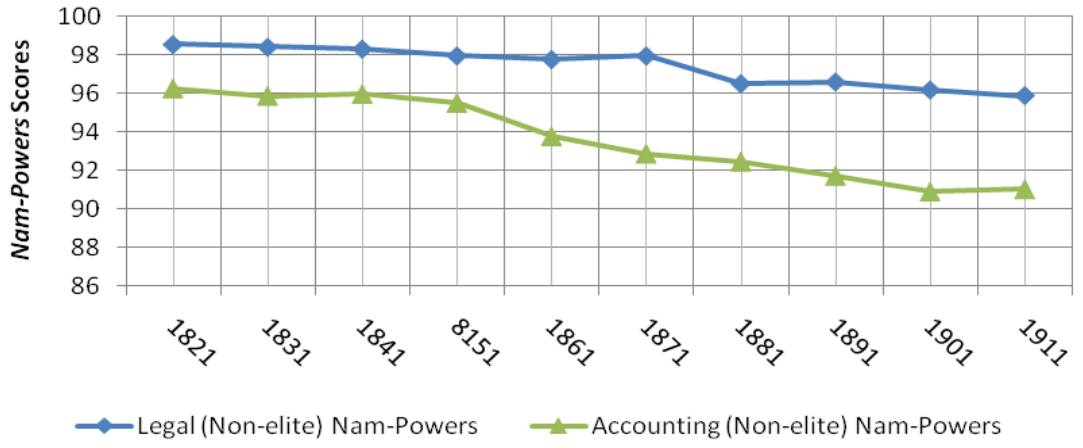


Figure 1.9.3. *Nam-Powers* comparison: *Accounting* (Elite) and *Engineersand surveyors* (Elite)

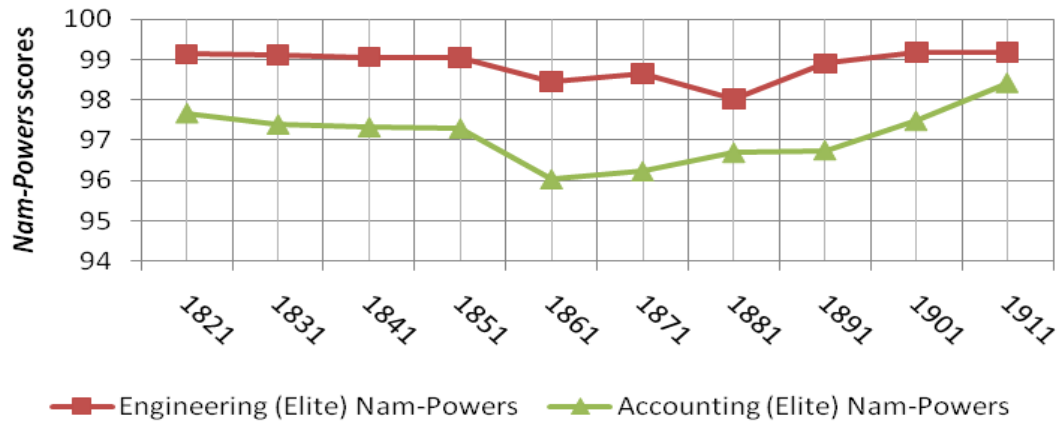
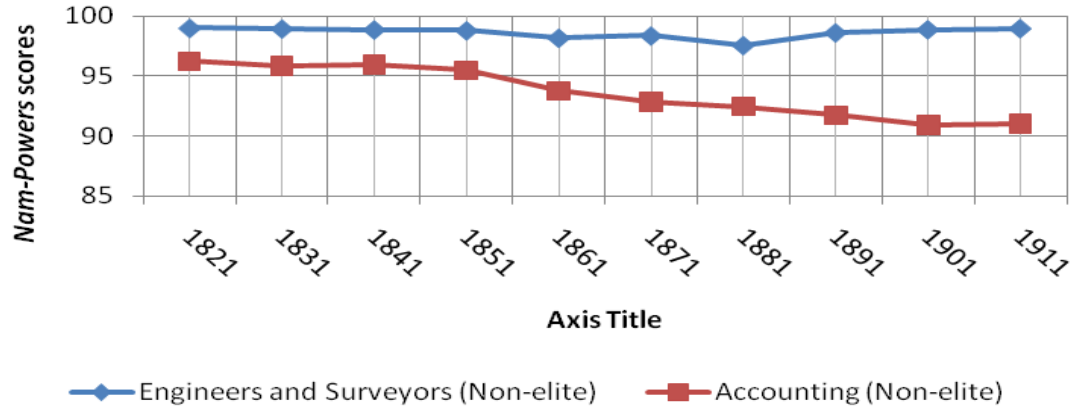


Figure 1.9.4. *Nam-Powers* comparison: *Accounting* (Non-elite) and *Engineers and surveyors* (Non-elite)



1.9.3. Cross-cultural, international comparisons

Professionalisation studies suggest that the elevation of the social status of the accounting profession has occurred over different periods of time in different social locations due to different cultural and environmental factors (Ansari and Bell, 1985; Arpan and Radebaugh, 1985; Choi and Bavishi, 1982; Choi and Mueller, 1978; Gray, 1988; Nair and Frank, 1980; Soeters and Schreuders, 1988) and localised accounting history literature (Bailey, 1988 & 1992; Carnegie, 1993; Carnegie and Edwards, 2001; Carnegie and Parker, 1996; Carey, 1969; Chua and Poullaos, 1993 & 1998 & 2002; Poullaos, 1993 & 1994; Parker, 1961 & 1987 & 1989; Robinson, 1964; Wallace, 1992; Walker, 1987).

The current study suggests that the *Nam-Powers* approach used here to develop a measure of occupational status for the British accounting discipline could be replicated to facilitate comparative studies. As British accountants are widely acknowledged as leading the professionalisation process internationally, replications may prove to be less problematic in that data may be more accessible (and thus less reliant on estimation). This study indicates a means of substantiating Treiman's compilation of over 90 individual occupational prestige studies that been conducted across a 40 year period in over 60 countries highlighted the utility of cross-national / cross cultural studies into the occupational status (1977; also see Susman, 1984). For example Table 1.9.2. provides a brief summary of the *Accounting* occupational group's (both elite and non-elite) prestige scores identified from Trieman's study. The current study suggests that similar studies into the historic occupational status scores (prestige or socioeconomic) of accountants will use these scores and those developed from the *Nam-Powers* process adapted and applied in this study to gain a greater understanding of the discipline (Treiman, 1977).

Table 1.9.2.: Prestige scores for *Accounting* elite and non-elite (twentieth century)					
Country	**Chartered-public ac-countant**	**Bookkeeper /clerical**	**Country**	**Chartered-public ac-countant**	**Bookkeeper /clerical**
Argentina	68.9	45.8	Mexico	56	50.4
Australia	70.5	45	Netherlands	73.3	50.6
Belgium	63	51	Norway	62.2	46.3
Brazil	53.9	46.4	New Zea-land	60.5	43.4
Canada	60.2	47	Pakistan	60	54.7
Chile	56.8	46.1	Philippines	56.4	49.5
Costa Rica	66.8	63.9	South Africa	52.6	54
Denmark	55.3	51	Sweden	50.7	64.7
France	62.4	55.3	Switzerland	53	41.8
Germany	53.9	48.6	Taiwan	52.3	48.3
Great Britian	75.5	43.2	Thailand	48.1	47.6
Indonesia	51.5	47.1	Turkey	51.3	54.2
India	67.2	54.7	Uruguay	57.4	52.5
Israel	60.5	44.5	United States of America	61.7	47.6
Italy	51.2	49			

Endnotes

[i] Although power is often conceived in a variety of ways (see for example Clegg, 1989; Robson and Cooper, 1989; Booth and Cocks, 1990) this study uses Weber's (1947, p.152) broad definition that suggests *power* is located in the probability that a person *will carry out his own will despite resistance* and therefore implicitly carries with it both self-determination and the ability to influence or determine the outcomes of others. Inherent in this definition is the concept of *deference*. Deference refers to acts of appreciation or derogation between social participants that is a dynamic that penetrates every relationship and permeates through all aspects of most societies (Shils, 1968). Occupational role as a determinant of power provides a significant entitlement to deference. Deference reflects the legitimisation and recognition of an occupation across the broader community and is something that social participants are constantly evaluating and attributing status to. Occupational status captures deference or derogation between role incumbents or general perceived desirability of an occupation (Siegal, 1971; also see Coser, 1968).

[ii] See, for example, Sterrett, 1906; Wilensky, 1964; Elliott, 1972; Larson, 1977; Friedson 1983; Abbott, 1988, Aranya and Ferris, 1984; .

[iii] Collins suggest that while accounting's elevated social standing appears to have been entirely established by the early decades of the twentieth century, the discipline is often referred to as a '*new profession*' and that such status was initially recognised during this *modern* period of the discipline's history (1990).

[iv] For international examples see, Bailey, 1988 & 1992 (eastern European countries); Carnegie and Parker, 1996; Jakubouski, Chao, Huh and Maneshwari, 2002; (Southern hemisphere, including India plus Canada); Carey, 1969 (United States); Robinson, 1964 (Ireland); Wallace, 1992 (Africa: Nigeria); Wijewardena and Yapa, 1998 (Singapore and Sri Lanka).

[v] Sometimes such social status was not accorded at all or only relatively recently in many other societal locations (for example, Wallace, 1992).

[vi] Studies indicate the accounting functions identified during the nineteenth century were often inconsistent, ill-defined and frequently misunderstood and thus perhaps failed to unify all accounting practitioners as a single disciplinary group (see, for example, Hines, 1989 & 1991). As a result, for the majority of the century the British population was unable to differentiate the social status of those individuals providing *accounting* from those providing *general commercial or business services* (see for example, Booth, 1886; Routh, 1987; Trieman, 1970; Kirkham and Loft, 1993 & 1996).

[vii] These archival sources include accounting firm histories; London and regional trade directories; British Government Parliamentary proceedings and reports and the historic records maintained by representative accounting bodies throughout the United Kingdom.

[viii] Theories explaining this changing environment and the subsequent occupational stratification and social attribution of status are generally categorised as being consistent with either a functionalist or critical perspective. Both interpretations have been applied to the analysis and explanations of the rise in the occupational status of accounting. The functionalist and critical perspectives are discussed within the context of the accounting knowledge set in Appendix 1 of the present study.

[ix] Such studies often focus on the integrity and social value of the *accounting knowledge set* as a composite of both theory and practice (see for example, Blau, 1979; Freidson, 1986; Goldstein, 1984; Lee, 1989; Lyotard, 1985; Hines, 1989 & 1991; Baer, 1986).

[x] Since Carr-Saunders and Wilson's1933 study first suggested the need to examine the social phenomenon of professions within the discipline of sociology, many academics have attempted to define and explain the concept of professionalism, yet an unambiguous definition has proved elusive (see, for example, Freidson, 1983; Abbott, 1988; Dezalay, 1995). Some

authors have attempted to define a profession by explaining the function of its membership (Vollmer and Mills, 1966). For example, a profession has been defined as an occupational group who "*carries with it the notion of a standard of performance, it is not only a way of making a living, but one in which practitioners have a fiduciary trust to maintain certain standards. These are partly standards of competence, or technical ability in carrying out a function valued by society. But not only so: professional competence has to be joined with professional integrity*" (Emmet, 1966 p.159). Alternatively a profession has been described simply as a "*somewhat exclusive group of individuals applying somewhat abstract knowledge to particular cases*" (Abbott, 1988 p.70). Greenwood defines a profession as "*an organised group which is constantly interacting with the society that forms its matrix, which performs its social function through a network of formal and informal relationships, and which creates its own subculture"* (1957, p.45). Anderson and Western have somewhat vaguely defined the professions as "*the glamour occupation of our time*" (1976, p.54; also see Willmott, 1990 and for overview see West, 2000).

Parsons suggests that "*the boundaries of the group system we generally call the professions is fluid and indistinct*" hence the definition of what constitutes a profession is equally intangible (1968 p.536). Collins suggests that all established professions did not go through the same "*pathways, nor do they arrive at the same outcomes*" and thus professionalism remains an indistinct social construct. A major complication in the task of identifying professions and the meaning of professionalism has been the fact that any occupational group may call itself a '*profession*' and attempt to adopt the traits and actions associated with those groups commonly accepted as professionals(1990, p.25). As Crompton observes "*professionalism is neither inevitable, universal, nor of any single type*" and thus is very difficult to explain (1964, p.107).

Professional recognition is the manifestation of the community's sanction and is deemed to exist within a vocation by the broader population as a whole. When certain occupational groups are valued more than others by a significantly large enough proportion of the population of their society, the population as a whole expects certain behaviours from the discipline and in return rewards the discipline with both material and non-material benefits (see, for example, Walker, 1987; Robson and Cooper, 1990; Lee, 1991). Therefore a *critical mass* as to the social perception of the heightened *value* of an occupation, within a social context, is necessary as the test of a true professional identity. Perhaps it is because of the intangible nature of professional recognition, that debate has continued in relation to its defining characteristics and which occupational groups may be categorised as such.

[xi] The paper acknowledges both functionalist and critical theories and methods that maybe used in the study of occupations. Examples of accounting histories adopting a functionalist approach include Carr-Saunders and Wilson, 1933; Greenwood, 1957; Millerson, 1964; Wilensky, 1964; Benson, 1981. For an alternative critical perspective, see Loft, 1986; Willmott, 1986; Larson, 1977. For a more comprehensive discussion see Appendix 1.

[xii] As with all measures of occupational status, prestige rankings and scores are not without their critics. Goldthorpe and Hope question the actual meaning of such scores arguing that they do not appear to reflect *prestige* in the classical sense of power or deference and therefore their suggest their utility is diminished in a number of applications, (1972; also see, Featherman and Hauser, 1976). As a result of such criticism, a variety of alternative or modified approaches to the conceptualisation and measurement of prestige have emerged to address its application to a variety of research questions (see for example, Pineo, Porter and McRoberts, 1971 and Hollingshead, 1957).

[xiii] Treiman's study of the summarised results of many of these studies and also those conducted prior to the Second World War (1977).

[xiv] For general discussion re: *uncritical reductionism*, see Blishen & McRoberts, 1976.

[xv] Both functionalist and critical theories provide (differing) explanations of this close association between monetary reward, education and the social status of occupations (for example, Parsons, 1953; Blishen, 1967; Blishen & McRoberts, 1976).

[xvi] Analysis determined that approximately 80% of the variance in an occupation's prestige is attributable to the *income* and *education* components of Duncan's index. The prestige weightings of each measure were determined by applying the techniques used in the North-Hatt study on the *age standardised* indices of *education* and *income*. This weighting was based on the expected percentage of *excellent* plus '*good*' ratings an occupation would receive in a prestige survey of the North-Hatt type (Duncan, 1961, p.221).

[xvii] For a full discussion see Haug, 1977 or Powers, 1982.

[xviii] Hauser and Warren found occupational earnings are not as strongly linked as education from generation to generation suggesting that education is the essential feature of occupations that persist across careers and across generations (1997).

[xix] For example, Haug cautions its application when investigating the social mobility of individuals or demographic groups (as opposed to occupational groups (1977).

[xx] The majority of studies predominantly use North American census data collected during the twentieth century.

[xxi] Treiman examined fragmented evidence as to the stability of occupational hierarchies from a variety of historical sources for the following locations: Nepal (12th century); Florence (13th century); England (17th century); Philadelphia / United States of America (18th century) and London, (19th century) (1977, pps.116 -128).

[xxii] For example, twentieth-century Great Britain drops from 0.956 to 0.713, while less develop countries such as early to mid-twentieth century India drop from 0.727 to 0.340, Sharlin's lists his reproduction of Treiman's study (1980, pps.120-121, Table 1).

[xxiii] Sobek notes that when scholars examine occupational status *"they make assumptions about the occupational structure. When researchers incorporate change over time into their analysis, they suggest that the meaning of occupations remain stable particularly in the case of those studies undertaken for the purpose of social mobility, class position, or group status attainment". This assumption has been the subject of little discussion and even less research. For all the uses to which historian have put occupation, there has been little effort to assess systematically its stability as a social or economic indicator'* (1996, p.170).

[xxiv] In some locations the gap between bookkeeping and public accountancy is narrow, for example, Italy, South Africa, Thailand, former Yugoslavia but this may be more to do with the importance of bookkeeping as a social activity in these countries and a lack of clear delineation between the activities of both occupational groups.

[xxv] Such an issue emerged in the early twentieth century as a result of concerns over Britain's changing fertility and mortality rates. "*In 1911, there was an analogous burning issue, at least among an influential section of the political nation. This was the desire to know the facts concerning recent, apparently alarming changes in the nations birth rate, and associated variations in fertility between different sections of society"* (Szreter, 1984, p.70 also see Szreter, 1993 & 1996).

[xxvi] It should be noted that a number of (predominantly US) studies have even questioned the application of historic census materials regarding the relationship between occupational group and the inference of skill levels (see for example, Blumin, 1968; Katz, 1972; Pessen, 1976; Hershberg and Dockhorn, 1976).

[xxvii] A variety of unsuccessful attempts to develop a social classification or ranking were undertaken by British Government statisticians during the nineteenth century, none of which gained general acceptance. Most notable of these was the six class system developed by William Farr (1807-83) who was employed by the General Registrar's Office as *compiler of abstracts* from 1839 (For a comprehensive discussion see Banks, 1978).

[xxviii]

Banks (1978, pps.179-223, Table 6.13). (To reduce the number of social classes from eight in 1911 to five, the 1951 system of classification was used for occupations grouped in classes 6, 7 and 8).										
Class	**1841**		**1851**		**1861**				**1881**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
I	355.1	9.4	395.3	8.5	472.6	9.1	566.1	9.9	696.5	10.9
II	464.6	12.3	646.2	14.0	715.2	13.8	772.1	13.5	816.7	12.8
III	758.7	20.0	930.5	20.1	1083.7	21.0	1189.6	20.7	1371.3	21.5
IV	1675.3	44.1	1999.8	43.2	2161.8	41.8	2208.3	38.4	2315.4	36.3
V	538.9	14.2	654.8	14.2	739.0	14.3	10004.7	17.5	1727.7	18.4
Total	3792.6	100.0	4626.6	100.0	5172.3	100.0	5740.8	100.0	6372.6	100.0

[xxix] Routh highlights the substantial changes in the numbers of those classified as clerical that occurred from 1881 to 1911 (1987, p.24, Table 2.3). (This change represented an increase of 224,790 to a total of 800,080). These include changes in individual classifications of: Accountants (reduced from 11,606 to 9,499); Commercial or business clerks (increased from 181,457 to 477,535); Bankers, bank officials, bank clerks (increased from 16,055 to 40,379); Bill-discounters, brokers and financial agents (increased from 604 to 3,570); Insurance officials, clerks and agents (increased from 15,068 to 99,928); Railways officials and clerks (increased from none reported to 85,922); Post Office officers and clerks (increased from none reported to 50,210); Other Civil Service officers and clerks (increased from none reported to 33,037).

[xxx]

Kirkham and Loft (1993, Table 1, p.510) Relationship between accountants and clerks					
Accountants			Clerks		
Year	Census classification	Total number of accountants	Year	Census classification	Total number of clerks
1871	Commercial	9832	1871	Commercial	130,717
1911	Commercial (1) Social class 1	9499	1911	Commercial (1) Social class 1	685,998
1921	Professional Social class 1	7260	1921	Clerks & draftsmen, Social class 2	998,226
1931	Professional Social class 1	13944	1931	Clerks & draftsmen, Social class 3	1375431

[xxxi] Anderson, et al., cite Pixley's 1896 reference to the Registrar of Friendly Societies definition of a public accountant, "*To put the matter in familiar terms, the essential part of the qualifications is a brass plate or other public notification that a business is being carried on"* (2007, p.383).

[xxxii] Social recognition through association with the state and other professions, such as law was a proposed strategy that has also been propagated by some theorists (MacDonald, 1984; Parker, 1987; Walker, 1985; Kedslie, 1990; Selander, 1990). The view was put forward the view that not only did the accounting profession embraced the demographic characteristics of the existing professions, it also adopted a "*professionalism by association*" strategy by creating alliances with existing professional groups (Macdonald, 1984; Walker, 1988; Kedslie, 1990; Selander,1990). The importance of establishing a mutually beneficial relationship with the dominant social hierarchy is obvious (Johnston, 1980 & 1982). Clearly from the accounting profession's perspective the granting of both an official sanction and a degree of regulatory privilege would simultaneously enhance its perceived and actual social influence and status (see, for example, Chua and Poullaos, 1993). But from the perspective of the state and the other (already established) professions, benefits only accrue if accountants can provide some means of perpetuating the existing hierarchy's control. This means the state's perception of the value of accounting as a means of controlling, perpetuating or manipulating the current social system is contingent on a critical mass of individuals within that system pre-

acknowledging the value of accountants. In short, such associations must have value to both parties involved.

[xxxiii] Sikka and Willmott suggest that the activities of the accounting bodies nurtured and promoted their elitist status, often through the publication of various journals *The Accountant* being arguable the most recognised (1995, see also Parker 1986; Howitt, 1966). By the end of the nineteenth century it had been joined by the *Incorporated Accountant's Journal* (published by the *Society of Incorporated Accountants and Auditors*, 1889); *Financial Circular (published by the Corporate treasurers and Accountants Institute (1896); The Accountant's Magazine (Institute of Chartered Accountants of Scotland – 1897 as cited in Walker, 1988).*

[xxxiv] The often quoted studies provide brief biographical *snapshots* of the individuals who were the founders of the accounting firms that subsequently evolved into what came to be referred to as the *Big Eight*. Names such as Fredrick Whinney, William Turquand (father and son), John and Alexander Young, Richard Brown, Sir William Peats, William Cooper, Samuel Lowell Price (and brother Charles Price), Edwin Waterhouse, Sir William Plender and lesser known Basil Pike, John Fletcher and John Edward Coleman all of whose histories have been exhaustively traced. (Both Jones (1981) and Matthews, Anderson and Edwards (1998) produce extremely useful genealogical '*family trees'* of several major British accounting firms).

[xxxv] Jones quoting a study of Scottish chartered accountants states "*the majority are the children of a tiny fraction of business and professional people. As with any other profession, wealth and influence are as important in shaping opportunities and interests of children as the ability with which they are endowed"* (1981, p.91 also see, Parker, 1980 & 1986). Jones suggests that many Scottish accountants had links to the legal profession and cites references referring to accountancy as a branch of the law, which aided its social status (1981). Walker points to the fact that the nature of the Scottish accountant's practice was based on a number of relationships it *"increasingly provided services to the mercantile and manufacturing communities from the 1880s, its essential client base was the landed classes"* (1993, p.149). As Kedslie notes the members of the accounting discipline "*were predominantly upper to upper-middle class*" land owners of the Edinburgh society (1990, p.13). Also see Lee who examined the economic class, social status of early Scottish accountants (1996 & 2004).

[xxxvi] These potential recipients were as follows: Harding (as chief official receiver); Plender (for Government work) Peat (for public services) and Harmood-Banner (as Lord Mayor of Liverpool). Chandley and Edwards highlight Coopers' commentary on the "*unfulfilled expectation"* that the founding fathers of the accounting profession may have received titles in 1897 on the celebration of Queen Victoria's jubilee, instead suggesting "*it was not until after accountants had proved their worth in the First World War that social recognition of this kind began to develop on any significant scale"* (1996, p.8).

[xxxvii] Walker also indicated that overall the status of accountants varied depending upon the geographical location within Britain at this point in time (2002; also see Parker, 1986). While Walker's 2002 study locates the intra-disciplinary status of various classifications within the broad definition *accountants* in the period covered by the 1851 census it does not provide either cross-sectional or longitudinal evidence as to inter-occupational status of accountants to other occupational categories but is however again indicative of their social standing.

[xxxviii] Hakim, suggests that as professional apprenticeships required the payment of a substantial premium, that the majority of potential participants could not afford, candidates instead turned to the clerical positions (apprenticeships) to pursue their social mobility ambitions. The following table illustrates the growth in clerical employment relative to accounting and the general occupied population (1980, p.566).

Kirkham and Loft, (1993, pps.510, Table 1, p.510). Growth in the number of clerks, accountants, relative to working population			
Year	Total working population	Clerks	Accountants
1861	9818994	92012	6239
1871	10730286	130717	9832

1881	11187564	236125	11517
1891	12889484	370433	7930
1901	14328727	518900	9026
1911	1624,399	685998	9480

[xxxix] For example, Jones states "*Shortly after Harding and Pullein had come together in partnership in August 1848, they employed Fredrick Whinney as their senior clerk. In April 1854 he recorded in his pocket dairy that he was 'in the future to have 15 pounds per calendar month', his name disappeared from the clerk's weekly wage list in the firm's cash books. He then continued to progress and on 1 November, 1857 was admitted as partner"* …. "*William and Arthur Cooper both became clerks in the office of Quilter Ball and Company, a firm of accountants in the city of London*" (1981 p.41). Brief points to the appointment of the first non-family partners at Coopers, starting with Edward Hewitt Fletcher, again engaged as a clerk in 1856 and progressing to partner in 1873. (1954, pps.1 - 2) Also see Brief for discussions re: Charles Henry Weatherly, Sidney Pears and Herbert Arthur Booty (1954).

[xl] Even after the formation of a professional institute, the title *accountant* was not reserved for use by institute members and hence could be used by non-members and as a result was widely used by a variety of individuals. The accounting discipline thus remained an ill-defined occupational classification that was difficult to place definitively within an occupational hierarchy.

[xli] Smith's model of change analysis outlines the temporal nature of social change (such as a change in occupational status) and suggests it can be categorised as having certain distinct stages or phases (*source phase*, *diffusion phase* and *reaction phase*) (1973). To some extent all phases should be included in an analysis that attempts to truly assess the change process that has occurred to the socioeconomic status of the British accounting discipline (see for application, Copeland and Shank, 1974).

[xlii] See Harrison and McKinnon for a discussion with regard the utilisation of change analysis as applied to accounting systems. While they support the utilisation of a processual approach in the examination and analysis of change in an accounting system it is the view of this paper that the objectives of this study and the data available is more supportive of *trend analysis* (1986).

[xliii] For example, see Kirkham and Loft who highlight that "*many accountants volunteered to fight and others were called up, those that remained at home played an unexpectedly important role in the altered conditions of war*" (1993, pps.532 to 544). While the British people strongly supported the principles of free enterprise both prior to and during the First World War, difficulties arose when the government sought to purchase supplies from manufacturers under competitive pricing conditions. Profiteering became prevalent and as a result certain regulations were introduced from 1915 onwards, bringing the production of many goods directly under the control of government regulation. In addition new taxation regimes were simultaneously introduced and in concert, these changes created a significant demand for accounting expertise. Accountants were increasingly employed by the government in the war ministries and often achieved prominent positions in the civil service as a result. (Many went on to be awarded knighthoods and receive other civil recognition for their roles during the period after the conclusion of the war). For a full discussion see Loft, (1988); Jones (1981, pps.122-140); Matthews, Anderson and Edwards (1998, chapter 5).

[xliv] Census of England and Wales, Occupational Tables (London: HMSO, 1841); Census of England and Wales, Occupational Tables (London: HMSO, 1851); Census of England and Wales, Occupational Tables (London: HMSO, 1861); Census of England and Wales, Occupational Tables (London: HMSO, 1871); Census of England and Wales, Occupational Tables (London: HMSO, 1881); Census of England and Wales, Occupational Tables (London: HMSO, 1891); Census of England and Wales, Occupational Tables (London: HMSO, 1901); Census of England and Wales, Occupational Tables (London: HMSO, 1911).

[xlv] For example, Matthews suggests that it provides an imperfect enumeration of the accounting discipline (1993, p.199). Walker overcomes these issues by using the enumerators' books upon which the census data is compiled (2002).

[xlvi] Hakim provides brief commentary on the magnitude of work needed to compile these census manually, given that by the end of the century Britain had a population of approximately thirty-three million people (1994, p.435).

[xlvii] Lawton provides a brief overview of the context and history in which the early 1801-1831 census were conducted and the work of the first census organiser, Rickman (1978, p.12).

[xlviii] This is based on the traditional economic division of an industrialised nation into: The *primary* sector (agriculture etc), the *secondary* sector (industry, manufacturing etc) the *tertiary* sector (transport, commerce, government and service).

[xlix] Lawton notes that the data contained in these schedules, (although destroyed after collection), was collected in enumerators' books from which the published reports were compiled and the subsequent release of these books (after the one-hundred year confidentiality constraint) has provided significant resource for social researchers (1978, p.2).

[l] 1851 Census data occupations were grouped into the following seventeen classes (each broken down into subclasses):
Class 1: Persons engaged in Imperial or Local government;
Class 2: Persons engaged in the deference of the country;
Class 3: Persons engaged in religion, law or medicine;
Class 4: Persons engaged in art literature, science and education;
Class 5: Persons engaged in household duties, as wives, children;
Class 6: Persons engaged in boarding, lodging, domestic services and dress;
Class 7: Persons engaged in commercial pursuits (merchants);
Class 8: Persons engaged in conveyance;
Class 9: Persons engaged in agriculture;
Class 10: Persons engaged in breeding animal tending and fishing;
Class 11: Persons engaged in a variety of pursuits including the higher branches of engineering, building, machine and tool making; printing, shipbuilding chemical manufacture;
Class 12: Persons engaged in occupations concerned with animal substances, (butchers or poulters, wool or silk operatives;
Class 13: Persons engaged in occupations concerned with vegetable substances, brewers, upholsterers, spinners to greengrocers;
Class 14: Persons engaged in occupations concerned with mineral substances;
Class 15: Persons engaged in unskilled labour;
Class 16: Persons of independent means or property owners;
Class 17: Persons who were considered useless or disabled, paupers, prisoners etc.

[li] Booth highlights the inconsistency of the 1831 occupied data which includes only males over twenty years of age. Also, calculations for 1851 to 1871 exclude '*non-economically active*' groups, such as *unpaid household* workers; whereas different treatments are made of those classified as *prisoners* or the *mentally incapable*. (1886).

[lii] Also see for example, Blumin, 1968; Katz, 1972; Pessen, 1976; Hershberg and Dockhorn, 1976).

[liii] For example, International Standards Classification of Occupations ISCO-58; ISCO-68; ISCO-88; see Elias (1997) for details; and International labour Office, 1990; Goldthorpe (1996 & 1997); Erikson and Goldthorpe (1992); Evans and Mills (1998); Wright (1985 & 1997 &1998). In most recent studies occupational data is classified using the US Bureau of Census or the dictionary of occupational titles, produced the US Department of Labor.

[liv] Abbott comments that *"relatively less organised professionals have certain distinct advantages in workplace competitions. Because they lack a clear focus and perhaps a clearly established cognitive structure, they are free to move to available tasks"* (1988, p.83). He employs

the term *vocational jurisdiction* to describe the professional group's effective control over a '*task area*' and maps its jurisdiction through the classified listing of the tasks undertaken by the group at a point in time (1988, p.112).

[lv] From a social status perspective, occupational roles that are created as a result of technological change tend to be perceived as being as prestigious as those pre-existing occupations with comparable levels of knowledge and authority (Congalton, 1966; Hodge, Siegel and Rossi, 1964; Siegel, 1971).

[lvi] In UK the term *accountant* has never been restricted by legislation and thus has been widely applied to identify a broad variety of functions within the commercial services area, so while the title *chartered accountant* was eventually restricted, difficulties occur[lvi]. Unlike the title *lawyer* or *doctor* it has never been restricted in use and appears to have been particularly poorly defined during the majority of the nineteenth century in Britain (*A Guide to the Accountancy Profession*, 1895, cited in Brief, 1954).

[lvii] Edwards, et al., include the following occupational titles *Accountants (Public) and general agents*; *Accountants (Public) and commission agents*; *Accountants*; *Accountants (see agents, arbitrators, auctioneers, referees, collectors)*; *Accountants (see agents, arbitrators, auctioneers, referees, appraisers)*; *Accountants (and professional trustees)*; *Accountants (see average staters)*; *Accountants (see agents and collectors)*; *Accountants (house land and estate agents)*; *Accountants and referees*; *Accountants and auditors*; *Accountants and auditor*s; *Accountants, collectors and general agents* (2007).

[lviii] Edwards, et al., cite four principle sources: trade classifications, additional service listings, commercial listings and advertising (2007).

[lix] The nature and implication of these *related services* with be defined and discussed in the body of the paper.

[lx] Edwards, Anderson and Chandler state that the vast majority of accountants worked as employees within a variety of organisations rather than in public practice. They estimate that 3344 public accountants working in England and Wales, circa 1880, (at the time of the establishment and fusion of the representative accounting bodies) and that the 1881 census reveals 11,606 individuals identify themselves as accountants (2005, p.239).

[lxi] Kirkham and Loft go on to suggest that "*(w)hilst the nature and extent of any differences between the required skill, knowledge or expertise to undertake different accounting tasks remains contestable, such disputes are frequently resolved by reference to the class of persons who undertake them*'. Importantly, (for this study) they conclude "*accountants have not always belonged to a clearly defined occupational group nor can they claim, even today, an unequivocal position within a social hierarchy. Whilst the professional status of the accountant may appear to be established, the meaning of the professional accountant is continually being reconstituted within a changing social and occupational hierarchy in society"* (1993, p.508).

[lxii] Boot quoting Rubinstein, "*It* [a clerk] *encompasses such a wide range of occupations and levels of skills and responsibilities that it is almost valueless for some analytical purposes. Applied to Victorian Britain it conjures up Dickensian images of oppressed men on meagre incomes struggling to maintain respectability. In fact clerk was a common appellation applied to a large group of occupations ranging from the poorest menial clerk who never earned more than one hundred pounds per annum to men who carried the highest administrative and financial responsibilities in government, commerce, and finance"* (1999, p.639),.

[lxiii] See in response, Sikka and Willmott, 1995; Dezalay, 1995.

[lxiv] Walker cites "*an array of employment statuses and designations with the title accountant. The head of the occupational hierarchy were public accountant', accountants engaged in banks or railways companies and accountants who combined accounting with another occupation. Then followed accountant-clerk and bookkeeper…. Further down the vocational scale*

was the itinerant accountant, the female accountant, the servant accountant and the pauperised accountant" (2002, p.396).

[lxv] Sobek suggests that most socio-historic studies using occupations as a social locator have *"continue to use the precedent set by Thernstrom's (1973) classification of occupations into strata and classes"* (1996, p.172). Thernstrom's methods provided a combination of mid–twentieth century US occupational census classifications, placing them into five strata and two classes (1973, classifications are detailed in his appendix 1).

[lxvi] The groupings of occupations are often based on either or both the 1921 and 1951 census data (Armstrong, 1972).

[lxvii] Perkins shows the difficulties involved in the general analysis of *commercial activities* suggesting that changes in these subgroups often resulted from reclassification of clerks and accountants as unique occupations to one based instead on industry or service type. For example there are obvious ramifications to the classification of accounting in that commercial clerical work may have been classified within an industry grouping (ie: *railway clerks* classified as *transport employees* rather than as *commercial services providers* within that industry) (1961).

[lxviii] Routh classifies occupations by the following categories: Public administration; Armed forces; Professional and subordinate services; Domestic and personal services; Commerce and financial services; Transport and communication; Agriculture; Fishing; Mining, quarrying and working their product; Building and construction; Manufacturing; Gas, electricity and water; All others (1987, pps.19-25).

[lxix] The study acknowledges that an obvious bias exists in the data in that only successful firms have records available.

[lxx] Data from the first half of the nineteenth century has often been criticised as being constructed from "*incomplete statistics, qualitative accounts and contemporary interpretations*" while data from the second fifty years is often considered more robust as the quality of record keeping improved (Higgs, 1996, p.8; also see Nissel, 1987). However, Edwards, et al, correctly suggest that while the data obtained from a variety of sources is not completely reliable it is again the best (and perhaps only source of data) available for the historic study of accounting (2007, p.66).

[lxxi] As a point of reference also see Walker's study of the Scottish firm, *Lindsay, Jamieson and Haldane* (1993).

[lxxii] In an earlier Scottish study, Macdonald suggests "*high status persons could be trusted to charge a fair price and could not expected to engage in cut throat commercial competition*" (1994, pps.117-118).

[lxxiii] It should be noted that *Herapath's Journal* reports the suggestion to adopt a regime of continuous audit was being promoted by the principals of accounting firm, *Quilter, Ball and Co.* (Edwards, 1985).

[lxxiv] The widespread use of this charge-out rate is indicated by the £73 & 10 shillings charged for 35 days work done on behalf of the firm *Scroeder De Constans*. Fees appear to be in multiples of two guineas. The smallest fee was recorded as being £2 & 2 shillings to the *Wingrove Steamship Company* (which confirms that daily rate) see Jones, 1981.

[lxxv] Chadwick, Collier and Co; (1874); Alfred Tongue and Co., (1899), Walter MacKenzie, CA and George Robinson, (1879), Blease and Son, (1875, 1885), Deloitte, Dever, Griffith and Co, (1891); W.B. Peat, (1899).

[lxxvi] For example, the 1831 *Bankruptcy Act specifically* identified accountants as potential *official assignees* and has thus been regularly recognised as providing impetus for the profes-

sionalisation of the discipline in England (Markham-Lester, 1995). Walker cites evidence that from the 1850s that accountants were frequently and successfully engaged under voluntary schemes of insolvency (2004, pps.134-35).

[lxxvii] Walker details the earnings of several Sheffield based accountants who claimed (and often received) significant payments for their work as trustees, for example Joseph Leggoe was awarded £65 for his services in 1877, on estate that realised only £120 for creditors, in another case, *Cooper Corbridge* (accountant) received £155 from two inter-related estate that realized £353 pounds in total. Government records indicate the prominent (but eventually disgraced accountant) *Peter Harris Abbott* had total earnings for a period of 8 years equal to £9,156 & 0 shillings, 2d after deducting office expenses totalling of £3600 received as average remuneration of £694 & 10 shillings 0d (BPP, 1840, xvi, p.562). Accountants at the time argued the riskiness of undertaking such work needed to be weighed against the substantial commissions they received (2004).

[lxxviii] Anderson, et al., provide an overview of the criteria for the basis of their *size* ranking. Their results show that 85.5 percent of firms were classified as being *single office* partnerships. A majority (50.1% overall) were London based. A further 6.2 percent of firms had both London and provincial offices, while 6.8 percent of firms operated from multiple provincial premises. (A negligible number of firms had either multiple London offices or had both domestic and overseas practices). Their study identified a number of individual accountants serving as partners in multiple firms. The results also reflect the nature of work undertaken by the practices, including audit, liquidation and bankruptcy, and their specialisation was reflected in their client lists (banking, railway or cable, telephone and telegraph sectors). The firms were ranked primarily on the basis of their involvement in auditing, but this is cross-referenced against their liquidation and bankruptcy work and the number of partners or employed accountants (1996).

[lxxix] US studies have applied such measures to research studies covering periods from the late-nineteenth century, but not earlier (see for example, Thernstrom, 1973; Zunz, 1982; Goldin, 1986; Preston and Haines, 1991). Walker uses similar proxies (where available) to assess the social standing of accountants at the 1851 census date (2002).

[lxxx] Lawton comment that "*many similar sets of data need adjustments before they may be compared"* but methodologies exist and have been applied and are generally accepted across a variety of disciplines (1978, p.3).

[lxxxi] Routh cites evidence obtained from the *Playfair Commission* (1874-1875) and of similar conclusions arrived at by the *MacDonnell Commission* (1913) with regard to the parity between public and private sector remunerations (1954).

[lxxxii] Williamson's occupational groupings upon which the earnings data are based include: Agricultural occupations; General Labourers and others; Messengers and domestic services; Govt. low wage; Police, prison and military; Mining occupations; Government Civil officials; Transport trades; Engineering trades; Building trades; Textile trades; Printing trades; Clergymen; Legal; Accounting and clerical; Medical; Educational; Engineer and Surveyors (1982).

[lxxxiii] Feinstein summarises and questions Williamson's findings with regard to the earnings inequality experience of nineteenth-century Britain after the Napoleonic wars as "*post-war stabilization; a period of surging wage and earnings inequality up to the mid-century; and a period of levelling in the distribution of earnings during the late-nineteenth century up to World War 1*" (1988, p.700). Williamson (1982) observes the premium paid to 'skilled' workers rose significantly from 1815, peaking in the mid-nineteenth century, declining until 1911. It is argued that the rise and subsequent fall in the *skilled pay ratio* of nineteenth-century Britain is representative of the *Kuznets curve* (an inverted U). Note: Kuznet originally advanced the view that the relationship between industrialisation and changes in economic inequality is characterised by increasing inequality during the early phases of industrialisation decreasing as the development process matures (1955).

[lxxxiv] Also see Williamson, 1981 & 1987 & 1987b.

[lxxxv] Perkin explains that these schools taught reading, writing and arithmetic (and in many cases bible studies) often in non-designated buildings with local persons acting as *teachers*, (although actual teaching was often undertaken by *monitors* who sometimes were only about twelve years of age) with classes often comprised sixty or more students (1961). He also confirms the scarcity of post-primary education citing the results of the *Report of Schools Inquiry (Taunton) Commission* (1868) which expressed "*dissatisfaction at the quality of education provided"… [suggesting] "the schools, whether public or private, which are thoroughly satisfactory are few in proportion to the need….[with] only 100 from 770 endowed and 21 out of 86 proprietary schools giving any education after the age of sixteen …198 endowed schools were described as elementary and in a further 225 education ceased at the age of fourteen.* The Commission concluded: *In at least two thirds of the places named as towns in censuses there was no public school at all above basic primary and in the remaining third the schools is often insufficient in size*" (1961, p.123).

[lxxxvi] For example, the first and second reports of a *Committee of the Statistical Society of London*, were appointed to enquire into the *State of Education in Westminster* (1838) cited Perkin 1961.

[lxxxvii] Musgrave states that there was a decline from the end of the eighteenth century in the educational function of the family. Prior to this period the gentry used private tutors to educate their children at home). The children of wealthy parents were sent to school after spending early years with a governess (1971). "*The schools which this class supported continued to supply classical curriculum, the very irrelevance of which came to be a mark of their station'…..'while the middle class continued their demand for an education of greater utility'*…'*supporting the day proprietary schools, successors in some ways to the dissenting academy and practical academies of the eighteenth century"* (1971, p.26). Also see Musgrove, 1959; Stevens, 1989.

[lxxxviii] See Stevens, 1989, *Suggestions on Popular Education, 1861, Schools Inquiry Commission*.

[lxxxix] *Commissioner on Popular Education, Minutes of Evidence, Parliamentary Papers, 1861, XXi, pt.vi*. (cited in Stevens, 1989).

[xc] Mathews, Feinstein, and Odling-Smee (1982) provide an estimate of the average number of years males attended schooling by birth cohort. These estimates are contained in the following table:

Mathews, Feinstein, and Odling-Smee, (1982, p.573, Appendix E) Average number of years schooling (20 years of age males) by birth cohort			
Period	Years	Period	Years
1806 - 15	2.7	1862 - 66	5.4
1816 - 25	3.6	1867 - 71	6.1
1826 - 35	4.2	1872 - 76	6.6
1836 - 45	4.7	1877 - 86	7.2
1846 - 51	5.0	1887 - 96	8.3
1852 - 56	5.2	1897 - 06	9.1
1857- 61	5.3	1907 - 16	9.4

[xci] For example, *Elementary Education Act* (1876); *Factories and Workshop Act* (1878) and the *Mundella Act* (1880) were all introduced to facilitate higher attendance levels. However as these acts allowed *part-time work* and exemptions for those children who were *involved in agriculture*, they were difficult to enforce and often enforced poorly by uncooperative local officials, school boards and attendance committees who had a vested interests in allowing children to be absent from school, particularly at times of commercial opportunism such as seed time or harvest time. As a result the actual level of school attendance indicated by census or survey data was in all probability overstated. In addition relatively low penalties were imposed on parents and distance and weather conditions were frequently cited as a valid reason for non-attendance (*Committee of the Council of Education*, 1868 and 1869). The cost of

education was cited as being prohibitive to school attendance but even when free education became available actual attendance was still volatile (Stevens, 1989). Social histories suggest many children missed significant periods of education through medical epidemics such as small pox (1830, 1871), cholera (1831, 1848-49; 1854; 1867); typhus (1837 and 1846) and diphtheria (1958).

In addition, the following table (based on the work of Cornish and Clark, *Law and Society in England 1750-1950*.) provides a chronological outline the development of the educational/child labour regulation (Factory Acts). Column one provides the title of the Act and the year enacted, with column two provides a brief summation of the main attributes introduced by the Act.

1802: Factory Act (Health and Morals of Apprentices Act)	(Little evidence of enforcement); Children under 9 should not be employed, Children 9-13 work 8 hours per day; Children 14-18 work 12 hours per day; Overall12 hour per day limit; Night work ban; Supply appropriate clothing and living quarters; Supply basic education (reading, writing and arithmetic) for first four years; Instructed in the principles of Christian religions
1819: Factory Act (Cotton Mills)	(Little evidence of enforcement); Children under 9 should not be employed; Children 9-16 work 12 hours per day
1831: Factory Act	(Little evidence of enforcement); Children under 9 should not be employed; No night work for those under 21
1833: Factory Act	(Enforcement by four factory inspectors); Children under 9 should not be employed (medical and age certificate); Children 9-13 work 8 hours per day; Children 14-18 work 12 hours per day; Night work ban for those under 18; Two hours schooling each day (9-13 years)
1842:Mines Act	Under 10 not to work underground; Under 15 not to work machines
1844: Factory Act (Predominantly textile industries)	Children under 9 should not be employed (medical and age certificate); Children under 13 work 6.5 hours per day; Children 13-18 work 10 hours per day; Record keeping introduced
1847: Factory Act	Children under 18 work 58 hour week
1850: Factory Act	Introduces standard 10 working day
1874: Factory Act	Reduced work day in textile industries to 9.5 hours
1878: Factory and Workshop Act	Consolidation of other Acts; Compulsory education for children up until 10; Children 10-14 work half days; Women no more than 56 hour per week; No children under 10 to work; Regulation re: safety, ventilation and meals
1891: Factory Act	Introduces concept of conditions of employment; No children under 11 to work
1901: Factory and Workshop Act	Minimum working age increased to 12; increased education provisions

[xcii]

Mathews, Feinstein, and Odling-Smee, (1982, Appendix E, p.573) Proportion of university graduates by birth cohort (male)	
Years	Less than 0.9%
Before 1886	0.8%
1887 - 1896	1.2%
1897 - 1906	2.2%
1907 - 1916	2.7%
1917 - 1931	Less than 0.9%

[xciii] Schofield's argues that the school's commonly taught reading before writing and that the ability to write tended to indicate an ability to read (1968; see also, Longuet, 1981).

[xciv]

Registrar General of England and Wales (Annual Reports) in West, (1978), pps.369-383 (Figure 1). Annual percentage of unable to sign marriage documentation (literacy)						
Year	Males (%)	Females (%)	Total (%)	Males (%)	Females (%)	Total (%)

1821	34.0	48.0	41.0	1871	11.0	13.0
1831	35.0	48.0	41.5	1881	4.0	4.5
1841	30.0	41.5	35.75	1891	1.5	2.0
1851	24.5	31.0	27.75	1901	Less than 1	Less than 1
1861	18.0	23.0	20.5	1911	Less than 1	Less than 1

[xcv] However successive *Committee*(s) *of the Council of Education* (1868/1869; 1884/1885; 1891/1892; 1895/1896) all cited parent's apathy to education as the major impediment to developing a commitment to schooling. Poor conditions, curriculum and efficiency, were often cited by parents as the cause of their indifference to education (*Children's Employment Commission*, 1843) (West, 1978).

[xcvi] Some evidence exists to suggest that various industry classifications were more closely aligned with literacy. For example, manufacturing firms appeared to have placed a higher value on workers who displayed the ability to read and write while agricultural and building (brick and stone laying) based employment was associated with poor, immigrant (often Irish) workers with lower levels of education (see for examples, West, 1978: Mitch, 1979).

[xcvii] Mitch suggests that as a consequence, during the middle period of the nineteenth century, only twenty percent of the improvement in adult male literacy could be linked directly to employment-related motives (1979). However Musgrave states the middle class during this century placed "*more weight on formal education of boys and so complex had the openings for professional men become that in the 1840s several guides to available jobs were published*"…. [but] "*the industrial revolution created demand for child labour which raised the status of children as measured by an early age of marriage and higher earnings . However the passing of the Factory Act and changes in industrial techniques by the mid nineteenth century lowered the demand for such labour and as Horace Mann's section in the 1851 census showed, many children were neither at school nor at work. Literacy might now be seen by the middle classes to be worthwhile and as necessary for an upper-class deprived of sinecures and driven by examinations, but the economic role of the working class, and even the lower middle class, could be filled successfully….by total illiterates*" (1971, p.25).

[xcviii] The *Taunton Commission* (1868) reports that approximately 10,000 proprietary schools were established during this period (cited in West, 1978).

[xcix] Studies indicate a growth in the teaching of double entry bookkeeping by private academies and tutors in addition to grammar schools during the nineteenth century (Hans, 1951; McLachlan, 1931; O'Day, 1982).

[c] The rise of professionalism was paralleled by an expansion of related courses in the university system (Freidson, 1970 & 1971; Schwarz, 2004). Jones outlines the emergence of college and university courses in accounting subjects by the turn of the century in America, together with the proliferation of accounting textbooks all of which indicated that accountants were increasingly participating in higher levels of education and training. Within an environment of increasing levels of literacy, this focus on training and credentialism, by the discipline, may be interpreted as attempting to maintain or increase the relative magnitude of the discipline's differentiated educational attainment standing and thus it's occupational status (1981).

Anderson, et al., using data obtained from the major accountancy bodies highlighted the qualifications of accountants associated with major firms. The sample of qualifications and the professional requirements indicate that, even given an environment of increasing literacy, the differential between those accountants identified and the majority of those in the British population were significant. The nineteenth century appears to be characterised by a general population whose literacy was improving quite rapidly, however the educational requirements and attainments of professional accounting practitioners was increasing at an even greater rate. As a consequence, rather than decreasing the difference between the accountants' educational attainment and that of the population, the differential actually increased (1996). Walker suggests that a unified accounting discipline in its defence of the newly established *Chartered Accountant* brand adopted a strategy of educational differentiation. That is the discipline at-

tempted to distinguish *real* accountants (those who had undergone time consuming and expensive training) from their *uninstructed* counterparts (2004, p.86-88).

Musgrove suggests that doctors, accountants, architects and engineers all had their minimum qualifications defined or recommended either by legislation or by their own professional institutions. This movement towards registration and stipulation of a minimum training is an indication of a desire to restrict entry. (For example the number of doctors declined after the introduction of legislation in 1858 which defined their necessary qualification; the number of accountants declined immediately after the founding of their professional bodies in the 1880s, as was the case with the number of civil engineers with the introduction of examinations in 1879 (1959, p.106).

Schwarz suggests both solicitors (from 1836) and later accountants desired to cautiously guard their professions against unlicensed entry at a level far less than that of the graduate and introduced their own regime of examination (2004, p.945). With this a number of occupational classifications also adopted their own examination practices. Schwarz states "*Professional associations of bankers, accountants, patent agents, surveyors, municipal engineers first introduced exams in the 1880s with company secretaries, insurers, librarians and auctioneers in the 1990s"* (2004, p.945).

[ci] However Musgrove warns of the changing perception of education during the century due to the increasing numbers of educated people in general and particularly in terms of those from the middle-classes. In 1855, civil servants of long experience had expressed the view that "*There was such a thing as having too fine an instrument for your work; and to put a first class man to copy papers on a hundred pounds a year, is like putting a race horse to the plough….Amongst clerks there were those who evinced a strong disposition to look upon their duties below their abilities. Many thinking education was all that was required, and looked at many duties as below their abilities"* ..... "*Noting the recommendations of the Playfair Commission (1875) that many , if not most offices, there is too large a proportion of clerks, all presumed to be doing the same work, and to be entitled to promotion to the highest clerkship, whilst as a matter of fact many of them are, and must be employed on routine work.* He suggest that throughout the nineteenth century there was a growing middle-class anxiety over employment prospects, the term *overcrowded professions* was freely used in vocational handbooks…..much to the bewilderment of parents new to middle class affluence" (1959, pps.107-108).

[cii] Anderson suggests that after leaving school, clerical occupations also began with a period of junior clerkship or apprenticeship (1976). Kirkham and Loft suggest that "*what most clerks possessed was the prospect of upward income and job mobility, since the skills of numeracy and literacy which they developed placed them in a superior position to the great mass of the population who could not read or write"* (1993, p.516).

[ciii] The census data indicates child employment decreased in all occupational groupings over the century (and into the early decades of the twentieth century) as a result of a number of factors[ciii]. By *"the early twentieth century, the age structure of the workforce in the central industries of an industrial economy had changed. The age of entry had generally risen and it was open to question whether those in their mid-teens who did not work in them could still be termed children*" (Cunningham, 2000, pps.412-13). He points to the development of a separate and more distinct labour market for children that emerged across the century. "*It is true, of course, that in textiles and mining in the 1830s children had distinct jobs, and in that sense there was in those industries a segmented labour market, but it was a segmented labour market within a major industry. By the end of the century children had to a large measure been excluded from such industries and found a demand for their labour in sectors of the service industries, in many of which children worked*" (ibid, 2000, p.413).

[civ] During the period 1851 to 1911 child participation in the workforce as recorded by the British census were as follows: 1851: 36.6 percent (males) / 19.9 percent (females); 1861: 36.9 percent (males) / 20.2 percent (females);1871: 32.1percent (males) / 20.4 percent (females); 1881: 22.9 percent (males) / 15.1 percent (females);1891: 26.0 percent (males) / 16.3 percent (females); 1901: 21.9 percent (males) / 12.0 percent (females); 1911: 18.3 percent (males) /

10.4 percent (females). The figures for 1881 include the occupied children less than ten years of age, but the numbers are insignificant (see Deane and Cole, 1962).

[cv] The rise of professionalism was paralleled by an expansion of related courses in the university system (Freidson, 1971; Schwarz, 2004). Jones outlines the emergence of college and university courses in accounting subjects by the turn of the century in America, together with the proliferation of accounting textbooks all of which indicated that accountants were increasingly participating in higher levels of education and training (1981). Within an environment of increasing levels of literacy this focus on training and credentialism by the discipline maybe interpreted as attempting to maintain or increase the relative magnitude of the discipline's differentiated educational attainment standing and thus it's occupational status.

Anderson, et al., using data obtained from the major accountancy bodies highlighted the qualifications of accountants associated with major firms (1996). The sample of qualifications and the professional requirements indicate that, even given an environment of increasing literacy, the differential between those accountants identified and the majority of those in the British population were significant. The nineteenth century appears to be characterized by a general population's whose literacy was improving quite rapidly, however the educational requirements and attainments of professional accounting practitioners was increasing at an even greater rate. As a consequence, rather than decreasing the difference between the accountants' educational attainment and that of the population the differential actually increased. Walker suggests that a unified accounting discipline in its defence of the newly established *Chartered Accountant* brand adopted a strategy of educational differentiation. That is the discipline attempted to distinguish *real* accountants (those who had undergone time consuming and expensive training) from their *uninstructed* counterparts (2004, pps.86-88).

Musgrove suggests doctors, accountants, architects, engineers had their minimum qualifications defined or recommended either by parliament enactment or by their own professional institutions. This movement towards registration and stipulation of a minimum training is an indication of a felt need to restrict entry. (For example the number of doctors declined after the introduction of legislation in 1858 which defined their necessary qualification and the number of accountants declined immediately after the founding of their professional bodies in the 1880s, as was the case with the number of civil engineers following the introduction of disciplinary examinations in 1879) (1959, p.106).

[cvi] Cunningham, in highlighting the difficulties inherent in any analysis that assumes a proportion of child workers must also consider *the prevailing technology, availability of children, "the employment strategies of manufacturers and the strength of adult male trade unionism prior to any assumption* [based upon] *participation"* (2000, p.411).

[cvii] For example, the *Select Committee on Parish Apprenticeships of 1815* examined nearly six thousand London indentures for a variety of trades from the years 1802 to 1811. This showed that approximately one quarter were just below eleven years of age, half were eleven, twelve or thirteen years of age and the remaining quarter were above thirteen. Snell provides an indication of the starting ages of various occupational groupings throughout the century (1983). He suggests in the more skilled animal husbandry aspects of agricultural employment, there is a general agreement as to the starting age… "*while some began as early as eleven or twelve the majority began at between thirteen or fourteen*"(1983, p.234). Mining offered an employment opportunity for children from the age of about six to eight (with some firm/locations only allowing those eleven to fourteen to be employed). Domestic and textile industries employed (particular girls) from the age of five years. Children appear to have started in manufacturing factories on average from between the ages of nine and twelve.

[cviii] Historical data sources used include the following categories:
Urban and regional trade directories; Parish registers; Taxation assessment of income and property; Data from church records (clergy lists); Educational records (from charity schools, elementary schools, Parochial Union schools); Civil Service records; Military records; Firm and individual accounting biographies; Census data (including enumeration books);

[cix] Agriculture; Fishing; Mining; Building; Manufacture; Transport; Dealing, Industrial services; Public service and professional; Domestic services; Property owning and indefinite.

[cx] Williamson divides his eighteen classifications into six low skilled and twelve high skilled (1982).

[cxi] Williamsons earnings data is expressed in decimals rather than pounds, shillings and pence (*LSD*) (1982).

[cxii] Population estimates: England and Wales for years: 1811 (10,164,256); 1821 (12,000,236); 1831 (13,896,797): 1841 (15,914,148); 1851 (17,927,609); 1861 (20,066,224); 1871 (22,712,266); 1881 (25,974,439); 1891 (29,002,525); 1901 (32,527,843); 1911 (36,070,492): Proportion of each gender at ages 10-15 returned as occupied: [Year (Male/Female)]. 1851 (36.6/19.9);1861 (36.9/20.2);1871 (32.1/20.4);1881 (22.9/15.1);1891 (26.0/16.3);1901 (21.9/12.0).The figures for 1881 include occupied children under 10 years of age, but the numbers are so small that their inclusion maybe disregarded (Wrigley and Schofields,1989).

[cxiii] Double exponential smoothing method (often known as *Holt's* linear exponential smoothing) requires three components. These are an alpha and beta argument and an 'm' argument. (The Alpha argument is equal to a number that ranges between zero and one is used to smooth the difference between observed data forecast and the last forecast. The higher the value, the more weight is placed on the most recent forecast, so smoothing decreases as the smoothing factor increases. A smoothing factor of 0 completely smoothes the forecasts and thus returns the first forecast, which is the first data observation, while a smoothing factor of 1 produces no smoothing at all and returns the previous data observation). The Beta argument provides a number ranging from zero to one that smoothes the difference between the previous forecast and the current forecast. Again smoothing decreases as the smoothing factor increases. The M argument provides a positive integral between 1 and the total number of periods on which forecasts are based (see for discussion re: population based data, Keyfitz, 1977).

[cxiv] The choice of forecasting model applied is based on the characteristics of the observed patterns in the data used to develop the forecast. Simplistically these are: *Trend* being defined as a systematic movement upward or downward and maybe either linear or non-linear. *Seasonality* represents a component of a time series and is generally a systematic variation that occurs in sub-intervals within a series of observations. *Cyclic* variations are in many ways similar to seasonality however their duration and timing can vary and are usually associated with external events (such as business cycles and market variations).

[cxv] This study employs the Merrick School of Business' (University of Baltimore) linear estimation program. This program was originally developed by Professor Hossein Arsham, (*Wright Distinguished Research Professor* in statistics, decision science and system simulation), at the Merrick School of Business, University of Baltimore.

[cxvi]

Reconciliation of occupational weightings: Present study with Deane and Cole (1962)										
Year	Agriculture, fishing and forestry (in percentages)		Manufacturing, mining and building (in percentages)		Transport and trade (in percentages)		Domestic (in percentages)		Professional, public service and other (in percentages)	
	Deane and Cole	This study	Deane and Cole	This study	Deane and Cole	This study	Deane and Cole	This study	Deane and Cole	This study
1821	28.4	28.8	38.4	42.3	12.10	12.8	12.7	14.2	8.5	3.2
1831	24.6	25.8	40.8	43.7	12.40	13.4	12.6	14.2	9.5	3.6

Estimation of distribution of labour force for 1811 – 1911 is based on each sectors' percentage of total occupied population.
Deane and Cole (1962) include: *Armed Forces*, *Arts and amusemen*t in the *Professional and public service* sector and *Indefinite/other* in their estimation of *occupied* population. For the subsequent five decennial periods (1841 to 1881) these groups according the Booth (1886, Appendix B (1)) account for the following proportion of the occupied population: 1841: 12.77 percent; 1851: 5.02 percent; 1861: 4.54 percent; 1871: 4.87 percent; 1881: 5.93 percent. (Average: 6.63 percent) Dean and Cole include these occupational groups in the 'other' category (with professional and public service). If the weighting derived in the current study are adjusted so as to include a six percent weighting for those occupational groups omitted from the comparative figures identified in the table above, the following adjusted weightings result.

1821	28.4	27.1	38.4	39.8	12.1	12.1	12.7	13.3	8.5	9.2
1831	24.6	24.2	40.8	41.0	12.4	12.5	12.6	13.3	9.5	9.7

Deane and Cole: Agriculture, fishing and forestry	Deane and Cole: Manufacturing, mining and building	Deane and Cole: Transport and trade	Deane and Cole: Domestic	Deane and Cole: Professional and public service
This study: *Agricultural occupations*	This study: *Mining occupations; Textile trades; Printing trades; Building trades; Metal trades; General manufacturing and dealing*; Less *Road making; Dealing: Raw materials; Dealing: C,M,D; Dealing: F,D,S; Dealing: General; Lodging & Coffee houses*	This study: *Commercial delivery and postal; Transportation trades*; plus *Road making; Dealing: Raw materials; Dealing: C,M,D; Dealing: F,D,S; Dealing: General; Lodging & Coffee houses; Male domestic messengers*	This study: *Domestic services and messengers Less Male messengers*	This study: *Medical; Engineers and surveyors; Accounting; Legal; Religious; Teaching; Govt: Civil official; Police, prison and guards;*

Sources: Deane, P. and Cole, W.A. (1962, pps.142 -52.Appendix 4) Current study Table 4.2.0. and Table 4.3.0.

[cxvii] (For example, see, Abel, 1988 (*legal*); Bowley, 1900 (*Building trades*); Bowley and Wood, 1906 (*Engineering*; *Shipbuilding*); Brown and Hopkins, 1955 (*General*); Snell, 1983 (*General labouring*); Galbi, 1997 (*Textile workers*); Routh, 1954 (*Civil Service*); Thompson, 1968 (*Engineering and Surveyors*); Tucker 1936 (*General Artisans*); Anderson, 1976 & 1988 (*Clerical*); Boot, 1999 (*Clerical*); Flinn, 1984 (*Mining trades*); Freeman and Aldcroft, 1988 (*Transport trades*); Gardner, 1995 (*Teaching*); Holdaway, 1979 (Police, prison and guards); Hammond and Hammond, 1917 (*General labouring*); Harris,1988 (*Metal trades*); Higgs, 1983 & 1995 (*Domestic servants and messengers*); Jackman, 1916 (*Transport trades*); Jones, 1964, (*Agricultural trades*); Kelsall, 1955 (*Civil Service*); Klingender, 1935 (*Clerical*); Knox, 1980 (*General apprentice*); Layton, 1908 (*Domestic servants and messengers*); LeBold, Perrucci and Howland, 1966 (*Engineering*); Loudon, 1986 (*Medical profession*).

[cxviii]

The reconciliation of total (adjusted) participation rates by gender and occupational groups are based on the following based on Huzell (1969):
Total population: 12,172,666 (1821) / 14,038,134 (1831)
Total male: 6,022,746 (1821) / 6,890,164 (1831)
Total female: 6,149,920 (1821) / 7,147,970 (1831)
Total under 15 years of age male: 2,951,406 (1821) / 3,320,943 (1831)
Total under 15 years of age female: 2,928,943 (1821) / 3,398,941 (1831)
(Note: 1831 uses estimate B as it and corresponds more closely to Deane and Cole (1962) and Adjustment as per 6 percent in previous example)

[cxix]

	1821 (A x B) = C			1831 (D x E= F)		
	A	B	C	D	E	F
Police, prison and guard	0.20	0.00	0.000000	0.23	0.00	0.000000
Religious	0.30	0.31	0.000930	0.33	0.29	0.000957
Medical	0.74	0.53	0.003922	0.73	0.35	0.002555
Engineers & surveyors	0.08	2.00	0.001600	0.11	1.70	0.001870
Teaching	0.67	2.29	0.015343	0.84	1.81	0.015204
Legal	0.47	2.31	0.010857	0.48	2.37	0.011376
Govt: Civil official	0.35	2.76	0.009660	0.37	2.52	0.009324
Commercial delivery and postal services	0.25	3.63	0.009075	0.45	3.70	0.016650
Accounting	0.42	4.21	0.017682	0.55	3.92	0.021560
Building trades	5.89	5.04	0.296856	6.01	4.39	0.263839
General manufacturing and dealing	12.19	6.28	0.765532	12.27	5.63	0.690801
Printing trades	0.16	8.02	0.012832	0.23	7.62	0.017526
Domestic services and messengers	16.34	10.14	1.656876	16.14	10.18	1.643052
Metal trades	4.60	10.92	0.50232	4.74	9.53	0.451722
Textile trades	23.02	11.01	2.534502	23.95	9.08	2.174660
Agricultural occupations	28.85	12.35	3.64664	25.86	11.11	2.873046
Transportation trades	2.73	12.64	0.345072	3.77	12.36	0.465972
Mining occupations	2.74	20.88	0.572112	2.94	15.59	0.458346
	100.00		10.401811 %	100.00		9.11846%
Columns A and D : Occupational weighting (%) Columns: B and E: Occupational participation under 15 years of age (percentage) Columns C and F: Overall weighting of under 15 years of age participation (percentage)						

[cxx] Horrell and Humphries show high child participation rates for children whose father was employed in low skilled agriculture, mining, factory work but lower rates for those in skilled occupation in the age categories 0-4 years; 5-9 years and 10-14 years (1995, pps.485-516, Table 4).

[cxxi] Appendix 4 reflects the following high levels of child participation for, Mining occupations, (1821: 20.88 percent) and (1831: 15.59 percent); Agricultural occupations, (1821: 12.35 percent) and (1831: 11.11 percent); Textile trades, (1821: 11.01 percent) and (1831: 9.08 percent).

[cxxii] The following table summarises the number of *Nam-Powers* variations of greater than two percent in each period across each of the ten periods. In bracket five percent. Row two provides a summary of the changes in nominal ranking based on *Nam-Powers* scores

Incidence in greater the 2 (5) percent variation in *Nam-Powers* score / 2 (3) place rankings									
Period	21-31	31-41	41-51	51-61	61-71	71-81	81-91	91-01	01-11
No.of > 2 % (5%)	9 (5)	16 (7)	13 (5)	17 (10)	8 (4)	18 (10)	13 (11)	22 (13)	12 (3)
Total		128/324 (68/324) = 39.5% (20.9%)							
Ranking change > 2 (>3)	5 (3)	9 (8)	9 (7)	16 (10)	4 (0)	9 (4)	11 (5)	12 (4)	2 (1)
Total		77/324 (42/324) = 23.7% (12.9%)							

[cxxiii] The fee data discloses the firm's fee income rather than the earnings of the individuals within the discipline and does not cover the entire period under investigation plus the *Nam-Powers* score employ earnings as a relative measure.

[cxxiv] Hodge questions the presumed unidimensionality or *uncritical reductionism* (1981; see also Blishen & McRoberts, 1976; Elley & Irving, 1972) of simply combining the two different constructs into a single socioeconomic measure of occupational status. Loehr and Powelson, defend the use of such simple composite measures suggesting that if all the components of a phenomenon such as occupational status are independently measurable and are functionally related (as is the case with education and income) it becomes possible to stipulate a single value for any possible combined weighting of these individual components, with different weightings yielding the same value taken as equal (1981).

[cxxv] See also Halaby and Weakliem, 1993.

[cxxvi] Hauser and Warren outline methodological issues associated with data collection, for example, the impact of labour supply variables; measures of wage rates as opposed to annual earnings; female versus male biases in measurement (1997; also see Hodge, 1981; Hauser and Warren, 1997; Rytina, 1992; Hauser and Logan, 1992).

[cxxvii] Although the study recognises the groups provided by Booth and Williamson are similar but not the same, the table contained in this endnote indicates that some minor differences occur if the weightings of Booth are replaced with those of Williamson. It is the contention of this study that these differences do not significantly change either the results or the implications that may be drawn from them.

Accounting *Nam–Powers* scores: Impact of re-weighting Williamson with Booth										
Year		1821	1831	1841	1851	1861	1871	1881	1891	1901	1911
Elite	(B)	97.67	97.39	97.32	97.29	96.03	96.23	96.69	96.75	97.48	98.42
	(W)	98.05	97.77	97.89	97.29	96.23	96.23	97.02	97.10	97.61	98.45
Non-elite	(B)	96.23	96.83	95.53	95.47	93.75	92.84	92.44	91.70	91.26	91.02
	(W)	97.63	97.22	97.20	95.47	96.00	92.84	94.65	95.02	94.95	95.25

[cxxviii] Griffen particularly warns of the problems associated with the application of a number of *historical method*s in socio-historic research (1972).

[cxxix] For example, using census materials it is currently possible to separate different classes of clerks from accountants for the periods 1851 onwards (Kirkham and Loft,1993). These data could be used to estimate the proportion of various groups within accounting in earlier periods. However, while such an approach can differentiate clerks from accountants, it does not truly differentiate the elite from non-elite within the classification (for the reasons discussed in Section 1.3.3.) it may provide a basis from which to estimate classes within the occupational group.

[cxxx] Both the Lee (1979) and Nobes and Parker (1979) studies provide information from 1840 to 1940 that includes significant legislative changes that resulted from events occurring in the final decade of the nineteenth century which had a significant impact on accounting and accountants.

[cxxxi] Arpan and Radebaugh initially suggested that the economic conditions of a country are the most important environmental condition in the variations found between various national accounting practice, however the results of their study did not support this conclusion. Such studies were primarily concerned with the relationship of these economic indicators on the measurement and disclosure techniques inherent in the application of accounting techniques. They did not examine the impact that these indicators could have on the social value of the accounting profession (1985).

[cxxxii] Deane and Cole's (1962) characterisations of each period are based on *Thorp's Business Annuals.*

[cxxxiii] It must be stressed that this relationship may apply only to the profession of accounting. Other occupational groups may have other triggers that would facilitate other socioeconomic outcomes. (Re: inequality see Wood, 1899 & 1909)

[cxxxiv] *Lorenz* curve is a single measure of relative income distribution can be computed for a particular nation at a particular point in time. A comparative of intra-national income distributions can be assembled. This is referred to as the Gini index. The Gini index is a single measure of relative wealth and the most frequently employed in studies of income distribution. It is based on a curve fitted to percentile shares, the Lorenz curve which was developed by Lorenz in 1905, and is named after him. The vertical axis measures the percentage of income going to recipients, who are divided into percentiles on the horizontal axis. Income recipients are ordered from the poorest to the richest, moving from left to right. Complete equality would occur only if a certain percent of the population received an exactly proportional percent of the population's income. This is indicated by the curve of complete equality. The area enclosed by the theoretical line of equality and the observed *Lorenz curve* is known as the concentration area (or area of inequality). The Gini index is the ratio of this area to the total area under the line of equality. The simplest computation of the Gini is derived by taking the sum of the areas under all trapezoids formed by the above lines and subtracting this from the area to give the concentration area. The computation of the Gini index is simplified by calculating twice the concentration area and dividing this by twice the area drawn within the trapezoid.

[cxxxv] This scenario also suggests that more individual members of a society would then come into direct contact with accountants and that this expanding *person to person* interaction (within a professional context) would provide the necessary critical mass of community demand for accounting service to elevate their socio economic standing and thus their recognition as *professionals*. As the redistribution of wealth has also been associated with the changed structure of the workplace (ie: specialisation of labour, corporatisation) even those who do not personally require the accountant's expertise observe its influence in the workplace. For example, the American Association of Certified Public Accountants was incorporated under New York State law in 1887. In the United States, rising numbers of corporate failures "*incited the calls for an independent accounting profession which were so central to the formation of the profession*" (Preston, et al., 1995, p.516). Amhowitz suggests the requirements of the US Securities and Exchange Commission laws that all publicly-owned companies file audited financial statements was the single most significant occurrence in the professionalisation of the accounting discipline (1987). He states that "*accountants were to play the role of plutonic guardians of the investing public ….that would provide an independent bulwark against dishonesty and financial distress….* (the accountants) *rode a wave of their respectability and chose not to publicize their limitations"* (Amhowitz, 1987 p.362). Again, this time in the American setting, the need to protect a larger group within the community, who apparently had the facility to invest funds exerted sufficient pressure on the US government to establish such regulations.

[cxxxvi] For over a century social historians have provided a number of comprehensive studies that have examined the British legal profession, its social standing and its economic outcomes during the nineteenth century (for earnings discussion see Christian, E.V.B., (1896), *A Short History of Solicitors* (London Press, pps.172-202; Kirk, H., (1976) *Portrait of a Profession* (London Press) pps.87-92 and Duman, D., (1982), *Judicial Bench in England, 1727-1875* (London Press), pps.105-11.

[cxxxvii] Corfield contends that the British Legal profession of the nineteenth century were acutely aware of other occupational groups encroaching on their professional boundaries, specifically highlighting the interactions between accountants and lawyers during the 1850 to 1870 period (1995). Sugarman questions the mixed relationship enjoyed by these two vocational groups, suggesting it was often portrayed as co-operative but was also characterised by significant levels of competition (1995, pps.229-30). Walker provides one of a number of studies that highlights that this competitive relationship was centred upon the right to undertake insolvency work. He details a number of incidences where the legal profession attempted to defend their professional jurisdiction in response to what they perceived as the *business classes* advancing their commercial interests at the expense of the legal profession, as the regulatory environment adopted a Scottish based, *creditor contro* focus as opposed to the *judicial officialdom*

of earlier periods. Walker concludes that *"the prospect of the elevated status of accountants was not well received by the more ancient profession of law"* (2004, pps.140-43)

[cxxxviii] Brown notes that lawyers were well place to expand their jurisdiction into the developing market place of business services and some did in Scotland where a number of leading members of the legal profession practised as accountants. In England there was an alternate perception that considered accounting/commercial work as demeaning and not entirely respectable for upright, bonafide lawyers (1905). Sikka and Willmott suggest that specialist accountants emerged as a distinct group from lawyers through a combination of state sponsorship, circumstance and the disdain of lawyers for accounting work (1995).

[cxxxix] For general histories of the British legal profession, see Nelson, 1988; Prest, 1987; Reid, 1986; Abel, 1988; Dicey, 1905.

[cxl] For general histories of the British engineering profession, also see Meiksins and Watson, 1989; Thompson, 1968;

[cxli] Larson comments that *"I had also exaggerated to the point of distortion, the discontinuity of professional practices before and after the industrial revolution, where more attentive observation of history would have revealed multiple continuities. It is clear that a historical process as long, as complex an as unevenly developed as the Great Transformation could never provide us with clear cuts in historical practice. The discontinuity of structure between pre-modern and modern professional phenomenon is analytical and theoretical: it could never be uniformly translated in empirical reality and it can only be observed in periods and in social spaces that must be carefully specified" (1977 p.25).*

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Appendix 1:
The accounting discipline:
A knowledge set

A1.1.0. Introduction

Section 1.3.3. highlighted a number of difficulties that occur in defining the occupational title '*accountant*' for the purpose of retrospectively attributing a series of socioeconomic scores. The process of differentiating '*Accounting*' (as an occupational classification) from other related classifications during the nineteenth century was noted as particularly problematic within the body of the current study, given that the discipline was in its formative period.

Booth provides early recognition of the importance of '*skill'* and '*knowledge*' in determining a basis for defining and thus differentiating occupational groups (1886). Since Booth, a large number of studies have specifically examined how *labour*' divides over time into segregated occupational groups[i] in an attempt to explain the maturation of the occupational structures found in complex societies (for example, Parsons, 1951 & 1964; Davis, 1968; Bendix and Lipset, 1966; Caplow, 1964; Durkhiem, 1904; Turner and Hodge, 1970).

Research into the stratification of professional occupations often relies on the concept of *'occupational jurisdiction'* as a means of distinguishing disciplinary groups (see for example, Larson, 1977). The identification of an occupational jurisdiction is based on the group's control over a defined '*knowledge set'*. Occupational classifications may thus be defined on the basis of the jurisdiction created by their knowledge sets. The control over knowledge sets and therefore jurisdictions (and the potential earnings and social power that results from knowledge control) has provided the incentive for inter-professional conflict (or knowledge-based *'turf wars*') between different occupational groups (Dezalay, 1995; Dezalay and Garth, 2004).

As discussed in the body of the present study, historical research has provided specific evidence of the existence of accountants and therefore an early '*accounting knowledge set*', from the late eighteenth century in Britain (Cornwell, 1991 & 1993; Armstrong, 1985 & 1987; Kedslie, 1990; Walker, 1988 & 1991 & 1993; Yamey, Edey, and Thompson, 1963, Yamey, 1979). Accounting historians suggest that many primary components of the contemporary accounting knowledge set were already in existence, even at

this early stage (Littleton and Yamey, 1956; Winjum, 1972; Littleton, 1933; Roy and MacNeill, 1967).

Edwards and Walker found general acceptance for the proposition that the process of accounting and the discipline's knowledge set were specifically applied to and identified with three broad categories of work for much of the nineteenth century (2007). The three categories being:

1. Accounting for *'the going concern*';
2. Accounting for '*business, disputes, failure and bankruptcy*';
3. 'V*aluation and agency'* matters.

Edwards and Walker also identify a variety of occupational titles and job descriptions used by accounting practitioners in trade directories throughout the nineteenth century in Britain from 1820 to 1870 (2007). They observe that the titles used by practitioners often include reference to these three work categories. Jones had early noted that these occupational nomenclatures often include the term '*expert*' (for example, '*public expert in matters of account*' or '*expert in accounts*') or '*master*' (for example '*writing masters*') (1981, p.26). The question then becomes '*expert*' or '*master*' of what specific *'knowledge set'* or *'skill base"*?

Over the last two-hundred years as many definitions of the function of accounting have evolved as there are practitioners and accounting academics. For example, arguably the most quoted definition was provided by the American Accounting Association. It states that accounting in a broad sense is:

> "*The process of identifying, measuring, and communication economic information to permit informed judgements and decisions by users of the information"* (1977).

The accounting knowledge set may be described as the body of concepts or techniques historically accumulated by members of that discipline that facilitate accounting activity and as Berger and Luckman suggest, there is

"*certainty that the phenomena* (of the accounting process) *are real and posses specific characteristics*" (1966, p.13).

An understanding of the characteristics of the accounting knowledge set and its applications is of particular relevance to this study because '*occupational education*' is one of two fundamental determinants of socioeconomic rank and thus the attribution of occupational status. If '*occupational education*' is a major determinant of an occupation's social standing then the '*knowledge set*' imparted through the discipline's educational process is of primary importance. (Equally, as '*occupational earnings*' is the other determinant of socioeconomic status, the knowledge set of an accountant is the commodity exchanged for economic benefit by its practitioners). The impact of the discipline's knowledge set upon the social standing of accountants is attested to by the volume of literature that describes and examines its nature, content and function (for example, Lee, 1975 & 1990 & 1995; Littleton and Yamey, 1956; Winjum, 1972; Littleton, 1933; Hatfield, 1950; Murray, 1930).

Appendix 1 provides an overview of the literature about the accounting knowledge set. This appendix is broken into several sections. The opening section outlines the role that the accountant's knowledge set plays in establishing the disciplines' professional identity. The second section discusses the criticisms that have been levelled at this knowledge set. The third section briefly outlines the historical development of accounting '*knowledge*' and suggests that its theoretical foundations have remained relatively constant. The fourth section briefly outlines how current research explains why the accounting discipline has attained social recognition and, under the weight of criticism, managed to maintain the community's support.

A1.2.0. The link between specialized knowledge and heightened occupational status

An examination of the 'professionalism' literature indicates the role an established and defined knowledge set has played in the elevation of occupational status. It is persistently identified in both the functionalist and the critical literature as being a key factor in the professionalisation process (Carr-Saunders, 1928; Carr-Saunders and Wilson, 1933; Wilensky, 1964; Johnson, 1972; Abbott, 1988).

Halliday refers to an occupation's knowledge set as its *"core generating trait"* (1985, p.423). Freidson suggests a knowledge set provides the base for the expression of occupational expertise, and as such is regarded by many researchers as the most socially-empowering attribute of any vocational group (1986). Many studies suggest it provides a vocational group's authority and thus its social negotiating capacity (for example, Moore, 1970; Johnson; 1980; Torstendahl; 1990).

Professionalism literature suggests that for a knowledge set to effectively socially empower an occupational group it must display certain characteristics (Wilensky, 1964; Johnson, 1972; Abbott, 1983 & 1988, Sikka, Willmott and Lowe, 1989).

For example, the elevated status of an occupational group may be associated with the establishment of a body of "specialised" rather than 'generalised' knowledge. Specialised occupational knowledge upon which "expertise" is based must be easily differentiated from, "*both common, everyday knowledge and non-formal specialized knowledge*" (Freidson, 1986, p.3).

In addition, Larson suggests exclusive control over a specialised body of knowledge (and thus expertise) creates an occupational jurisdiction for a disciplinary group which defines and empowers its members while excluding others (1977). Buckley suggests:

> "*it might be postulated that the greater the apparent knowledge of a particular profession and the greater its exclusivity, the greater its power in society is likely to be*" (1978, p.64).

Social status is bestowed by the community upon an occupational group and as such the specialised knowledge exclusively controlled by that group must be perceived by the community to be of a requisite practical value and to be beyond what other groups can supply (Rueschemeyer, 1983). The social evaluation of an occupation's knowledge set is based on its successful application in meeting a community's needs. Thus to enhance the social status of an occupational group, its knowledge set must be not only specialised and exclusive, but also have practical applications. Wilensky suggests "*any occupation wishing to exercise professional authority must find a technical* [rather than purely theoretical] *basis for it*" to be applied in a practical sense (1964, p.138). Therefore occupations possessing purely abstract specialised knowledge may not be recognised as possessing any immediate societal value and therefore denied elevated social status.

The social visibility of skill and specific technique in the application of an occupation's specialised knowledge set to a society's needs and demands appears to be a necessary attribute for the enhanced standing of a disciplinary group within a social location. However Goldstein argues that "*professionalism is primarily dependent on the intellectual core of a disciplines' knowledge set*" (1984, p.125). Greenwood, stresses the importance of an "*internally consistent body of abstract knowledge*" to the attainment of occupational status (1957, p.41), going on to later suggest that professional undertakings require the "*combination of both* [practical] *skill and intellectual capacity*" (1957, p.45).

The problems addressed by high status occupations are perceived by society to involve a multitude of issues and complex prospective outcomes, therefore rather than offering society a mechanical set of responses, a profession's knowledge set must be responsive to the nuances of the variety of scenarios it confronts. The paradigms, principles and concepts that form the body of theory contained within the knowledge set must therefore be interpreted by those within the disciplinary group to facilitate the solutions to

problems of those outside the profession. The necessity of such an approach leads to fundamental components of a professional knowledge set being based on subjective and judgemental interpretations that inevitably lead to certain abstractions (Greenwood, 1957).

Occupational status is therefore contingent not only on a disciplinary group being the provider of a technical skill demanded by the community but also for that skill to be based on the mastery of a body of abstract theoretical concepts not readily accessible by the general populace. Greenwood states that:

> "*the skills that characterize a profession flow from and are supported by a fund of knowledge that has been organized into an internally consistent system, called a body of theory*" (1957, p.41).

In effect the '*body of theoretical knowledge*' not the *'technical skill'* has become the major trait in the identification of a profession. Larson suggests that a claim on professional identity is contingent on "*the capacity to claim esoteric and identifiable skills - that is, to create and control a cognitive and technical basis*" (1977, p.180).

The knowledge set of a professional group is the foundation upon which the specialised skills are developed. It provides "*a base in terms of which the professional rationalizes his operations in concrete situations*" (Greenwood, 1957, p.46). The understanding of the conceptual and theoretical aspects that underlie technical practice distinguishes the professional from other forms of employment. Abbott suggests this relation between skills and theory is a dominant aspect of professionalism, and:

> "a *profession's… claim* (on professional identity)... *is based on the power of the profession's abstract knowledge to define and solve a certain set of problems*" (1988, p.70).

Wilensky suggests *"the success of the claim is greatest where the society evidences strong, widespread consensus regarding the knowledge or doctrine to be applied*" (1964, p.138). The lack of an identifiable theoretical

base has been cited as the major factor precluding many occupations from gaining professional recognition (Buckley, 1978; Buckley and Buckley, 1974). A profession has therefore been defined simply as a "*somewhat exclusive group of individuals applying somewhat abstract knowledge to particular cases*" (Abbott, 1988, p.70).

Professionalism however must remain a strategic balance between the technical and the theoretical. Armstrong highlights the poor strategy of engineers who, through over-reliance on the techniques of "*scientific management*" that were "easily detached from *engineering*", were displaced by accountants in the management of corporate structures. For example, costing started as a technical skill, "*but has become more mystical and indeterminate as different approaches develop and it is seen that there are no 'right' answers*" (1985, p.132).

While historically, the consensus of academic opinion has been that the discipline of accounting can be included amongst those vocations generally perceived as high status or "professional" since the early decades of the twentieth century (Carr-Saunders and Wilson, 1933; Wilensky, 1964; Johnson, 1972; Abbott, 1988) there still exists a persistent doubt over the validity of the discipline's knowledge base. The criticism underpinning the conjecture surrounding the professionalism of accounting will be discussed later within this appendix.

However, despite this doubt, accounting history, and the results of the current study, would suggest that although the disciplinary knowledge set existed by the beginning of the nineteenth century it either changed significantly, or became gradually more widely-recognised (and/or perhaps controlled more strictly by accountants) during the period 1821 to 1911 in Britain through its application to the three categories of work identified by Edwards and Walker (2007).

A1.3.0. Specialist training and occupational status attainment and maintenance:

Section 1.3.4. of the present study examined the level of educational attainment associated with the British accounting occupational group from 1821 to 1911 with the objective of developing a measure of this socioeconomic variable. Professionalisation literature has also examined the development and control of the accounting knowledge set through the institutionalised training of potential disciplinary members.

To gain '*special competence*' over the disciplinary knowledge set those aspiring to professional careers traditionally have been required to undertake formal training (initially through a system of '*paid articles*' or apprenticeship) but more recently in an accredited, academic institution and subsequently in a trainee position, to gain specific practical experience before being admitted as a full member of a professional association (Collins, 1979; Anderson, et al., 2005).

Section 1.3.5. provides a brief overview of the changes that occurred to the educational requirements of the accounting occupational group during the nineteenth century in Britain and how this process of change differentiated the accounting group from others within the occupied workforce, even during a period of rising educational standards (see also Hines, 1989; Anderson et al., 2005; Boot, 1999).

The evolution and development of formalised training in all professions has meant that access to their respective knowledge sets has been increasingly limited to those within each specific discipline (Buckley, 1978). Carr-Saunders and Wilson shows that the "*special competence acquired as the result of intellectual training*" was a means of distinguishing professions from all other forms of employment and was a universal characteristic of those occupations that enjoyed elevated social status (1933, p.307).

Buckley suggests that *"professions with the highest status have the least accessible body of knowledge"* and that the value of a knowledge set [as a means of status elevation] is contingent on both the availability of the information contained within it and the ease with which it can be obtained and

understood from sources outside a profession (1978, pps.12-13). For example, the Church remained a prestigious profession as long as reading and writing skills were the preserve of clergy. Once schooling became widely available and reading became common enough for people to read the Bible for themselves, the power and status of the priesthood declined (as reflected in the socioeconomic scores provided by this study in Appendix 5).

The societal acknowledgement of the need for the institutionalised training of occupational members so as to facilitate their acquisition of the group's knowledge set confirms the recognition of its social value (Buckley, 1978). The formal training, through the establishment of recognised academic credentials and proficiency displayed through professional examinations binds occupational members and simultaneously differentiates those 'outside' the profession. This process further augments both the profession's social standing and the status of its knowledge set (Larson, 1977; Goldstein, 1984). For example, Hoskin and Macve show how the need to maintain the integrity of the accounting knowledge set leads to the establishment and promotion of a credentialed and examination-focused system in accounting's professionalisation process (1986).

The professional body and the profession's knowledge set are again enhanced as its membership (and therefore access to professional practice) becomes increasingly contingent on satisfactory completion of examinations and the awarding of formal educational credentials. According to Buckley some 'lesser' professional bodies (and almost all such organisations in their early years) have admitted members without passing examinations. These organisations then have difficulty in attaining respectability until their membership is perceived by the community to universally hold appropriate qualifications (1978).

In contemporary society the rise of professionalism has been paralleled by the expansion of related courses in the university system[ii] (Freidson, 1971). The more prestigious the profession, often the longer the university training, with many courses now extending beyond the normal three-year degree. The accounting profession has "*gradually become almost*

the exclusive preserve of graduates, although they do not need to be accountancy graduates!" (Buckley, 1978, p.16).

When occupational knowledge becomes formally institutionalised through a society's higher education system the protective barriers between the occupation and the rest of society become further buttressed. For example, Buckley thinks it paradoxical that whereas medical and legal problems commonly confront people, the need to speak a foreign language does not, yet foreign languages are common high school subjects, whereas the study of medicine and law are not so common. To what extent the various professions have deliberately sought to make their knowledge inaccessible is debatable, but it would be difficult to argue that high schools simply offer what people need or demand (1978).

The predominance of university educated accountants in Britain did not begin within the temporal parameters set in Section 1.3.1. of the present study, however, in the United States of America the '*Public Accounting Act*' of 1896 gave the Regents of the *University of the State of New York* the authority to act as the examiners of a formal education in accounting. The professional accounting bodies understood the importance of their knowledge set to the process of professionalisation in America and by 1900 had established the first authorised studies in the discipline. The University of New York established a "*School of Commerce, Accounts and Finance*" offering a curriculum that included both practical skills and more importantly, the theoretical principles of accounting and auditing (Saxe, quoted in Carey, 1969, p.19).

A1.4.0. Public service and status attainment

The inherent requirement of professional judgement in the application of the accounting knowledge set indicates that there are often conflicting public and private interest aspects to the work of the accountant (Lee, 1990). The notion of a public interest component to accounting has led professional bodies to enter into "*social contracts*" that establish a fiduciary relationship with society to maintain minimum standards of competence in carrying out a function valued by society and to perform this function with integrity" (Emmet, 1966, p.159; Etzioni, 1969). These social contracts are often spelled out in professional codes of conduct. In return for their competence and integrity the discipline receives social and economic benefits that translate into enhanced social status[iii].

The "*layperson's comparative ignorance*" reinforces society's reliance on the professional accountant's expertise, thus confirming the practitioner's "*monopoly of judgement*" (Buckley, 1978, p.67). The social authority, and thus status, flowing from the knowledge held by accountants, is threatened whenever their "*monopoly can be abused* [and their] *powers and privileges can be used to protect vested interests against the public*" (Greenwood, 1957, p.55). Continuity of occupational status reflects the social acknowledgment of the '*proper*' application of the profession's power and authority. Such recognition allows accountants greater levels of autonomy within their professional jurisdiction. Such autonomy again reinforces their heightened social standing (Millerson, 1964).

A1.5.0. Alternative perspectives of status attainment

Perhaps because of the diverse nature of the investigation into occupational status attainment, research in this area has been characterised by the lack of a generally accepted theoretical framework, consequently there is no single theory of professionalism or professionalisation but several competing approaches (Saks, 1983; Meiksins and Watson, 1989).

Studies can be categorised into two major groupings based on the perspective the research takes to the outcome and process of professionalisation. These two research paradigms are referred to as the functionalist and critical approaches.

A1.6.0. Functionalist perspective

The functionalist perspective has been consistently employed in the examination of the outcome and process of professionalisation (see, for example, Barber, 1963; Becker, 1962; Emmet, 1966; Dyckman, 1974; Benson, 1981). The functional theory of social stratification suggests that in all societies there are positions that can be objectively determined as being of relatively more importance than others and therefore require more skills and training to facilitate their proper performance. The term '*functional imperative*' is used to describe the demand by a society for those roles that are determined to be necessary if it is to remain viable (Parsons, 1964).

As these social roles require the mastery of a specialised knowledge set they represent a costly alternative to those individuals who undertake them on behalf of a society and therefore those individuals are rewarded highly to induce their participation (Robson and Cooper, 1990). These rewards constitute a blend of financial and non-financial rewards (Wilenski, 1964; Dingwell and Lewis, 1983). Those occupational groups in receipt of such rewards are widely perceived as being both prestigious and socioeconomically advantaged.

The functionalist approach is based on conventional trait theories that suggest these functionally important occupational roles all exhibit certain common characteristics or attributes, for example, a specialised exclusive knowledge set and high degrees of occupational autonomy. The identification of these attributes[iv] can then be used to locate a discipline within an occupational hierarchy (for example, Greenwood, 1957; Wilensky, 1964; Benson, 1981).

The functionalist interpretation of the enhanced social standing of the '*Accounting*' classification identified within this study during the nineteenth century is therefore explained by the manifestation of attributes (such as an exclusive, specialised knowledge set) and the recognition of their existence by the broader British society. The occupational group's adoption and application of a specialised, accounting knowledge set, (albeit attributed to

both altruistic motives and self interest), can be therefore construed as fundamental to the process of elevating the perception of accountancy's social value for the mutual benefit of both the accountant and the community in Britain during this period (Greenwood, 1957; Caplow, 1964; Millerson, 1964; Wilensky, 1964; Moore, 1970).

A1.7.0. Critical perspective

Bucher and Struass' paper, '*Professions in Process*' marked the first major criticism of the functionalist approach to the study of professionalism. This paper was critical of what they suggested was the "*prevailing functionalism of sociology as applied to the professions*" (1961, p.325). The traits-based perspective was said to ignore both the spacial and temporal dimensions of the emergence of the accounting profession. The functionalist exploration, of the phenomenon of professions, was said to be the formulation of a theory which employed variables that describe an initial state and a set of outcomes, but never examine the processes involved in any change that occurs (Cohen, 1965).

As a result of such criticisms the focus of research moved towards longitudinal studies into professionalism, which began to reflect the changing socioeconomic context from which the accounting profession emerged.

The critical model is founded upon macro theories of group behaviour (see, for example, Durkheim, 1893). This approach to the study of status attainment is based upon an interpretation of the relationship between an occupational group and the other elements of society. Such a perspective in the interpretation of professions is often based on the contributions of Marxist authors. This viewpoint would suggest the rise of professionalism is as a result of a strategy implemented by members of an occupational group to control certain social functions by regulating supply within the labour markets associated with those function. This control allows such groups to dominate other neighbouring occupations, institutions and organisations (Johnson, 1972; Freidson, 1983 & 1986; Parry and Parry, 1976 & 1977; Larson, 1977; Murphy, 1984).

This perspective would suggest a profession will attempt to exchange one scarce resource – "*specialised knowledge*" - for substantial economic rewards. To maximise their self-interest they will attempt to exert some form of market control (Larson, 1977). Market control here implies an intention to maintain the scarcity of specialised knowledge as a resource by

"*monopolising their expertise in the market*". This premise may then be used to explain the nature and existence of the characteristics of professional vocations such as accounting.

This model suggests that the rise of the accountancy profession is not merely a series of historical events but the work of an occupational group who, because of their shared self-interest, "*strive to convince others of the legitimacy of their claim*" on professional status (Willmott, 1986, p.557). This perspective leads to the examination of professions as "*organised collectives*" and adopts aspects of '*conflict theory'* in its explanations of their collective behaviours (Krause, 1971; Neale, 1972).

Critical theories suggest that the accounting discipline has consciously sought social status by attempting to consistently redefine its own jurisdiction based on its knowledge set and primarily out of self-interest (see, for example, Abbott, 1988). The evolution of the relationships between neighbouring social groupings within a '*system of professions*' provides a context for the examination and explanation of the characteristics and actions of occupational groups that seek, or have already acquired, professional recognition (Saks, 1983).

Critical theories suggest the attributes of an occupational knowledge set are simply propagated to enhance its utility (as a source of power) within the professionalization process (Johnson, 1980; Halliday, 1985, Baer, 1986; Scott, 1988; Torstendahl, 1990; Goldstein, 1984). Dezalay observes that different professions endeavour:

> "*to construct or, more exactly, to 'reduce' complex, polymorphous and changing social problems into a 'need' which, precisely calls for the kind of treatment they alone can provide*" (1995, p.332),

because they control the body of knowledge upon which the solution is based (also see Goldstein, 1984).

Adopting this perspective, the maintenance and subsequent rise in the socioeconomic status of the elite of the British accounting group during the period under review in this study was a result of a conscious strategy implemented by their representatives to control the commodity '*accounting*

knowledge' by regulating its supply within the labour markets on nineteenth-century Britain. This control allowed the elite of accounting to dominate neighbouring occupations (including the non-elite of the accounting group), institutions and organisations (Johnson, 1972; Larson, 1977; Freidson, 1983 & 1986; Murphy, 1984; Larson, 1977).

According to the critical interpretation, the state has promoted and perpetuated professions, such as accountancy, that have assisted it in the maintenance of an unjustly hierarchical, capitalistic society (Pemberton and Borehen, 1976; Abel, 1979). The accountant's skills and expertise in redistributing wealth from public to private interests, has been interpreted by some observers as the reason accountancy has been supported by the state in gaining professional recognition (Nieuwenhuysen and Williams-Wynn, 1982; Stigler, 1975). For example in Appendix 2 of this study, a series of events are highlighted because they are often cited as specifically elevating the socioeconomic status of the accounting elite. These include the introduction of bankruptcy and auditing legislation by the British Government at various times during the nineteenth century and ultimately result in *Accounting's* receipt of Royal Charter.

Within the context of the accounting profession, control of social functions such as auditing and bankruptcy are seen as means of further perpetuating existing social orders in return for which accountants are permitted to maintain or achieve an elevated position within the dominant social hierarchy (Johnson, 1980). According to Freidson the presumption of a body of knowledge is the foundation upon which governments depend to confer professional status and the benefits that flow from it (1986). The accounting knowledge set is the basis for negotiating the disciplines' occupational authority and thus is seen as "*the main instrument of professional advancement"* (Larson. 1977, p.180).

A1.7.1. Criticisms of the accounting knowledge Set

The following sections outline a number of specific criticisms that have been directed at the accounting disciplines' knowledge set:

A1.7.2. Existence of specialised accounting knowledge

According to some observers continued scrutiny of the accounting profession's claims on professional recognition is a function of persistent attacks on the integrity of the accountant's body of knowledge (Feller, 1974; Briloff, 1990; Shah, 1996). These attacks have targeted the technical and theoretical aspects of that knowledge (Robson and Cooper, 1990).

Moore and Cooper assert that accountancy's knowledge (and therefore power) was not historically based on any formal claims of possession of special knowledge and skills and that even the techniques claimed are not unique, but often acquired from other occupational groups (1994, p.63). The difficulty in distinguishing the clerical and accounting roles during the majority of the nineteenth century has been canvassed fully in the body of this study (Kirkham and Loft, 1996).

Hines expresses the view that professionalisation in accountancy was just a social process by which accounting practitioners of the eighteenth and nineteenth centuries laid claim to disparate personal traits "*such as common sense, diligence, respectability, honesty, independence, penmanship, arithmetic and calculation rather than a formal body of knowledge"* (1989, p.79). She sees the search for a body of knowledge occurring later as a means of defending the status and privileges of the elite of the emerging profession. As late as the early-twentieth century it was difficult to identify exactly what accountants did because of the "*varied nature of their work and their emphasis on personality characteristics*" (1989, p.79).

It has been suggested that even by the second-half of the twentieth century it was difficult to identify the specialist accounting knowledge that accounting firms possessed, as they act as auditors, accountants, recruiters,

tax specialists, management consultants, valuers, lawyers, lobbyists, expert witnesses, and financial planners (Stevens, 1981). They appeared to still be willing to perform any service from which they could generate a profit from their clients[v].

Some critics have suggested that the accounting discipline's initial (nineteenth century) dependence on personal attributes and skills, rather than an objective formal knowledge base, has resulted in no real foundation for practice being laid. It has been consistently argued that accounting knowledge is just an amalgamation of segments of the legal (especially bankruptcy and taxation law), economic and mathematical disciplines, with no unique theoretical framework of its own (Hines, 1989).

Other critics of the accounting knowledge set say that the discipline suffers from an incomplete system of accounting thought and that accounting principles are illogical and sophistic (MacNeal, 1939; Chambers, 1955 & 1993 & 1994). It has been suggested that there is no historic evidence to indicate that the accounting profession has pursued the discovery and refinement of a coherent body of specialised accounting knowledge, in any systematic manner (Wolnizer, 1987).

Throughout the twentieth century others have criticized the attempts to develop a conceptual basis for the accounting knowledge set, suggesting it was unlikely to succeed because there was no unequivocally acceptable conceptual structure that could be erected when the necessary foundations had not been settled (American Accounting Association, 1977). Some observers suggested that the absence of a coherent set of theoretical foundations would keep the discipline in a state of ongoing unrest and turmoil (Sterling, 1970). Even the long-term prognosis for any significant resolution to these alleged theoretical difficulties was deemed to be poor (Wells, 1976).

With the interdependent relationship between technical skill and the theoretical foundations of the accounting knowledge set, problems observed with theoretical aspects of the discipline quickly manifest themselves in the outputs of the accounting process (see Enron, Worldcom, etc). Observations that financial reports are a costly mess, with accounting figures having dubious meaning, that accounting principles are inconsistent or in chaos, that

audit opinions are suspect, and education and training focussed on current practice, (Lee, 1991, Most, 1993), all indicate the potential threats to the foundation of accounting practice, and therefore the status of the accounting profession.

A1.7.3. Critical interpretation of attacks on existence of a specialised accounting knowledge set

Where corporate collapses have occurred in a number of social settings and at various points in time during and since the nineteenth century, accounting and its underpinning knowledge base, have been attacked in the community (see '*Financial crises and manias*', Section A2.2.5. of Appendix 2). The critical view proposes that the disciplinary collective has responded to such attacks by seeking to protect and where possible enhancing the perceived value of its knowledge set (Tuohy and Wolfson, 1978; Rueschemeyer, 1983). Hines suggests that the accounting profession has primarily devoted its time to creating the perception that it possesses significant knowledge with social value, as a major strategy for creating and reproducing its social identity as a profession, and by seeking legitimacy for standard-setting boards and the accounting discipline during periods of intense scrutiny or when threatened with government intervention (1989).

One method suggested for achieving this is through the use of vague abstractions, which over-intellectualise the material and act as a '*protective barrier'* against any diminishing view of its social worth (Baer, 1986). This process of abstraction and intellectualisation is used to construct a protective '*mystique'* around accounting knowledge (Moore and Cooper, 1994). The creation of a mystique around accounting knowledge provides a means of ensuring that professional accounting skills (and their associated rewards) remain in the hands of practitioners.

Such an argument suggests that the greater the level of indeterminacy of concepts within the knowledge set of a discipline, the greater the perception of the prestige of that profession. However, in practice the indeterminacy of the contents of a knowledge set can be interpreted by the client as an indication that the profession has no real solutions to their problems and that the professional is merely engaging in semantics. Indeterminacy has been alleged to have diminished social confidence in the accounting discipline, and therefore impeded rather than aided the pursuit

and retention of its professional status (MacNeal, 1939; Feller, 1974; Walker, 1991; Briloff, 1990; Mitchell, et al., 1991 & 1994; Shah, 1996).

In contrast to other professional groups, the accountancy knowledge set is probably more easily recognisable as being socially constructed and therefore dependent on cultural norms and customs. However, it may be too simplistic to portray the knowledge base of these other professions as being more scientific. All professional groups to some extent rely on custom and practice and what seems to be socially acceptable. Thus in medicine, delivering babies by Caesarean section, and circumcising boys, is the usual practice in the USA and Australia, whereas these procedures are more exceptional elsewhere (Hines, 1989).

Why then has accountancy's knowledge set attracted relatively high levels of condemnation when to some extent all professional's knowledge is socially constructed? Firstly, accounting knowledge has been created through a "due process" of political consultation and debate rather than as a result of an ongoing program of research, which other professions may rely on for a more authoritative basis for knowledge formation (Hines, 1989, Zeff, 1987 & 1988; Solomons, 1983 & 1986). The test of accounting knowledge is its acceptance by those parties affected by it, and thus interested in the outcome of the political process, rather than on the basis of reasonably objective observation and measurement. Legal knowledge gains its authority and legitimacy through state legislature and the courts, "*rather than through direct public debate*" (Hines, 1989, p.80).

Secondly, the accounting discipline's attempts to construct a theoretical or conceptual basis have been undertaken in an ad hoc, rather than systemic manner. The ad hoc and reflexive nature of the process of developing accounting knowledge is exemplified by the relative lack of success by accounting bodies to develop conceptual frameworks aimed at systematising the discipline's knowledge set into a comparable, complete and consistent form. This lack of success prima facie indicates that these characteristics remain absent from the knowledge set (Hines, 1989).

Accounting professional groups have learned that the discovery of a problem in need of an accounting resolution does not necessarily lead to the

development of an appropriate accounting standard. Standard setters will address a problem only when there is a high likelihood of resolving the issue in a manner acceptable to those who will have to implement the standard (Solomons, 1983). Thus neither identifiable intangible assets nor exotic forms of finance were addressed by the accounting profession until the collapse of Enron, that is, until they were forced to take a position. This results in an ad hoc, inconsistent approach to the development of accounting knowledge that is increasingly based on detailed rules rather than fundamental principles (Gerboth, 1987).

Thirdly, 'accounting' knowledge has expanded its intellectual jurisdiction to include virtually all areas of business. Initially, this expansion was into the areas of financial accounting, auditing and taxation. More recently accounting expertise has covered forensic work, due diligence activities, management consultancy, finance, economic forecasting, risk management and the implementation of information systems (Stevens, 1981).

As accountancy moves away from its professional identity it gains the characteristics of a purely commercial or even industrial pursuit (Zeff, 1987, p.67). This broadening of the range of services offered, mainly by the large accounting firms, leads to difficulties in identifying any unique body of knowledge that accounting possesses (Hines, 1989, p.82). It is only intervention through legislation such as '*Sarbanes-Oxley*' in the USA that has reduced the diversity in the application of accounting practices rather than self-regulation.

Finally, while accounting has expanded into other areas, auditing skills have remained the cornerstone of the accounting discipline (Hopwood, 1988, p.20, Zeff, 1987, p.65). Paradoxically this has posed a major threat to accounting's perceived legitimacy and thus the profession's status. Difficulties arising from the meaning of the phrase 'true and fair' and its impact on the auditors' certification of a company's accounts (Hines, 1989) are always lurking in the background waiting to pounce as they did in the Enron case in the USA with the destruction of the Arthur Andersen accounting firm.

The notion of a 'true and fair view' implies a realist association between the financial performance and position of an entity and the accounting descriptions of them. The financial reports play a crucial role in the reflective construction of the business entity for all stakeholders. Thus accounting can never be a 'neutral' or 'independent' activity as accounting bodies continually assert (Hines, 1989, p.84). Company failures that occur despite the existence of unqualified audit reports present difficulties for a discipline that asserts that its expertise is based on the characteristics of objectivity, neutrality and independence.

Such criticisms focus attention on the capacity of the accounting profession to provide an effective long-run defence of its knowledge set and thus its professional status. If the knowledge set is constructed on such poor foundations and continually comes under attack, one would expect the occupational group to have had significant difficulties in initially establishing, and then defending its elevated position within the occupational hierarchy over the last two centuries.

A1.8.0. Changes to the accounting knowledge set

As discussed in Section 1.3.3. of the present study historical literature indicates accounting principles and practices remained relatively unchanged during the nineteenth century in Britain, and were simply applied to different tasks. Paradoxically, despite the criticism of the accounting knowledge set over the twentieth century, if we examine the accounting core of knowledge it is possible to come to the conclusion that little has changed over the last hundred and fifty years.

In financial accounting there has been a gradual shift in application from "*bankruptcy practice to auditing, with a gradual expansion into cost accounting and now into management services*" (Abbott, 1988, p.26). This change in the work of accountants, while attracting criticism, does not represent a shift in the knowledge set of the discipline but merely the application of existing knowledge into new and perhaps more profitable areas (see earlier discussion re: Edwards and Walker, 2007).

From observations, accounting practice appears to be fundamentally much the same now as it was in the mid-nineteenth century. Brown (1905) suggested that the work of accountants was similar to, yet more varied than the work of lawyers, as it included auditing, financial accounting, and some components from insurance, banking, finance, and bankruptcy. Brown examined the work of accountants in the fifty years since Glasgow accountants had successfully petitioned for Royal Charter and concluded that the work and skills of accountants had not changed in any substantial way during that period, with no discoveries of new principle or the introduction of novel methods. Accounting changes were seen by Brown as just modifications "*of the principle and methods which were already well understood*" (1905, p.314).

A number of events occurred throughout the nineteenth century in Britain, all of which affected the application and instutionalisation of the accounting knowledge set. (These events are detailed fully in Appendix 2).

Many British companies had substantial operations in the United States of America, Canada, Australia and New Zealand, and as such these

events often impacted upon those firms too[vi] (Moyer, quoted in Carey, 1969). As a result at the same time as accounting bodies began to appear in the United Kingdom (again discussed in Appendix 2 of this document) similar bodies emerged in the United States and other predominantly English speaking countries.

Given the rise in the commercial and economic influence of the United States from the latter periods of the nineteenth century to the present time the influence on the perceived development of accounting knowledge began to shift from Britain across the Atlantic Ocean. The American Association of Public Accountants was incorporated under New York State law in 1887 and quickly acknowledged the importance of accounting knowledge to the status of the profession by "*energetically sponsoring an educational curriculum for its membership as early as 1892*" (Edwards, quoted in Carey, 1969).

By 1918 the US Federal Reserve had issued a circular to accountants and their clients entitled '*Approved Methods for Preparations of a Balance Sheet Statement*' which outlined the recommended approach for accounting practices (Carey, 1969). The contents of this document represented the formal acknowledgement by the American Government of accounting and auditing methods then employed by accountants. The majority of the concepts outlined in the document have subsequently remained within the accounting knowledge set as generally accepted practice throughout the world.

If one examines other influential publications in accounting in the US from this point onwards, at intervals of two decades, until the conclusion of the twentieth century, the content of the accounting knowledge set exhibits little in the way of any substantive change to the basic skills and theories inherent in the accounting knowledge set originally imported from Britain (Carey, 1969). Most concepts identified in 1918 have not only remained within the theoretical framework of accounting but have also remained relatively unchanged in meaning and context.

An examination of attempts by the professional accounting bodies to develop a conceptual framework, illustrates that the accounting knowledge set has remained relatively stable over a long period of time. A comparison of

the concepts and debates employed in the American Accounting Association's 1936 '*Tentative Statement of Accounting Principles*', the American Institute of Accountants' 1938 '*Statement of Accounting Principles*', and later conceptual framework projects, such as '*The Corporate Report*: of the English Institute's Accounting Standards (Steering) Committee' (1975) or the American Accounting Association's 'Statement on Accounting Theory and Theory Acceptance' (1987) and the International Accounting Standards Board's '*Framework for the Preparation and Presentation of Financial Statements'* (2001) suggest that little has changed in the fundament components of accounting across the twentieth and early part of the twenty-first centuries (Belkaoui, 1978; Kam, 1990).

International comparisons of accounting methods suggest there are only variations in accounting concepts and practices around the world (Choi and Bavishi, 1982). Particular accounting concepts and methods may not be universal, but it is safe to suggest that the foundations of accounting knowledge are fundamentally similar throughout the world, and it is the application that varies, in some cases markedly, from country to country.

If the process of re-specifying the accountant's knowledge set is just that, not a change but a recalibration of existing concepts and practices to prevailing national conditions, then accounting evolution can be characterised as a series of continual adjustments in, and adaptations of, the ongoing characteristics of accounting knowledge to the prevailing environment (either temporally or spatially).

It could be despite, rather than because of, its knowledge set, that the accounting discipline in the majority of Anglo-American countries has succeeded in establishing a relatively robust professional persona (Larson, 1977). The success of the accounting profession presents a conundrum for mainstream perspectives on the sociology of professions. If *Accounting* has a fundamentally arbitrary and weak knowledge set that has remain relatively intact over a long period of time why has the *Accounting* occupational group been so successful in its professionalisation without an academically sound philosophical base? One way to answer this question is to look at the environment in which accounting emerged and try to observe any changes

that could have been instrumental in aiding the rise of accounting and professional accounting bodies. The primary purpose of the present study is to assist in the facilitation of this process.

A1.8.1. Environmental change and the perceived value of accounting knowledge

Studies of the development of the accountancy knowledge have been conducted in a number of social locations including, the United Kingdom, Australia and North America (Kam, 1990; Willmott, 1986; Parker, 1961). Many of these studies have focused on a variety of environmental changes that are said to have caused the social re-evaluation of the accounting knowledge set. The increased value of accounting knowledge evident from the mid-nineteenth century has been attributed to "*industrialisation, management information needs, company failures, court actions, regular reporting and auditing requirements and taxation*" (Lee, 1990, p.92).

The environmental factors most often associated with the heightened evaluation of accounting in Britain during the nineteenth century include the following:

- The capital formation and the corporatisation of a number of industries (see Sections A2.2.1. to A2.2.3. of Appendix 2 for British examples from the nineteenth century);

- The increased enactment of both social and economic legislation (see Section A2.2.4. of Appendix 2 for British examples from the nineteenth century);

- The social questioning of accounting knowledge arising from financial crises and manias (see Section A2.2.5. of Appendix 2 for British examples from the nineteenth century);

- The activities and strategies undertaken by accounting associations with regard to the development of accounting knowledge (see Section A2.2.7. of Appendix 2 for British examples from the nineteenth century).

Appendix 2 of this study provides a detailed examination of these and other events that have become routinely associated with the social re-evaluation of the accounting knowledge set and therefore the accounting occupational group within Britain during the nineteenth century.

Several studies provide alternative views on the phenomenon of accounting and its societal value. These are briefly outlined in the following section.

A1.8.2. Societal need for a professionalised accounting occupation

Both prestige and socioeconomic status studies suggest that heightened social recognition of an occupational group occurs when the broader population perceives the value of the group's knowledge set to be high. This is specifically demonstrated in the results of survey-based 'prestige' studies of occupational status (see, for example, Treiman, 1977) and implicitly through changes to the socioeconomic standing of an occupational group. The results of occupational status studies suggest that a majority of a population within a social location must hold the perception of the heightened "value" of an occupation's expertise so as to establish an occupation's professional status.

To effectively answer the question of why the accounting knowledge set has become valued increasingly by a particular society (such as was the case of nineteenth-century Britain) researchers need to focus more on the changing perceptions of the broader community. As survey-based data about the underlying perceptions of the value of accounting knowledge is often not available, alternative hypothesis and explanations have been put forward. (Although it is hoped that the results of the current study may in some way assist in the resolution of these questions!)

For example, this may be examined from an organisational perspective. Organisations are often described as groupings of individuals all of whom have different goals and objectives but are bound together by contractual agreements (Jensen and Meckling, 1976; Watts and Zimmerman, 1983). Organisations are social constructs that facilitate the needs of those who participate within their structures. The accounting knowledge set provides a mechanism to perpetuate these structures by ensuring some internal consistency exists in the perceptions held by those within the organisation and that these perceptions align with facts or realities that are ascertainable from either within the organisational structure or those neighbouring it (Gambling, 1977).

This philosophical view of the nature of accountancy was explored by Gambling (1977). He suggests that accounting is really a means of reducing conflict and building confidence than the objective reporting of facts[vii]. He states that what is often sought from accounting is an institutional mechanism for dealing with unexpected or unwanted results. What is desired from accountants is not 'absolute truth' but a perspective that different interest groups involved in an organisation can temporarily and reservedly agree too. Such a perspective would indicate that precise, objective information may reduce the accountant's ability to achieve these outcomes, creating dissonance and thus disrupt the effectiveness of organisations. He suggests that if accountants produced information with high levels of external rationality it would be counterproductive in disputes where conflict is not resolvable by reference to facts. It is its ephemeral nature which provides its value.

Perhaps accounting is merely a business language and that there is no other language to explain commercial activities, wealth creation, tax liabilities etc. Accounting's power may lie in its linguistic capabilities of explaining the unexplainable. As it is a social construction, conflicts within its meanings may be quite consistent with it flourishing.

If we take a linguistic relativity view of accounting, users familiar with accounting's lexical distinctions will be able to describe business phenomena more easily than those with no familiarity, and the behaviour of users of accounting information will depend on their relative understanding of the lexical distinction and grammatical rules used in accounting (Belkaoui, 1978, p.97). Only those trained in accounting understand these rules and so respond to accounting phenomena differently from those who are untrained. Those trained in the language of accounting will enjoy higher status than those unable to communicate in accounting if it is the dominant business language of a specific temporal and special location.

A1.8.3. Societal consensus regarding value of accounting

Whether social status is measured by 'prestige' or 'socioeconomic' position, a critical mass of public opinion is required to elevate the accounting discipline to the elite within an occupational hierarchy.

While all societal members would at some point in time be exposed to the medical or legal disciplines' knowledge sets (thus explaining these discipline's elevated status), many during the nineteenth century would never have needed the processes or solutions that the accounting discipline offers. They would therefore form their perceptions at a distance (if at all). Those occupational knowledge sets that individuals observe more closely providing perceived or real solutions to their personal or institutional problems may be valued more highly. This proximity or social distance may have affected the accounting knowledge set through a number of possible scenarios.

As 'white collar' employment has expanded in certain social locations one would expect the perceptions of accounting knowledge to change (Daniel, 1983). The rise in commercialised environments means more people come in contact with accounting knowledge (Udy, 1959). Those who control this knowledge are higher within the hierarchies of these organisations. Success within these organisations becomes associated with this knowledge. This knowledge becomes more socially valued as a result.

Perhaps as wealth is redistributed within a society, and an income-based taxation system becomes institutionalised, the knowledge of income measurement becomes more widely valued. As average incomes rise within a community, the surplus between what is earned and what is consumed becomes invested. The opportunities for investment, whether through the ownership of equity in companies or some other forms are again linked with a process of measurement income and wealth. Again, the accountant's knowledge becomes more widely valued.

As the more people within a social location use accounting and perceive it as valuable, the more it becomes institutionalised within the education system. This becomes more pronounced with each generation. As cited early, the demographics of those who were the initial members of the

chartered accounting bodies in Great Britain were all sons of members of the established professions or wealthy landowners. As the early members of the ‘profession’ were second generational members of the upper classes of British society this provided more incentives to further enhance the social value of those within the discipline. To some degree it could be further argued there was a degree of enhanced social value by ‘association’ also occurring.

To fully understand the ‘sociology of accounting knowledge’ there is a need to understand this knowledge in the context of its social setting and the changes that occurred demographically to that setting. This will help more fully define the nature of the disciplinary ‘knowledge’ set and aid in the understanding the process by which both it as a body of knowledge became socially established and the accounting profession gained professional recognition.

A1.9.0. Conclusion

When examining the elevation in the social status of the accounting discipline we assert that it is vital to remember that the change in occupational status probably comes as much from outside a discipline as from within. A profession's status is sanctioned by society as a whole. While research studies may concentrate on the activities of those within the discipline to analyse how their activities facilitated the professional process or how the profession's relationship with those sections of the community with social power conspired to elevate the status of accountants[viii], little attention has been paid to empirically analysing what social, political and economic changes occurred across the general community at the time of British accounting professionalisation. An understanding of these changes may provide a clearer insight into the social perception of the "value" of accounting knowledge and therefore accountants.

The results of the current study presented in Section 1.4.4. (and Appendix 5) indicate that some occupations move up and down what is often referred to as the "occupational continuum" during the nineteenth century (Buckley, 1978). This process may be facilitated by strategies perpetrated within the successful disciplines or with the assistance of other sectors of the community. Ultimately however, the state or the occupational group itself does not control the perceptions of society in relation to that group. Many occupations have adopted the characteristics and strategies of high-status professions and yet only a few have succeeded in gaining public support. So were there any sources of power that were mobilized in the struggle for professional status? Are these common to all professional groups? Without answers to these questions we are forced back to focus on the knowledge set as being the main determinant of professional authority (Johnson, 1980, pps.340-1).

We have provided evidence that the knowledge set appears to be flawed, yet accountants' power and authority grows. For accountants to metaphorically "move up" the professional continuum, simultaneously forming alliances with existing, powerful groups; attracting a socioeconomically

advantaged membership and being included in legislative change, they must, to significant degree, already have established a heightened level of perceived value. The answer to the question of the 'value' of the accounting knowledge set, and therefore the enhanced status of accountants is likely to lie within some future empirical study. The purpose of the current study, in developing a measure of the socioeconomic status of accountants during the formative period in accounting history, is to provide future researchers a means by which it may be possible to locate and identify the demographic, social, economic or financial factors associated with the elevated perception of accounting knowledge.

Endnotes

[i] Although often adopting competing views, Spencer and Durkheim provide a starting point for the study of any occupational group as each author has supplied what has been described as a '*highly abstract macro-theory*' of the transformation and development of society, particularly in terms of the role the division of labour has played in this process (Turner and Hodge, 1985). The division of labour is integral to all social structures and has defining consequences for social consciousness. According to Durkhiem the division of labour is more strongly associated with larger, complex and integrated societies (1893; also see Spencer, 1893). He suggests the greater the '*dynamic density*' of a social system the greater the *'organisational imperative*' for a wider spectrum of occupational groupings (Durkheim, 1893; pps.256-7). Treiman proposes societies with the same level of complexity have the same needs and therefore '*face the same functional imperatives*' and that this explains why there are "*roughly the same compliment of occupational roles found in all complex societies"* (1977, pps.7-8.).
A number of studies explain both the horizontal and vertical division of labour, often suggesting there is a '*functional imperative*' to achieve social and economic efficiency through specialisation and that this creates certain social roles which in turn drive the demand to establish other related roles. 'Occupational stratification' and 'differentiation' are concepts that have been used to define and explain the process by which various vocational groups within complex societies have separated from each other (Parsons, 1951 & 1964; Davis, 1968; Bendix and Lipset, 1966). The work of Caplow has been prominent in the maturation of studies into the 'crytallisation' of occupational difference (1964, also see Abercrombie and Turner, 1978; Goldthorpe, Lockwood, Bechhofer and Platt, 1968; Goode, 1969 & 1969b. With regard income inequality see, Robinson and Kelley, 1979).

[ii] In addition educational institutions facilitate the maintenance of the integrity of a disciplinary group's body of specialized knowledge to ensure that it remains *"ordered, sorted and interpreted within the theoretical position currently shared within the profession*" (Elliott. 1972, p.133).

[iii] For a more comprehensive discussion on the social responsibilities attached to accounting knowledge see Carey, 1965 & 78; Brown, 1975; Abbott, 1983; Boulanger and Wayland, 1985; Gandz, 1988; Windal and Corley, 1980).

[iv] Various studies have attempted to list those attributes most frequently associated with heightened occupational recognition (Greenwood, 1957; Millerson, 1964; Montagna, 1974). The results of these compilations provide a number of characteristics common to all professional groups (Also see, Barber, 1963; Tweedie, 1993).

[v] Matthews' quoting the official history of the nineteenth century accounting firm, *Grace, Darbyshire & Todd*, …'*We threw our net for business wherever we thought it would catch fish, or should I say make money'* (2006, p.503).

[vi] As cited in Section 1.1.0. British accounting techniques (including financial reporting and audit methodology) became almost universally employed in the Anglo-Celtic industrialised world

[vii] See Gambling concluded that profit is basically contractual by nature; that any concept of profit must inevitably be based on some notion or value, which is itself a socially-constructed concept; that profit cannot refer to something existing objectively 'out there': and that profit is essentially a concept created by human consciousness and explicit or implicit collective agreements within society. The concept of profit does have, however, considerable argumentative power and so it is of importance, but the idea that profit can be objectively defined and measured is a myth (1977).

[viii] Critical theories suggest that professionalisation may be achieved through the actions of those within the profession in establishing a heightened perception of accountants and their knowledge set through "*associative strategies*" (Walker, 1988) or what may be termed as "vocational cleansing" through restrictive recruitment policies. However, these criticisms do not successful address several significant issues.

Appendix 2:
Factors associated with the emerging social status of the accounting discipline.

A2.1.0. Introduction

Section 1.3.1. suggested that an important aspect in the process of developing a series of functional socioeconomic scores for the nineteenth-century British accounting discipline is the determination of both appropriate starting and ending points for the study (and thus the overall duration of the study). The section justifies the period from 1821 to 1911 citing two constraining factors. These factors are:

1. The lack of reliable data prior to this period;
2. The contention that the Napoleonic Wars (1803-1815) and the First World War (1914-1918) would provide confounding socioeconomic effects on all data sources including census materials to render their usefulness marginal at best.

The most justification for the use of the period 1821 to 1911 is that these ten decennial observations capture a number of specific socioeconomic events that have been consistently identified as significant to the professionalisation of the accounting discipline. Appendix 2 provides an overview of those events.

Nineteenth-century Britain maybe characterised by a series of systemic social and economic changes (Deane and Cole, 1962; Hill, 1961; Mitchell, 1988). Larson suggests a heightened perception of certain occupations emerged as a result of the '*great transformation*' that occurred during this time in British society (1977, p.6). As a result of these changes, the period often designated the '*British industrial revolution*'[i] has been consistently identified as a significant era in the histories of a number of occupational groups included in this study (Collins, 1990; Treiman, 1970).

Reader suggests this period saw certain technical occupations (such as architecture and engineering) develop a perception of themselves as groups being substantially different from the '*trades*' and began a transitional process that facilitated their '*professional identities*' (1966; also see, Collins, 1979). The elevated social status of these '*technical*' or '*occupational*' professions is said to have been facilitated by the changing division of labour and thus developed simultaneously "*with other major social changes such as industrial development and urban growth*" (Collins, 1990, p.15, also see Elliot, 1972).

A number of studies particularly highlight the causal relationship between the growth in British industrialisation and the emergence of professionalism in

accountancy (See, for example, Stacy, 1954; Wilensky, 1964; Elliott, 1972; Johnson, 1972; Friedson, 1986; Abbott, 1988; Montagna, 1968; Nelson, 1988). During this period the accounting knowledge set is said to have gained heightened levels of social recognition, with managerial and associated commercial roles among those commonly cited as gaining social stature within the context of industrialisation both within the public and private sectors[ii] (Udy, 1959). Hoskin and Maeve, suggest such recognition:

> "*has coincided with the social and technical division of labour within capitalist industrial society where the logics of accumulation, competitiveness, efficiency and accountability have stimulated a demand for ever more sophisticated, standardised, specialised and complex techniques and systems of accounting…… Accounting and accountants are clearly recognised to be the product of particular historical circumstances, including advances in technology and the development of capital intensive means of production owned, and formally controlled, by shareholders*"[iii] (1986, p.562).

Studies often focus on one or more episodes during the nineteenth century where certain events occurred and associate these with the enhanced social status of accountants (Lee and Parker, 1979). An examination of this literature provides the basis upon which it is possible to categories the underlying social and commercial factors that have previously been identified as having significantly contributed to the elevation in the social recognition of the accounting knowledge set and the occupational status of accountants[iv].

A2.2.0. Specific factors identified with the emerging social status of the accounting discipline

The following sections identify the factors that have been consistently associated with the emerging social status of the accounting disciplinary group:

A2.2.1. Capital formation

McCloskey notes that from the beginning of the '*first*' industrial revolution, returns on capital invested in commercial or industrial ventures were significantly higher than those associated with agricultural activities (1981, p.119). Pollard suggests that initially the "*pressure for capital stemmed, to a very large extent indeed, from the need of public utilities, rather than from factories or mines"* (1972, p.161). Gourvish highlights that the initial capital investment in [particularly rail] companies was found "*outside the organised capital markets, by obtaining promises to invest – subscriptions – at public meetings or through advertisement*"[v] and points out that during the first decades of the nineteenth century the London Stock Exchange dealt primarily with Government stocks but by the mid-1830s trading in company securities became its focus[vi] (1980, pps.16-17; Morgan and Thomas, 1962). Crouzet suggested that the (earlier):

> "*eighteenth century capital markets seen through twentieth century eyes, appear badly organised*," but even given such imperfection, "*were* seemingly *overflowing with capital*" (1965, pps.187-188).

Previts and Merino suggest the scale of accumulated of capital created the need to '*account*' and therefore lead to the development of techniques associated with its allocation and management (1979; Also see Levi, 1880). Matthews agrees, and using a model of technological determinism, explains that the demand for large-scale capital accumulation meant investment was sought from a variety of sources and this process was a primary factor in establishing the foundations of the accounting profession in Britain (2006).

Baskin cites Britain's earlier development of financial capital markets as a precursor to the development of financial reporting and eventually the widespread adoption of the external financial audit (1988, p.228). Scott highlights the close relationship between accounting and [in particular] the growth and instability of capital markets (1988). Johnson highlights the support and patronage of the higher socioeconomic sectors of British society that flowed from the relationship between capital and accountants (1972). Donnachie suggests accountants often would:

> "*seek the local agency of one of the Chartered banks, or to become secretary of a private or country bank. This gave them position of significant power within the community over the disbursement of loans and the discounting of bills for local farmers, merchants and business men"* (1977, p.275).

A2.2.2. Corporatisation

Inherent in the accumulation of large amounts of financial capital is the formation and organisation of business structures suitably designed to facilitate its control[vii] (Previts and Merino, 1979). Abbott suggests the emergence and development of '*large organisations*' significantly generated demand for the accounting function and therefore accountants (1988, p.145). For example, Howitt outlines the role of early accounting firm's such as *Josiah Wade* (in the late-eighteenth century) in the establishment of large commercial structures as an example of the emerging relationship between large entities and the developing accounting profession (1966).

Initially the spread of appropriate investment vehicles was restricted by limitations imposed by the 1719 '*Bubble Act*' (for a full discussion see, Littleton and Zimmerman, 1962: Hoskin and Macve, 1986; Maltby, 1999). This Act was repealed in 1825 and as a result the '*post Bubble*' period saw a rapid expansion of the '*joint stock'* company as a form of business organisation in Britain from this period onwards (Previts and Merino, 1979)[viii].

Todd examined a number of aspects of early joint stock companies. He outlines a number of attributes that differentiate them from other business structures of the period (1932, p.46).

The most common types of joint stock companies identified include the following:

- **Unincorporated and unregistered companies:** Todd suggests that the original joint stock companies were simply large partnerships that were unincorporated and unregistered and as a result unrecognised by law (1932). From 1825 such companies were not illegal at common law, although not recognised by it. This meant there "*were abundant opportunities for malversion and fraud*" (Todd, 1932, p.51, quoting Clapham, *Economic History*, p.195). However Todd also acknowledges that from the mid-1700's evidence of the widespread existence of unincorporated companies in the metal trades and textiles sectors is available, even given the existence of the '*Bubble Act*' (1932);

- **Companies incorporated by Royal Charter:** Such joint stock companies were created via a specific Royal Charter. Their charters outlined the [often] broad range of powers granted to them via their incorporation. This included their individual requirements with regard accountability and disclosure of information. Todd cites the '*Russian Company'*, formed in 1553 as being the first defined joint stock company granted Royal Charter (1932);

- **Incorporated by private Acts of Parliament:** From the second half of the sixteenth century companies were sometimes created through special (or private) Acts of Parliament (Todd, 1932). These private Acts outlined the company's powers and responsibilities. As with those firms created via Royal Charter, the Acts often outlined their requirements with regard accountability and disclosure of commercial and financial information;

- **With privileges conferred upon by 'Letters of Patent':** Todd outlines that regulations surrounding companies not incorporated by Royal Charter or private Acts were relaxed (so as to avoid expense and delay). The Crown could confer, by means of letters of patent, the rights associated with joint stock firms (1932);

- **Incorporated by registration under the Companies Acts:** By 1844 the powers of incorporation were granted to all companies who registered under the '*Joint Stock Companies Act*' of that year. Todd suggests this type of company soon became the most significant in terms of numbers and economic significance (1932);

Parker demonstrates how companies formed by either Royal Charter or by special Acts of Parliament, such as railways, public utilities (gas, water, electricity) and financial institutions (banks and insurance companies) represented a significantly large component of the British economy in terms of capital investment, revenue or employment during this time (1990). Parker goes on to highlight that the

accounting and auditing functions (though initially prescribed by either Royal Charter or Parliamentary Acts) associated with these large '*regulated companies*' were extremely influential in changing the perceived value of accounting and accountants for the remainder of the nineteenth century in Britain (1990, p.52; also see, Littleton and Yamey, 1956; Gourvish, 1980; Burchell, Clubb, Hopwood and Hughes, 1980).

The growth in the number and types of commercial entities in concert with their increasing complexity and size has been consistently nominated as the rationale behind the increased demand for the application of the accounting knowledge set and therefore accountants (Lee, 1975; Edwards, 1989; Moore and Gaffikan, 1994; Carey, 1969; Bryer, 1991).

However studies suggest a number of issues eventually confronted the accounting discipline as a result of this rapid expansion of commercial entities. Littleton and Yamey suggest a lack of uniformity in accounting and auditing practice occurred due to numerous companies being created by individual Royal Charters or special Parliamentary Acts (1956). In addition, Todd also highlights two other important issues that were to impact on the emergence of the accounting discipline. Firstly, many '*companies*' during this period had a majority of '*sleeping partners*' who were not actively involved in the activities of the firm and, secondly (with some limitations) shareholders enjoyed an increased ability to transfer their ownership and "*as a consequence.… it was considered that companies should be subject to greater publicity than partnership"*[ix] (1932, p.48). Todd cites how a variety of regulations promoting '*publicity*' were eventually imposed on these firms. These include the periodic publication of a statement as to the company's '*state of affairs*' and the appointment of an auditor (1932).

The expansion of the corporation as a business structure was further promoted in 1855 with the introduction of '*limited liability*' as a contractual right to all shareholders (for a detailed discussion see Barnes and Firman, 2001). Shannon's study confirms the impact of the limited liability system and reveals the significant growth that occurred in corporate registrations subsequent to its introduction[x] (1933) (for full details see Table A2.2.2., compiled by Hussey, 1971).

The subsequent consequence of the growth in the number of corporate structures and the inherent separation of management and ownership created a significant demand for those broad business skills contained in the accounting knowledge set (Lee, 1975; Edwards, 1989; Moore and Gaffikan, 1994; Carey, 1969).

Johnson succinctly presents the view that "*accountancy is the creature of corporate business*" and therefore has followed the *'rise in the joint stock company'* (1980, p.356). As Jones suggests, that by the 1840s to the 1880s '*accountants*' were heavily involved in the formation of corporations, the installation of '*accounting*' systems and the appointment of [initially] the '*shareholder auditor*' (but eventually the '*professional accountant/auditor*')[xi] (1981, p.54). Cottrell cites the example of David Chadwick, (a high profiled public accountant) who was directly involved in the formation of at least forty-seven substantial limited companies between 1862 and 1874 (1984).

Table A2.2.1.: Company registration

Companies registered under the Joint Stock Companies Act (1856) with Limited Liability to 31/03/1858

Connected with employment of money	Old	New	Total	Progressive Total
Connected with public works	4	33	37	
Connected with manufacturing	81	163	244	
Connected with mines, quarries, etc	24	115	139	
Connected with trades	34	148	182	
Connected with building and land	16	80	96	
Connected with Public and commercial buildings	17	52	69	
Connected with shipping	16	44	60	
Connected with publishing and printing	5	19	24	
	206	**682**	**888**	**888**

Period	With share capital	Without share capital	Total	Progressive. Total
1858-1861	-	-	1417	2305
1862- 71	6890	105	6995	9300
1872- 81	11259	362	11621	20921
1882- 91	20463	712	21175	42096
1892-1901	39682	924	40606	82702
1902-11	50536	787	51323	134025

Individual years[xii]	With share capital	Nominal capital	Without share capital	Total
1844	-	-	-	994*
1856	-	-	-	888*
1861	-	-	-	1006*
1871	802	69.5	19	821
1881	1548	210.7	33	1581
1891	2607	134.2	79	2686
1901	3365	144.7	68	3433
1911	6378	157.3	66	6444

No breakdown of company type available prior to 1862
Source: Hussey, (1971, Annexure A, Table 1.)

A2.2.3. Regulated companies: Railway Companies

Gourvish suggests, of the '*regulated companies*'[xiii], the railways were Britain's largest businesses in the nineteenth century with *"their assets far exceeding those of companies in the extractive and manufacturing sectors"* (1973, pps.290-92). Edwards highlights that the railways were the first truly publicly funded businesses trading on the London Stock Exchange (1986, p.252). McCartney and Arnold point to the railways being able to obtain limited liability through application to the Crown or Parliament [prior to 1855] as a major advantage in their ability to attract finance and emerge as the *'key engine of growth in the British economy'* (2002). Hawke and Reed provide a detailed analysis of the magnitude and growth in investments in British Railway companies for the nineteenth century (both in term of share capital and debentures (1969) [see Table A2.2.3.].

Gourvish demonstrates that the railways:

> "*led the way in developing relatively advanced techniques in business management, making progress in the fields of accounting, costing, pricing, marketing and statistics*"[xiv] (1973, pps.290-92).

McCartney and Arnold in their investigation of financial reporting note the impact of railway companies "*has been seen as an important aspect of the evolution of accounting practices more generally"* citing a number of influential studies[xv] (2002, pps.402-03). Hatfield suggests managers of railway companies (and other regulated corporations) published the firm's capital account, showing the public how capital raised by the venture had been invested (1909, p.48). Edwards outlines how the early private statutes governing railway companies contained "*explicit instructions concerning the capital raised from investors*" [citing the 1801 Act that authorised the construction of the '*Croydon to Wandsworth*' line by the *Surrey Iron Railway* as a very early example]. He highlights that these Acts necessitated the reporting of capital raised and expended in the construction of plant and equipment as a means of discharging the management's stewardship function (particularly with regard the payments of dividends) (1985, p.21).

Edwards suggests that although the private statutes of early railway companies contained few if any references to financial reporting "*until the late 1840s the vast*

majority of railway companies published a capital account and a revenue account, prepared on a cash basis" (but no balance sheet). He highlights that statutes consistently included the requirement to keep "*true and regular accounts of all sums of money received and expended for or on account of the said undertaking"* (1985, pps.23-24). Edwards observes that some railway companies had begun to publish general balance sheets by the late 1840s[xvi] (1985, p.35).

While a general lack of uniformity of accounting and auditing practice may be observed across the numerous railway companies, Hill suggests the later private 'Acts' appeared more cognizant of the information needs of investors, citing the example of the *'Great Western Railway'* Act (1835) and its requirement for half-yearly financial reporting (1979). By the 1840s these private 'Acts' began to be consolidated under broad commercial law and more extensive accounting provisions were introduced (discussed in a later section of this appendix).

The twenty-year period (from the late 1840s to the introduction of the general '*Railways Companies Act*' of 1867) was characterised by a number of proposed disclosure and audit bills that were opposed by various stakeholders. Jones, notes, for the professionalisation of accountants, firms such as *Quilter, Ball & Co*., *Coleman, Turquand & Young* and *William Deloitte* were called to assist in the development of this regulatory framework in a variety of capacities (1981, p.35). Brown highlights the opportunities the subsequent 'Railways Acts' provided for professional accountants (1905, pps.314-333).

Cornwell provides early evidence of the specific impact on accountancy of the railways[xvii] in his commentary on the practice of *Robert Fletcher* from 1826 until 1845 (1993, pps.159-160). Kettle provides a further example, by relating the growth in railways to the success of *William Welch Deloitte's* emerging audit practice (1957; also see, Matthews, 2006). Jones highlights the continued growth in railways to the growth in a number of accounting firm's (citing in particular, '*Quilter, Ball & Co, Coleman and Jordan*') (1981). By 1868 the British Parliament imposed extensive disclosure regulations on railway companies through the *Regulation of Railways Act* (1868) and similar requirements were imposed on a variety of public utilities and many financial institutions[xviii] (Taylor, 1972).

Table A2.2.3.: English Railways Investment			
Year	**Share capital**	**Loans & Debentures**	**Total**
1811	-	-	-
1825	133	65	197
1831	2,847	565	2,412
1841	36,846	18,474	55,320
1851	188,710	58,578	247,288
1861	275,172	87,144	362,316
1871	403,291	149,378	552,669
1881	560,006	184,081	744,087
1891	670,257	236,161	906,418
1901	871,486	308,608	1,180,094
1911	958,834	348,114	1,306,948
Hawke and Reed, (1969, pps.269-286).			

A2.2.4. General commercial regulation

Most historians note a significant increase in all forms of social, economic legislation during the nineteenth century (for example, Deane and Cole, 1962). A number of studies have attempted to contextualise the development of this legislation within the political, social and cultural environment of nineteenth-century Britain[xix] (for example, Jones and Aiken, 1995; Parker, 1990). Often described as *'laissez-faire'*, it was often intended to extend the field of individual liberty, particularly legislation which radically freed up the laws governing the commercial activities (Gower, 1969; Edey, 1956; Edey and Panitpakdi, 1956). The enactment of *'laissez-faire'* commercial regulation is often specifically cited as having provided the favourable environment needed for the gestation of the British accounting profession and the organisations that represented its members (Brown, 1905; Carr-Saunders and Wilson, 1933; Burchell, Clubb, Hopwood and Hughes, 1980; Briston and Kedslie, 1987; Littleton, 1956; Lee, 1990). Table A2.2.4 [based on Nobes, and Parker (1979) and Parker, (1990)] provides a chronological overview of those Acts cited as being of significant influence on the accounting discipline.

Although Walker warns against the tendency of accounting histories to overly focus on the identifiable economic and legislative development, numerous studies have examined the impact of successive Companies Acts[xx] upon the perceived social value of accounting (1993, pps.128-129; note also, Hunt, 1936; Goldberg, 1949; Crouch, 1967; Hobsbawm, 1957 & 1960; Taylor, 1972; Edey and Panitpakdi, 1956; Littleton and Zimmerman, 1962; Lee, 1975; Chatfield, 1977).

These studies suggest that 1840s were of particular significance to accountants as this decade marks the introduction of incorporation by a formal process established through commercial regulation (Jones, 1981). In 1841 the *Joint Stock Companies Select (Gladstone) Committee* was appointed to consider the content and nature of the regulation that was to govern all companies[xxi]. The committee found significant support for the public disclosure of financial information by companies and as a result the British act (*'An Act for the Registration, Incorporation, and Regulation of Joint Stock Companies'* – 1944, subsequently consolidated in 1845) included the mandatory provision of financial statements and the requirement to keep '*proper books of account*' (BPP 1844, p.64, cited in Jones, 1981).

Section 38 of the 1844 Act also provided for the appointment of '*one or more auditors of the accounts of the company'* and in Sections 39 and 40, the Act briefly outlined the duties and the rights (and reports) associated with the audit function. These included the '*right and power to examine the books of account*' and to '*demand assistance of such officers and servants of the company*' (for a more comprehensive discussion see, Edey and Panitpakdi, 1962).

However the Act failed to provide a definition of whom an auditor could be nor did it require the auditor to be trained or in any way qualified[xxii]. While the Act did not require the auditor to be a '*professionally qualified*' accountant it is frequently cited as a factor in the empowerment of the accounting discipline (see for more comprehensive discussions, Hein, 1963; Littleton and Zimmerman, 1962; Lee, 1975).

The 1855 and 1856 *'Joint Stock Companies'* Act revoked the mandatory disclosure and auditing provisions introduced in 1844 but maintained voluntary reporting and auditing provisions. The later legislation contained a model '*articles of association*' and a more detailed approach to the [voluntary] balance sheet. The omission of mandatory accounting and auditing are again said to have further impacted upon the status of accounting and by implication the status of accountants (Lee, 1976). Littleton and Yamey suggest however the most significant change to the accounting discipline to emerge from this period was the omission of the requirement that a company's books be kept in the double entry form (1956).

However, the 1855 Joint Stock Companies' Act introduced the fundamental concept of 'limited liability' as a contractual right to all shareholders. As cited earlier, Barnes and Firman, suggest that the concept of limited liability gained great popularity and is said to have simultaneously increased the number of firms and the demand for '*responsible auditors*', therefore reflecting the perceived importance of the audit function (2001, pps.143-146). Hein notes that the non-compulsory '*model regulations*' (introduced simultaneously with the doctrine of limited liability) provided the:

> "*novel concept that the auditor need not be a shareholder in the company*"
> [and included the clause] "*that the auditor…. at the expense of the company, employ an accountant or other persons to assist him in*

investigating such accounts", [thus opening] *"the way for the position to be filled by a professional accountant*" (1963, pps.509-10).

Many historians cite the consolidation of these changes into legislation as being a principal influence on the development and establishment of the accounting discipline for an extended period (Hunt, 1936, Crouch, 1967; Hobsbawm, 1975; Taylor, 1972). Carr-Saunders and Wilson particularly highlight the role of the Companies legislation being central to the *"emergence of the professional accountant in independent practice"* (1933, p.210; also see Walker 2004; Boys, 1994).

The period culminates when the *Companies* Act (1879) was passed making financial disclosure and an annual audit compulsory for all banking companies incorporated with limited liability. Hein notes that this Act "*required the auditor to sign every balance sheet submitted to the annual or other meeting of the members of the company".* However attempts to reintroduce compulsory auditing and reporting requirements for all joint stock companies were again omitted (1963, p.515). Brown suggests a consequence of the discipline's desire to influence this legislation was the formation of the representative accounting bodies (1905; see also, Briston and Kedslie, 1987; Burchell et al.; 1980; Hines, 1989).

In the 1890s the *Davey Committee on Company Law Amendment* (1895) and the *Select Committee on the Companies Bill* (1896-1898) recommended reforms to the auditing and financial disclosure of commercial and industrial companies. Although initially rejected as radical, these recommendations were incorporated into later *Companies Acts. Companies Act* (1900) required that all companies file an audited balance sheet with the public registrar (Jones, 1981). Lee highlights that while containing no specific clause actually setting out what information was to be disclosed, the nature of disclosure was inferred by the Act's requirement that the auditors sign a certificate at the foot of the balance sheet (thereby indirectly requiring the preparation of a balance sheet). Thus this Act affectively reinstated the legal status of this financial statement (1979, pps.23-24).

The situation further developed in 1907, with the passing of yet another Companies Act that for the first time differentiated public and private companies and required public companies to file an annual balance sheet containing:

> "*a summary of its capital, its liabilities, and its assets, giving such particulars as will disclose the general nature of such liabilities and assets, and how the values of fixed assets have been arrived at*" (Nobes and Parker, 1979).

The *Company Law Amendment Committee* looking at reforms to the Companies Act 1907 received a number of submissions from interested parties throughout Britain calling for further accounting reforms and the inclusion of public accountants in the auditor's role, including the nature of their appointment, tenure and remuneration. The 1907 Companies Act, (which was to later consolidated into the 1908 Companies Act) remained a principle influence on the practice of accounting and the audit function for over twenty years (Hein, 1963).

Table A2.2.4.: Corporate Regulatory Events				
Period	**Year**	**Parliamentary**	**General**	**Comment**
1811 - 1820				
1821 - 1830	**1825**		Repeal of Bubble Act	Repealed limitations on formation of companies, emergence of Joint Stock Banking by large unlimited companies
	1833	Municipal Corporations Act		Introduced basic audit accounts provisions for municipal corporations
1831 - 1840	**1833**	London to Birmingham Railway Act		Required company's account books to be open to inspection at all reasonable times to creditors, Half yearly reports for proprietors
	1833	Bank Charter Act		Required Bank of England (then Private) to disclose weekly totals of bullion / securities / notes in circulation and deposits with other banks
	1835	Great Western Railway Act		Required half yearly financial statements to be presented to shareholders at general meeting
	1836	Parliamentary Secret Committee on Joint Stock Banks		Formed to investigate the activities of joint stock banks, report acted upon in 1844 Joint Stock Banking Act
	1837	Runcorn Gas Company Act		Required company's account books to be open to inspection at 'all reasonable times' to creditors,
	1839	Durham Railways Act		Required company's account books to be open to inspection at 'all reasonable times' to creditors, Half yearly reports for proprietors and report sent to Clerk of the Peace of the County Durham
	1841		Select Committee on Joint Stock Companies	(Developed report for 1841-1844)
	1842			Required company's account books to be open to inspection at 'all reasonable times' to creditors, Half yearly balanced reports, plus a balance sheet 14 days previous to each half-yearly meeting for proprietors and Annual report sent to Clerk of the Peace of the County Surrey
1841 - 1850	**1844**		Joint Stock Companies Act	First time incorporation by regulation, unlimited liability; Full and fair' balance sheet to be prepared (but contents not specified). Auditors to be appointed but does not specify accountants
	1844	Joint Stock Banking Act		Supply shareholders Balance sheet, (few banks formed)
	1845	Companies Clauses Consolidation Act		Gave rights of inspection of accounts to all shareholders and creditors/mortgage and bond holders, preparation of balance sheet preceding the half yearly meeting
	1845	Railway Clauses Consolidation Act		Required annual Accounts of receipts and expenditures to municipal officers
	1847	Gas Works Clauses Act; Gas Works Clauses Act		Individual provisions governing company
	1849	Report of the Select Committee on Audit of Railway Accounts		Report on railway manias and suggest number of disclosure issues uniformity of accounts on a specific model
1851 - 1860	**1855**		Joint Stock Companies Act	Introduces general registration with limited liability
	1856		Joint Stock Companies Act	Replaces 1844 and 1855 Acts. Compulsory accounting requirement abandoned. Model accounting clauses more advanced but optional.
	1857	Repealed Joint Stock Banking Act		
1861 - 1870	**1862**		Companies Act	Principal Act until 1908
	1867	Railways Companies Act		Implied the need for annual audit (see section 30 of Act.
	1868	Regulation of Railways Act		Provides for publication detailed accounting statements, Revenue account, Balance sheet in prescribed form and 'double entry is compulsory'
	1870	Life Assurance Companies Act		Make available detailed accounting statements, Revenue account, Balance sheet in prescribed form and 'double entry is compulsory'

1871 - 1880	**1871**	Gas Works Clauses Act		Make available detailed accounting statements, Revenue account, Balance sheet in prescribed form
	1874	Building and Friendly Societies Act		One of largest Royal commissions (beginning in 1871) brought together to investigate financial activities of B&F Societies. Result More tightly controlled disclosure and audit provisions
	1877		Select Committee on Company Law Amendments	All gas, water and electricity companies were required to disclose financial statements
	1879	Companies Act Amendment (Banking)		Compulsory annual audit for all banking companies with limited liability
1881 - 1890	**1882**	Electric lighting Act		Make available detailed accounting statements, Revenue account, Balance sheet in prescribed form
1891 - 1900	**1895**		Report of Davey Company Law Amendment Committee	Radical recommendations regarding disclosure, rejected
	1900		Companies Act amendment (Auditing)	Annual audit made obligatory for all registered companies
1901 - 1910	**1906**		Report of the Loreburn Company Law Amendment Committee	
	1907		Companies Act	Distinguishes between private and public companies, with public to file prescribed balance sheet
	1908		Companies Act	Consolidated companies legislation (principle Act for the next 21 years)
	1911	Railway Companies (Accounts and Returns) Act		

Nobes, C. and Parker, R.H., Chronology: The Development of Company Financial Reporting in Great Britain 1844-1977), in Lee and Parker, (1979), *Evolution of Corporate Financial Reporting,* Thomas Nelson and Sons, Ltd.
Parker, R.H., (1990), Regulating British Corporate Financial Reporting in the late Nineteenth Century, *Accounting, Business and Financial History*, Vol.1, No.1, pps.51-71.
Morris, R.D., (1993), Distributable Profit in the Nineteenth-Century British Regulated Industries, *Accounting Business and Financial History*, Vol 3, No.2, pps.165-195.
Hunt, B.C., (1936), *Development of the Business Corporation in England: 1800-1867*, Massachusetts: Harvard University Press.

A2.2.5. Liquidations, crisis and manias

Willmott suggests that formal organisation of the profession was as a direct result of a series of scandals, crisis and manias[xxiii] , some of which had brought "*accountancy in to serious disrepute*"[xxiv] (1986, p.566). Palgrave identifies and describes a number of nineteenth-century commercial crises as being of major social and economic significance (1984).

Financial institutions

The first of these was the commercial and banking crises of 1825. Palgrave describing it as the most severe the British had ever experienced, suggesting that:

> "*at this date speculation ran very high, for the most part in loans and mining adventures, and other investments abroad*[xxv]*. The foreign exchange was so much depressed as to cause nearly a continuous drain on the bullion of the bank. Many and heavy banking failures, and a state of commercial discredit, preceded and formed the earlier stage of the panic. The tendency to speculate, the undue extension of credit, was preceded, probably caused and certainly favoured and promoted, by low rates of interest which had existed for some time previously; and this low rate of interest was prolonged by the operations of the Bank of England"* (1984, p.457).

Cornwell quotes historian Latimer:

> *"The early months of 1825 were memorable for speculative mania as unreasoning and widespread as that which seized the nation during the South Sea frenzy in the previous century….. the Bank of England… increased its issue of paper money in which course it followed with greater recklessness by provincial bankers, who in a few months…..doubles the circulation of their notes …. In the inevitable collapse which followed… about 70 country banks became insolvent within a few months"* (1993, p.159).

Railways

Secondly, Palgrave describes a massive decline in the value of railway shares between 1845 and 1848 following a period of speculation in British infrastructure driven by the promise of high dividends, low interest rates and the enormous extension of credit[xxvi] (1984). Edwards canvases fully the inherent problems that resulted from the railway sectors' widespread usage of cash, rather than accrual accounting in the first half of the century and highlights how the practice was used to inflate profitability and therefore dividend payments (1985). McCartney and Arnold suggest railway companies' management seeking "*new and inventive*" financing techniques in combination with "*amateur shareholder auditors*" resulted in a loss of confidence in the sector (reflected by a significant fall in share price) in the later years of the 1840s. The result being the temporary introduction of balance sheets and attempts to introduce more effective audit practices (2003).

Edwards points to the *London and Birmingham Railway*[xxvii], [and subsequently the *London and North Western Railway*] as providing leadership in developing a more comprehensive approach to the communication of financial information to shareholders and the general public via the provision of a "*single coherent package comprising a variety of accounting statements*" in an attempt to alleviate anxious shareholders (1985, p.34). The company over the next decade progressively increased the detail of its financial documentation. However, Edwards cites commentary from the *Monteagle Committee*, of 1849, (which was formed by the British Government to consider whether existing *Railway Acts* required amendment so as to provide a more effectual audit of accounts), which stresses that this company was unique in terms of its reporting during this period (1985). It is suggested that the proposal made by the *Monteagle Committee* for a statutory audit regime eventually lead to significant reform by the late 1860s. In 1868 the British Parliament imposed extensive disclosure regulations on railways through the *Regulation of Railways Act* (1868) (McCartney and Arnold, 2003).

Jones highlights the relationship between the continued growth in railways and the growth in a number of accounting firms, specifically citing their increasing focus on the detection of railway fraud (citing, *Quilter, Ball & Co*; *Coleman* and *Jordan* as examples) (1981). Matthews highlights the role *Quilter, Ball & Co* played in the '*unravelling of fraud*' within a number of railway companies during this period and the

role *William Deloitte* plays in "*sorting out the chaotic accounting"* in numerous other railway companies during this period (2006, p.524).

Financial Institutions

Thirdly, the 1866 failure of a number banking firms that began with the demise of *Overend Gurney and Co*. Formed as the result of a merger between two existing firms[xxviii] *Overend Gurney and Co*. had grown into one of the largest entities in Britain by the mid-nineteenth century and was subsequently floated during the stock market boom of 1865. Its balance sheet revealed it to be ten times the size of the next largest bank with an annual turnover of '*bills of exchange*' equal in value to about fifty percent of the country's debt. From mid-1865 to the beginning of 1866 interest rates had risen substantially and as a result a large number of firms failed. *Overend Gurney and Co*. was then itself declared insolvent.

Edwards cites the firm's exposure to railway companies, who began defaulting on loans made on misleading accounts as the reason most often cited as the underlying cause of *Overend Gurney and Co*.'s difficulties (1985). Barnes and Firman propose public confidence was severely affected [as a result the '*Bank Charter Act*' was suspended] and that:

> *"economic historians usually point to the collapse of Overend, Gurney and Co. Ltd as a significant landmark in the development* [of the limited liability corporation, going on to suggest that] …*the collapse of this important company, as a result of a fraudulent prospectus…. marked a temporary pause in the explosion of founding new limited companies… also bring a reversal* (albeit temporary) *in terms of public opinion towards them"* (2001, pps.143-45).

They go on to point out that it is:

> "*not possible to tell from aggregated statistical studies alone whether, and to what extent, incompetence or unprofitable speculation or fraud contributed to company failure"* (2001, pps.143-45).

The *City of Glasgow Bank* failure followed in 1878[xxix] and in 1890 the highly reputed '*Barings Bank*' was brought down when the Argentinean Government failed to meet its interest obligations to the bank (French, 1977). In late 1890 Baring Bank representatives revealed the magnitude of the problem to the *Bank of England*. Barings, then facing default, were eventually liquidated and refloated as a limited company.

Shannon highlights the commentary provided by an author of the '*Report on the Stock Exchange'* (1877):

> "*who thought a 'crop of fools' every ten years* [as] *a natural phenomenon was* [being] *too optimistic, the crop was more often annual. When however, we remember their occasional 'premium hunting[xxx]' our sympathy must wane"* (1933, pps.303-07).

He then briefly summarises a chronology of manias:

> *"In 1860 and 1861 cotton companies were effectively forming at the rate of one a week but the movement stopped dead with the cotton famine. With 1863-65 came the well known general mania, centring round companies of financing, banking insurance and hotel to end on Black Friday, 1866….Another crop came to harvest with the first mining boom …1871…before this boom was decently interred, the rise in coal and iron prices set going ….The cotton industry became as active as iron and coal slackened…Land and building companies accompanied a general boom as they had in 1863-65. But as from coal and cotton the fancy turned to ice and coffee (In 1876, 29 ice rinks were floated and another 21 attempted to float but were aborted) as this faded, coffee taverns and hotels came in.. The fall of the Glasgow Bank caused a lull. But three more 'outburst' final remain to be noted, overseas mines and lands (1880-1883), electricity companies (1882) and single ship companies from 1883* (1933, pps.303-07).

The preceding paragraphs highlight that throughout the nineteenth century there were periods of dramatic business failures. Clapham's '*Economic History*', cited by Todd states that while no reliable figures exist prior to 1844, anecdotal evidence indicates that virtually every joint stock company formed for the purpose of

trading (or other commercial function) had lost monies and were subject to total losses that required subscribers (unprotected by limited liability) to provide considerable sums in their winding up, in excess of what they provided as initial capital (1932). He states "*the data for 1840 suggests that at that date companies were generally of the most hazardous nature*" (1932, p.61). He goes on to suggest that by the mid-1860s less than 50% of companies had been in existence for more than six years.

Todd also notes that British companies of the nineteenth century tended to continue to trade longer once they stated to make losses than do modern companies and that this meant most failed companies that went into liquidation had huge liabilities and were "*utterly ruined*" (1932, p.61). He suggests this was caused by a number of factors but it was often so as to postpone the heavy costs of winding up for as long as possible. [See Table A2.2.5. for the existing data on the survival of companies registered in London with liability limited by shares provided by Phelps Brown, 1936].

Weiss outlines the commercial and social damage caused by the prevalence of bankruptcies the issue of bankruptcy describing it as being '*the hell of the English*' highlighting the severity it was to have on the country's middle-class in terms of its socio-economic impact (1986; also see DiMartino, 2002). Markham-Lester provides evidence that the middle-class of Victorian England by the 1860's was so affected the issue of bankruptcy became the focus of Government, regulators and other policy makers[xxxi] (1995, pps.155-60). Walker highlights Markham Lester's (1995) suggestion that:

> *"Between 1817 and 1883, three Royal commissions, at least ten parliamentary select committees, and one special Lord Chancellor's committee, studied the problem of bankruptcy and recommended remedial measures. The eighty year period between 1831 and 1914…saw the introduction of almost one hundred bankruptcy bills in parliament. Nearly third became law[xxxii]"* (2004, p.137).

As a result, the legislative framework created during this period further provided a favourable environment for the emergence of the British accounting profession (Burchell, Clubb, Hopwood and Hughes, 1980; Briston and Kedslie, 1986; Lee,

1990; Anderson and Cottrell, 1974; Bagehot, 1873). Deane cites the rise in bankruptcies as driving demand for those with expertise in the '*winding up*' of firms (1962). Jones documents how the fees of early accounting firms, for much of this period reflected the state and health of the British economy, suggesting "*accountants did particularly well in times of financial disaster and depression….they were the rich undertakers of the economic world"* (1981, p.45; also see, Stacy, 1954; Parker, 1986; Kedslie, 1990).

Markham Lester while highlighting the preoccupation of Victorian England had with insolvency suggests this history of British financial crisis was central to organisation of the accounting discipline (1995, pps.1-6, also see Marriner, 1980). Robinson notes that accounting was *"born through bankruptcy, fed on failures and fraud, grew on liquidations and graduated through audits"* (1964, p.30).

Duffy suggests a fundamental step in the beginning of this evolutionary period occurred in 1825 when the '*Deed of arrangement*' came into existence (1985). These private agreements between debtors and creditors evolved significantly over the century and became a fundamental element of bankruptcy procedure[xxxiii]. Walker succinctly describes the changes in the British bankruptcy legislation from 1831 to 1860, suggesting the period maybe characterised by '*officialism*', where the Lord Chancellor appointed '*salaried commissioners'* and *'official assignees'* who were vested with comprehensive powers in the judicial administration of bankruptcies and the management and distribution of bankruptcy estates (2004, pps.137-39).

Of particular benefit to the accounting discipline was the 1831 *Bankruptcy Act* (which simultaneously created the position of '*official assignee*' and the '*Bankruptcy Court'*) and is said to provide the first official acknowledgement of accountants by the state (Edwards, 2001). Markham Lester cites evidence of this, citing "*officials of the Courts of Bankruptcy ……were chosen from among merchants, brokers and accountants*" (1995, p.123). Napier and Noke suggest the specific identification of accountants as potential '*official assignees*' by the 1831 Act provided a significant impetus for the discipline in England and Wales (1992). *Official assignees* were compensated relative to the amount of assets they were able to realise. Jones suggests the appointment of a public accountant became a virtually a necessity and represents the growing recognition of the role accountants could play in such matters (1981).

Bankruptcy Act of 1861 (effectively merged the areas of insolvency and bankruptcy after many years of legislative changes) and *Prevention of Frauds Act* of 1857 (which made it an offence for companies to falsify their accounts) are said to have again significantly impacted on the practice of accounting (see, for example, Goldberg, 1949). Markham Lester points to criticisms of the high expenses associated with the earlier system created by the 1831 Act and outlines the changes made by the 1861 Act (with regard greater emphasis on a '*creditor appointed*' rather than '*official assignee'*. He nominates the maintenance of the powers of inspection, supervision and (importantly) audit, as being of fundamental importance to the increasing social status of accountants (1995, p.123). Walker continues, outlining the machinations that occurred during the 1860s prior to the introduction of the bill and cites evidence that from as early as the 1850s accountants were frequently and successfully engaged under voluntary schemes of insolvency (2004, pps.134-35). Brown suggests that it was these Acts that became known as the '*accountant's friend*', as both were enormously influential on the formation of the representative accounting bodies (1905, p.318).

The 1869 *Bankruptcy Act* eventually abolished '*official assignees'* and replaced them with creditor elected trustees. Walker cites a number of contemporary references to accountants as the obvious choice for the role of the trustee at the expense of legal practitioners (2004, p.134). Walker goes on to suggested the 1869 Bankruptcy Act was perceived as having offered a wealth of opportunities for English accountants, citing numerous references to the recommended appointments of "*competent, professional……respected accountants"* and calls for the establishment of *"faculties of chartered accountants as existed in Scotland"* (2004, p.139). Carr-Saunders and Wilson specifically identify the 1869 Bankruptcy Act as being central to the *"emergence of the professional accountant in independent practice"* (1933, p.210; also see Boys, 1994).

Boys cites the Bankruptcy Act (1869) as the catalyst for the formation of the organisation of the accounting discipline in England and Wales (1994). Walker also argues that an understanding of the nature of accounting organisations can be developed from an understanding of the bankruptcy and insolvency legislation. (He cites the imposition in England of the Scottish system of Bankruptcy, '*administration by trustees*' through the 1869 Act and specifically states the 1870 organisation of accounting in England directly stemmed from a:

> "*need to protect their occupational status and gain socio-economic advantage over the expected influx of unqualified applicants for trusteeships following the introduction of the Scottish system"* (2004, p.304).

Briston and Kedslie agree suggesting that "*change in bankruptcy legislation ... prompted the formation, first of the Edinburgh society and then the Glasgow society*" (1987, p.124) and Burchell et al., similarly put forward the view that the accounting bodies of England and Wales had:

> "*been created by successive Companies and Bankruptcy Acts and legislation which provided for the regulation of sectors such as railways, building societies and municipal utilities*" (1980, p.7).

As Hines says:

> *"it was necessary to create a social definition and identity of those whose work was to be influenced by the legislature and to ensure that the rights to that work were protected and advanced"* (1989, p.78).

Mitchell highlights the decline in bankruptcies and corporate failures that occurred during the 1870-80s (1988). Howitt explains the Bankruptcy Act of 1883 placed the insolvent estate under the Board of Trade and created the:

> *"official receiver…* [which was to introduce] … *a new element … 'the public examination"…* [where] *"creditor and the court could question the debtor on the state of his affairs and the causes of bankruptcy with the debtor under oath"…*[this was said to assure a double check on any evidence gathered by the 'official receiver*] "who also attended the public examination"* (1966, pps.15-18).

The 1883 law *(with subsequent amendments in 1890, 1913, 1914 and eventually 1926) would constitute the foundations of British bankruptcy legislation until the mid 1980s.* Howitt suggests the decision as to who would fill the '*official*

receiver role' was quite contentious and that it was often argued between a lawyer and a Chartered accountant (1966). Shannon quotes the *Statist* from 1879:

> "*the winding up of joint-stock companies – a branch of insolvent business of increasing extent and unfortunately of increasing notoriety for scandals and failing justice. …these days, 'when presenting wrecking petitions' is almost becoming a branch of business with a certain class of legal practitioners'….. a judge casually remarked that in 1876 that he had the 'usual contest' in his chambers as to who should be the official liquidator*" (1933, p.297).

Table A2.2.5.: Survival of companies registered in London with Liability Limited by Shares

Year	A. Companies formed 1856-65 and existing in 1865: remainder existing at given date		B. Companies formed 1866-74 and existing in 1874: remainder existing at given date		B. Companies formed 1875-83 and existing in 1874: remainder existing at given date		B. Companies formed and existing in 1880: remainder existing at given date
	Industrial	General	Industrial	General	Industrial	General	
1865	579	1134					
1871	339	632					
1877	266	438	900	1214			
1880	238	385	670	916			780
1883	209	346	557	733	954	2001	
1885							456
1886	178	329	473	604	763	1501	
1890							333
1892	148	259	364	467	534	1004	
1895	138	241	335	409	468	861	274
1898	117	214	299	361	387	745	
1900							233
1901	102	198	274	325	333	664	
1907	86	173	248	277	265	551	
1910	84	165	244	264	244	509	173
1913	83	157	235	250	232	469	

Source: Phelps Brown, (1936, pps.310-23, Table 23.

A2.2.6. Auditing

While Watts and Zimmerman have identified the existence of audit reports dating back to the merchant guilds of the sixteenth century there appears little evidence of the consistent or widespread practice of auditing in the first seventy-five years of the nineteenth-century in Britain (1983). Although a short-lived formal requirement of the *Joint Stock Companies Act* (1844) the widespread adoption of auditing did not really commence until the later periods of the century.

Parker highlights the lack of any reference to the process of auditing in the application for Royal Charters in either of the two Scottish societies in the events surrounding their formation during the 1850s (1986, p.17). Similarly, Napier and Noke cite the late inclusion of auditing in the documentation regarding the constitution of the ICAEW in 1880 as evidence of its lack of centrality to the discipline for the majority of the nineteenth century (1992, p.36).

Littleton suggests that even as late as 1875:

> "*most audits were inadequate and amateurish* [really about] …*ascertaining that some voucher could be produced for every payment and the printed balance sheet corresponded with the balances in the ledger"* (1933, p.290)

and that most audits were conducted by individuals with little or no training. Parker, however warns against the assumptions made by many contemporary writers on auditing:

> "*who give the impression that there was a clear distinction between the amateur auditor and the professional* [suggesting] *that many accountants combined accountancy with other occupations which today are no longer regarded as within the jurisdiction of"* [the accounting discipline][xxxiv] (2004, p.78).

Edwards, Edwards and Matthews quote Ernest Cooper and Frederick Whinney, both of whom confirmed the use of professional accountants was uncommon during the majority of the nineteenth century. However they go on to highlight the enormous growth in the audit function in the last quarter of the century

(1997, pps.6-16). Parker uses fee structures obtained from accounting firm histories to examine the growing proportion of work provided by auditing (and the declining amounts attributed to liquidation work) so as to obtain insight into the changing nature of the accounting firms and the work of accountants (1986, p.22). Cooper Bros in outlining the nature of the early business confirms the positive influence of the 1869 Bankruptcy Act but suggests it declined after the 1883 Act, and that audit work began to emerge with the enactment of the 1862 and 1879 Bank audit Acts (1921, p.4). However even in the later periods of the nineteenth century Parker (1986) highlights that while audit provided a substantial component of the earnings of an accounting firm, liquidation and bankruptcy fees were still quite significant (also see Jones, 1981; Parker, 1986; Cornwell, 1993).

Jones' history of '*Ernst and Whinney'* confirms that audit work appears to have been only a small contributor to the earnings of accountants until the 1890s and indicates that even during this earlier period auditing seems to have often included the compilation of financial statements, the general detection of fraud and other general accounting work. His study highlights the progression of accountants into auditing in the late nineteenth century[xxxv] (1981, pps.50-52; also see Edwards 1989). Brief suggest the last two decades of the nineteenth century was '*the golden age of auditing'* (1954, p.296).

Edwards, Edwards and Matthews comprehensively examine the role of the 'professional' auditor in 1886 (1997). Chandler and Edwards cite the '*plentiful*' incidences of litigation based on claims of negligence that commenced in the 1890s against '*professional auditors*' as distinct from the earlier '*amateur shareholder'* auditors (1996)[xxxvi] . They go on to document the late nineteenth-century debates regarding the role and scope of the auditor, auditor independence and the nature of the audit report (1996, p.7). The following Tables A2.2.6a., A2.2.6b. and A2.2.6c. provide some specific examples of the changing nature of the work undertaken by accounting firms during the nineteenth century (Jones, 1981; Cornwell, 1993).

Table A2.2.6a.: The percentage composition and total fee income (000 pounds)						
	Time (days)			**Fees (pounds)**		
	1821	**1828**	**Increase / decrease**	**1821**	**1828**	**Increase / decrease**
Accounting / agency	179	796	617	305	795	490
Executorships / trusteeship	101	471	370	225	472	247
Total general	280	1267	987	530	1267	737
Insolvency	571	202	(369)	680	156	(524)
Total	851	1469	618	1210	1423	213
Source: Cornwell, (1993, pps.155-164, Table 4,).						

Table A2.2.6b.: Annual movement in classification of new clients by type of work					
	Accountancy	**Executorships**	**Total general**	**Insolvency**	**Total**
1829	19	2	21	1	22
1830	14	9	23	5	28
1831	16	7	23	3	26
1832	9	9	18	5	23
1833	7	6	13	3	16
1834	13	4	17	1	18
1835	4	2	6	3	9
1836	11	3	14	0	14
1837	11	7	18	1	19
1838	5	7	12	3	15
Source: Cornwell, (1993, pps.155-164, Table 4,).					

Table A2.2.6c.: The percentage composition and total fee income (000 pounds)												
Year	**Insolvency**		**Accounting**		**Auditing**		**Trustee & Executorships**		**Special /other work**		**Total**	
1811	**P**	%	**P**	%	**P**	%	**P**	%	**P**	%	**P**	%
1821	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	100
1831	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	100
1841	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	N/A	**N/A**	100
1851 (1853)	**1861**	76.9	**410**	17.2	**-**	0.0	**101**	4.2	**44**	1.8	**2416**	100
1861 (1860)	**7610**	85.8	**672**	7.6	**220**	2.4	**319**	3.6	**52**	0.6	**8873**	100
1871 (1870)	**17751**	93.6	**451**	2.4	**413**	2.2	**329**	1.7	**14**	0.07	**18958**	100
1881 (1880)	**9965**	72.3	**1544**	11.2	**1506**	10.9	**478**	3.5	**297**	2.2	**13790**	100
1891 (1890)	**6490**	45.6	**1436**	10.0	**5237**	36.8	**606**	4.3	**468**	3.3	**14237**	100
1901 (1900)	**2844**	19.9	**2421**	16.9	**7544**	52.9	**794**	5.6	**671**	4.7	**14274**	100
1911 (1910)	**15010**	53.0	**1091**	3.9	**10018**	35.4	**953**	5.4	**1087**	3.8	**28317**	100
									158 (Tax)	0.6		
Source: Jones, (1981, p.47 & p.99 Tables 1 & 2).												

A2.2.7. The Emergence of 'professional' accounting bodies

Nobes and Parker record that the '*Society of Accountants in Edinburgh*' began in 1853 (with 'Royal Charter' granted in 1854), followed by the *'Institute of Accountants and Actuaries in Glasgow'* in March 1855 (1979). After the initial accounting bodies were established, similar recognition followed for bodies in Aberdeen (1867), Liverpool, (1870) and Ireland (1888) in Aberdeen, 1867; Liverpool, 1870; England and Wales, 1880; and Ireland 1888.

A number of regional bodies combined with Royal Charter in 1871 to form the *Institute of Chartered Accountants in England and Wales* (ICAEW) by 1879 (see Table A2.2.7. reprised from Kirkham and Loft, 1993). The Charter application of the ICAEW was clearly aimed at promoting the public perception that institute's membership was appropriately skilled and trained to practice as accountants (Boys, 1994 provides a detailed discussion of the development of the various accounting bodies; also see Kedslie, 1992; Macdonald, 1984; Selander, 1990).

Macdonald suggests this period also includes the formation of associations of accountants that emerged to define, protect and advance the market position of those who were excluded from membership of other accounting associations (1984, pps.566-69). Stacey explains these less prestigious associations attempted to empower themselves through the creation of a state register of accountants (1954). As a result a number of accounting bodies were incorporated and licensed by the Board of Trade. (In the period 1880 to 1900, fifteen '*Accountants Registration*' Bills were put before Parliament, for example, the '*Society of Accountants in England*', '*Institute of Accountants in London'* and the '*Society of Accountants and Auditors*' were granted a license by the Board of Trade in 1885)[xxxvii].

While most studies acknowledge the '*professionalisation*' of the discipline was an extended process and thus draw attention to the importance of the periods both before and after the formation of the professional organisations, historians commonly cite the unification of an organisational body and the granting of Royal Charter as a visible public signal of its occupational ascendency (Abbott, 1988; Edwards et al., 2007; Carnegie and Edwards, 2001; also see Strauss, 1963).

Table A2.2.7.: Societies of Accountants 1850 - 1911	
Date of incorporation	**Name of body**
1854 (by charter)	Society of Accountants in Edinburgh
1855 (by charter)	Institute of Accountants and Actuaries in Glasgow
1867 (by charter)	Society of Accountants in Aberdeen
1880 (by charter)	Institute of Chartered Accountants in England and Wales
1885	Society of Incorporated Accountants and Auditors
1891	Corporation of Accountants Ltd
1901	Institute of Municipal Treasurers and Accountants (Incorporated)
1903	Institute of Certified Public Accountants Ltd
1905	London Association of Accountants Ltd
1905	Central Association of Accountants Ltd
Source: Kirkham and Loft, (1993, pps.507-58. from the records of the Departmental Committee on the Registration of Accountants, 1930).	

A2.3.1. Developing a chronological history

Edwards et al., rightly point out that while accountants formally organised for only the last three decades of the nineteenth century, '[t]*he accountancy occupational group was undergoing a professionalisation process …for much of the nineteenth-century* (2007, p.63). Carnegie and Edwards suggest that professionalisation may be viewed as an extended process, with the formation of an organisational body serving as a visible public signal from a collective within a series of events that operationalise its occupational ascendency (2001). Edwards et al., (citing Abbott, 1988) infer the importance of the both the periods prior to and after the formation of the professional organisations to the analysis of the social re-evaluation of accountant's occupational status (2007).

Armstrong also suggests that accountants may have been actively attempting to define their social status even considerably earlier than this (1987; Note see also, Walker, 1995). Walker citing MacDougall suggests that by the late eighteenth century accounting was recognised as a professional vocation in Scotland (1988, Note: see also Jones, 1981, Kedslie, 1990). Howitt suggests a similar situation existed in England at this time where there was a number of practitioner's identifying themselves as '*accountants'* who held positions of social significance (1966). Studies[xxxviii] confirm that during the latter period of the eighteenth century there was a significant growth in the number of firms offering accounting services albeit from a very low base (Jones, 1981). Records suggest that a number of London-based (and provincial firms) thrived from the late eighteenth century (Stewart, 1977; Jones 1995).

However there is little dispute that by the last quarter of the nineteenth century, the heightened occupational status of the British accountant was established and is evidenced by the discipline's size (in terms of membership and demand for admission to its representative organisations), the pervasiveness of its public firms, its legal and political influence and the economic rewards enjoyed by its incumbents (Chapman, 1968; Lee, 1990 & 1991).

The following table summarises nineteenth century accounting history and is based on both Lee (1979) and Nobes and Parkers (1979) chronologies[xxxix]. The section divides this era into eleven periods, each of ten years duration and thus aligns it with the socioeconomic scores provided in the body of this study. These

periods are based on the economic benchmarking provided by Deane and Cole's *'British Economic Growth'* (1962).

The characterisation of each of the eleven periods provides a very brief indication of the economic background into which the accounting events may be contextualised and are based on *'Thorp's Business Annuals'.*

Table: A2.3.1.: Accounting event chronology (1821 – 1911)					
Census period: Economic characterisation	**1811- 21: 'Deep depression'**	**1822- 31: 'Slow revival'**	**1832- 41: 'Recession to depression'**	**1842- 51: 'Depression'**	**1852- 61: 'Prosperity'**
Accounting Event	**'*Bubble Act*':** Corporate limitations.	**Repeal of the Bubble Act:** The emergence of corporations. London Stock Exchange trading in company securities.	**1831 *Bankruptcy Act*** : Identification of accountants as potential '*official assignees*'.	***1844 "Joint Stock Companies'* Act:** Legislative period.	**1855 'Joint Stock Companies' Act:** Granted limited liability: Laissez-faire, deregulation
Census period: Economic characterisation	**1862- 71: 'Uneven prosperity'**	**1872- 81: 'Prosperity'**	**1882- 91: 'Mild prosperity'**	**1891-1901 'Prosperity'**	**1901- 11: 'Mild depression'**
Accounting Event	The **1861-69 *Bankruptcy Acts:*** *'The accountants' friend'!*	***Companies* Act (1879):** Financial disclosure and annual audit compulsory for banking companies incorporated with limited liability.	**ICAEW's Royal Charter:** Existing organized accounting bodies incorporate.	***Davey Committee on Company Law Amendment* (1895)** and the ***Select Committee on the Companies Bill* (1896-1898):** Reforms to the auditing and financial disclosure.	**The 1907 Companies Act:**

A2.3.2. Accounting histories and chronologies

Hopwood and Johnson praised the approach of many accounting historians for:

> *"taking temporal sequences seriously when attempting to understand the emergence of outcomes and events. They strive to ask questions of social structures and processes when they are understood to be situated concretely in time and space*" (quoted in Poullaos, 1992, pps.220-21).

Abbott uses terminology such as '*chains of effects*' as a means of relating external forces to the opening or closing of areas of 'occupational jurisdiction':

> "*If we can understand the beginnings and ends of these 'systemic' disturbances, the ways they propagate and the conditions determining them we will have an effective model of professional development"*" (Abbott, 1988, pps.90-91).

Guthrie and Parker agree, arguing that historical events cannot be understood in isolation but only as part of an ongoing temporal process (1991; also see Fleischman, Mills and Tyson, 1996; Fleischman and Tyson, 1997; Hopwood, 1983).

Despite accusations of '*incompleteness*' and '*weak form*' of history, (Previts and Merino, 1990, p.8) both functional and critical historians have tended to continue to employ a chronological narrative form in their reconstruction of the socioeconomic and political context of the gestation of accounting (Armstrong, 1987; Bryer, 1991; Burchell, et al., 1980; Hoskin and Macve, 1986; Wilmott, 1986; Guthrie and Parker, 1991). Porter believes that "*traditional narratives are the most effective way to express our understanding of temporal events*" (1981, p.9). Ermarth believes such an approach allows the confirmation of "*an entire discourse, one that values empirical procedure, reasoned discovery, problem solution, linear causality and temporal unfolding"* (1992, p.19). As a result historians have collected evidence of Britain's socioeconomic changes utilising a variety of archival documents (sourced from accounting bodies or individual firms, census data, trade journals and parliamentary records) so as to support their perspective on the rising occupational

status of the discipline. For example, observable expansions of the British commercial activity and industrial development as measured by investment in industries such railways and financial institutions, the registration (and often liquidation) of corporations, followed chronologically by the recognition of the accounting discipline through regulation, registration and (usually) culminating in the subsequent granting of Royal Charter for its representative organisation (see for general discussion, Lodh and Gaffikin, 1997; Sy and Tinker, 2005).

Historic studies, if to provide insights or explanations of chronological events, must inevitably be dependent upon the strength of their historical data. Traditionally the documented evidence of these events has been portrayed as '*fact'* and *'truth'*[xl] (Napier, 1989; Ricoeur 1980). Traditional historians agree on the reality of the past and often the relevance of facts but do not claim absolute impartiality as to their relative importance or their interpretation, but acknowledge the impact of their individual beliefs and feelings on the studies (Napier, 1989, also see Foucault, 1969).

Zagorin recognises the existence of individual bias inherent in the selection, identification and inclusion of evidence, both with regard its significance and relevance but differentiates this from '*selectively choosing*' items which can support a hypotheses or ignoring confounding evidence (1990, p.272). Hexter suggests historians should be guided by only '*rough hypotheses*' and not any preconceived notions including either '*specific questions to be pursued*' or '*expected findings*' (1971, p.18). Tuchman concurs, "*if the historian will submit himself to his material instead of trying to impose himself on his material, then the material will ultimately speak to him"* (1981, p.23). Martin, acknowledges that findings based on such evidence will not be the 'absolute' truth but adds that ideally, historians may provide an account of these events which, when compared to competing explanations (drawn from the same set of evidence), is the most convincing (1993, p.29).

Alternatively some studies of the accounting phenomenon have been critical of an overwhelming focus on only the objective '*facts*[xli]', suggesting an aversion to interpretation and a preoccupation with empirical evidence (Breisach, 1987; Bermejo-Barrera, 1993). Interpretive historical studies believe that they are able to provide a more complete understanding of what was really happening (for example, Windschuttle, 1994; also see Dillard, 1991). Carr suggests interpretation is "*the life-blood of history*' where '*the historian is engaged in a continuous process of moulding*

his facts to his interpretation and his interpretations to his facts" (1964, pps.28-29). While not claiming to '*know*' the motives of past people, this approach also attempts provide a convincing rationale for the actions of social actors from available documentary evidence (Himmelfarb, 1994, p.133).

Tyson cautions against the devaluation of '*evidence-driven*' historical accounts in favour of '*theory driven*' interpretation, highlighting the need '*confront every attack that is made against the relevance of primary evidence*' suggesting both are necessary (1995, p.29). Napier points out that all historical descriptions or explanations of the accounting phenomenon rely on generation of the raw data and suggests accounting historians should not be opposed to interpretive history but that "*it will be tethered in its wanderings to a spike of facts*" (1989, p.241). He concludes that all forms of history should coexist, each extending the efforts of the others (Note: Also see, Lee, 1990; Ermarth, 1992).

Both these approaches provide different (but important) frameworks to enhance the understanding of the accountant's elevated occupational status but are equally dependent on the collection and analysis of evidence (for example see, Covaleski and Dirsmith, 1988). Miller, et al., state that both perspectives of benefit from a pluralistic approach, both relying on the generation of data to raise the level of debate (1991).

This study by retrospectively adapting and applying the *Nam-Powers* socioeconomic approach to the measure of the accounting discipline's occupational status could provide insight about and assistance to those researchers wishing to further examine the emergence of '*professional*' accountants within the context of the events that have been outlined within this appendix.

Endnotes

[i] Different historians define the period covered by the term '*industrial revolution*' differently. Although often the referred to as 'the' industrial revolution, many authors deconstruct the period into two 'revolutions', one period beginning in the late eighteenth century, and the other in the 1850s (see, for example, Hobsbawm, 1960 & 1975).

[ii] For example, Edwards cites '*Central government financial accounting and control were the subject of vitriolic attack in Parliament during the 1820s*" leading to the appointment of a parliamentary committee in 1828 who called for the establishment of a Committee of E*xperts, "whose duty it would be to examine the wasteful system of public accounts and recommend judicious improvement".* The members of this committee were prominent accountants and its recommendations were for the adoption of *"the commercial system of double entry'* accounting" (2001, p.680).

[iii] As a result of the increasing specialisation within the labour force, certain roles develop "*concerned with the systematising, expanding, utilising, and transmitting*" of the knowledge and culture of that society (Treiman, 1977, p.3).

[iv] The paper acknowledges the interrelationship between these events and does not attempt to provide a complete genealogy of these events. The paper instead attempts to simply draw attention to those events consistently identified as being of significance to the professionalisation of accounting.

[v] Gourvish, notes that by 1845-49 the expenditure on railway construction amounted to 4-5 percent of Britain's gross national product and wages paid to employees amounted to 2 percent of annual gross national product (1980, p.13). Gourvish, highlights the spectacular growth in investment in the railways was based on high expectations associated with technical innovation (1980, p.13).

[vi] Gourvish notes that between 1836 and 1845 a small number of provincial stock exchanges were created to facilitate the investment of large quantities of capital in addition to the London exchange (1980, pps.16-17).

[vii] See Hill for discussion of capital raisings through non-chartered, unlimited liability 'deed of co-partnership' (1979). Gower also outlines the alternative legal '*devices'* used to access the advantages of incorporation such as the cost-book system (entities administered by Stannaries Courts), deeds of settlement, or deeds of co-partnership (a derivation of a partnership agreement) (1969). Edwards, Edwards and Matthews outline the proportions of each type of company in 1886 when reliable listings became available (1997, p.3).

[viii] Todd suggests that during "*1824-25 over 600 companies were projected, but the majority were ephemeral… of the 624 schemes thrown up, only 127 were still in existence in 1827"* (1932, p.53). During the period 1801 to 1844 approximately 100 unincorporated companies were conferred the attributes of a joint stock company by private Acts of Parliament. It should be noted that it is difficult to accurately assess the number of companies in existence prior to 1883-4 as the Registrar of Joint Stock Companies did not require the lodgement of the '*annual returns*' prior to this period.

[ix] Todd quotes Ker, who produced a report on partnership in 1837, that suggests companies have an obligation to publicise the registration of the deed of settlement, and certain particulars contain within it, notification of changes to these particulars and periodical returns of the state of affairs of the company or the appointment of an auditor (1932).

[x] Shannon's shows that for the first nine year period of limited liability (1856-65) there was the registration of 4,859 companies under the Acts and limited by shares and that "*the registration of companies in London increased by 25 percent 1866-74 than in 1856-65, and 55 percent higher in 1875-83 than in 1866-74"* (1933, p.290).

[xi] Also see Edwards et al., who cite the appointments of Price, Holyland & Waterhouse and William Harding to '*iron*' companies as examples of such activities (2007).

[xii] Including abortive companies (Todd, 1932) cites in 1877, 7,000 but as many as 5,000 had failed to provide annual return and were now 'defunct', 1856 = 700; 1858 = 1,000;1864 = 2,000; 1865 = 3000; 1883 = 7800; 1884 = 7950; 1889 = 11,200;1907 = 39600; 1914 = 58,900 from 1864 to 1889 the official number of companies in existence increased at an average annual rate 2250 companies per year in every five years, from 1889 to 1907 the average increase became 8250 in five years 1907 to 1914 to average 15,000 in five years; 1846 to 1855 annual (ave) registrations 241; 1856 to 1865 average was 529 (220% increase); 1860 = number of registrations was 400 (approx); 1860 to 80 = 250 average per year every five years 1880 to 1895 = average rate of growth becomes 650 giving an increase from 1250 to almost 3200 registrations.

[xiii] The term '*regulated company*' was introduced by Parker (1990, p.52). Parker explains why certain industries were regulated by specific statute during the nineteenth century. He distinguished between '*regulated industries*' and those other industrial and commercial activities that were subject to more general regulation (for example, mining, manufacturing and retail). He points to the existence of monopoly powers and special privileges granted by the state as to why the railways (and other public utilities) were subjected to specific regulatory control (1990, pps.54-59).

[xiv] *For example,* McCartney and Arnold cite the emerging technology of the railways generated the publication of prospectuses (2003, p.821). Pollin suggests the success (both technical and financial) of Liverpool and Manchester passenger railway line led to the widespread promotion and investment of capital by the 1830s and 1840s (1956). Also see Reed (1975, pps.3-4) with regard the opening of the Stockton and Darlington Railway. For comprehensive history of the development of the railway industry (also see Reed, 1969).

[xv] See Edwards, 1985, pps.26-27; p.34; Edwards 1989, pps.166-72; Pollins, 1956, pps.340-341; Lee, 1975; pps.21-22; Lee, 1976, pps.23-25. McCartney and Arnold importantly note *"the views expressed have rarely been supported by reference to any very substantial or systematically derived bodies of empirical evidence"* (2002, p.402).

[xvi] Reed notes that railway companies frequently raised a substantial proportion of their capital through the issue of debentures and that loan interest was often the largest expenditure represented on a firm's revenue account (1969).

[xvii] Cornwell cites the business relationship between Fletcher and both the North Western Railway Co. and the Gloucestershire Railway Co. during the period (1993).

[xviii] See Taylor (1972) for discussion re: *Gas Works Clauses* Act (1871); *Electric Lighting* Act (1882); *Life Assurance Companies* Act (1870) and *Building and Friendly Societies* Act (1874).

[xix] While the majority of studies treated the nineteenth century as an extended period of the 'laissez-faire' (see Parker (1990) for full observations), Jones and Aiken apply a framework developed by Dicey (1905 and 1914) in their explanation of the context, timing and development of companies regulations (1995). Jones and Aiken cite an important element of *Dicey's thesis that legislative changes during the nineteenth century can be explained by reference to two distinct social and political currents: 'laissez-faire' and 'welfare - collectivism'.*' Their study relates the implications of *laissez-faire' philosophy on corporate regulation between 1825 and 1868 and the impact of the growth of 'collectivism' from 1868 to 1900* (1995, p.63). Hunt suggests that even given the inconsistent adoption of a '*laissez-faire*' policy the British Government's overriding principle in the development and adoption of commercial legislation was '*to leave people to act for themselves*' (1936, p.118). Hunt suggests the general philosophy of the second half of the nineteenth century was that "*a company's financial affairs were a matter of concern only to its shareholders…employees, managers and directors*" (1936).

[xx] There were many reforms to corporate legislation across the period in question. For example, the 1841, 1855 and 1856 *'Joint Stock Companies'* Act, Companies Act (1900); The 1907 Companies Act, (which was to later consolidated into the 1908 Companies Act) all have been cited as of significant influence on the practice of accounting and auditing and therefore the role of the accountancy profession (Jones, 1981).

[xxi] It should also be noted that at this time the recommendations of the *Committee on Joint Stock Banks* (1836) were simultaneously converted into legislation with the passing of the *Joint Stock Banks Act* (1844). This Act, covering the British banking industry, was eventually repealed in 1856 (when disclosure regulation covering banks were bought under the jurisdiction of the general companies law), and accounting regulation was not again reinstated until 1879. Given the context of a number of banking crisis the delays in regulation were considered critical (Parker, 1990). Jones and Aiken, highlight that that the Committee's recommendations were heavily influenced by the "*elaborate frauds and falsification of accounts, capital misappropriations and general mismanagement*" (1995, p.70).

[xxii] Hein notes that the *Gladstone*'s Select Committee's sessional notes indicate that no representations were made that auditors were should need special qualifications (1963, p.508).

[xxiii] While the terms 'crash' or 'financial crisis' are commonly used the there is no standardised criteria available to specifically define these events. Crashes of asset markets, considered the result of human '*gullibility and sometimes greed'*, were often referred to a '*manias*'. For a more comprehensive discussion see Makay, C., (1841). 'Extraordinary Popular Delusion and the Madness of Crowd', Richard Bentley, London. (Reprinted Farrar, Strauss Girroux: New York: 1932) or Schartz, A.J., (1986). "Real and Pseudo Financial Crises' in Financial Crises and the World Banking System (Capie, F.H. and Wood, G.E. MacMillian, London).

[xxiv] Similarly in the United States, a rising numbers of corporate failures stimulated calls for an independent accounting profession (Preston et al., 1995, p.516). Amhowitz (1987, p.362) suggested that securities regulations requiring all publicly owned companies to file audited financial statements, was the single most significant event in the professionalisation of the accounting discipline in the United States. Accounting firms were given a monopoly over the public corporation auditing function, establishing accountants as the guardians of the investing public who would provide an independent shield against dishonesty and undisclosed corporate financial distress, despite the limitations of the accounting tools that they possessed.

[xxv] McCartney and Arnold also cite the emerging technology of the railways as responsible for generating a '*speculative bubble'* during the period 1824-25 (2003, p.821).

[xxvi] Palgrave highlights the impact of legislation which came into effect during late 1844 which removed authority and responsibility from the directors of the Bank of England for the regulation of currency. He suggests this lead to a decline in interest rates and fuelled a subsequent increase in speculation. He points to the similarity between these and the events occurring in again in 1857 (1984).

[xxvii] Later the London and Birmingham firm amalgamated with the Grand Junction Railway to form the 'London and North Western Railway'.

[xxviii] The Gurney Bank of Norwich and Richardson merged with Overend and Company.

[xxix] Pressnell states this was primarily due to mismanagement and fraudulent activities (1968). Gregory describes the actions of other Scottish banks, taking up the failed bank's notes as a means of preserving confidence in their own notes issues (1929).

[xxx] A premium on shares before allotment was seen as almost mandatory for a company to receive any acceptance and ensure it could be successfully floated (Shannon, 1933, p.303).

[xxxi] Walker quotes Markham Lester (1995, p.300) highlights that by the 1860s bankruptcy losses amounted to four percent of GDP (using Mitchell's, 1988 economic data) (2000).

[xxxii] For example, in a five (5) year period the following papers emerged: General Report by the Conptroller in Bankruptcy (1873), *British Parliamentary Papers*, LIV, (257); General Report by the Conptroller in Bankruptcy (1877), *British Parliamentary Papers*, LXIX, (314); General Report by the Conptroller in Bankruptcy (1878), *British Parliamentary Papers*, LXIII, (359).

[xxxiii] Duffy provides a concise history of English bankruptcy laws, starting with their codification in 1542. These laws provided harsh punishment for insolvent traders and were a product of '*the inflexibility of medieval common law'* that did not differentiate between the honest and dishonest trader (1985, p.7).

[xxxiv] Parker highlights *William Quilter's* (a leading accountant) commentary to the 1849 *Select Committee on the Audit of Railways* regarding the widespread use of '*shareholder auditors*' (often described as '*interested amateurs*' rather than professional accountants (1986, p.26).

[xxxv] Also see Stewart (1986, pps.13-15) and Kedslie (1990, p.12; pp.133-4) who both highlight the *'bankruptcy-auditing thesis'* which characterizes the practice of accounting as being initially dominated by the provision of bankruptcy services and that this was subsequently replaced by the provision of auditing services.

[xxxvi] Chandler and Edwards provide evidence of the frequency of these negligence matters confronting the spectrum of auditors (1994).

[xxxvii] Alternatively accounting histories have concentrated on the activities, strategies and 'intra' or 'inter' occupational relationships of the newly formed accounting bodies. For example, Macdonald suggests the establishment of a variety of bodies attempted to equalise the standing of all qualified accountants in a described as similar way to that of the more prestigious medical profession (1984; see also, Selander, 1990).

[xxxviii] These studies are based on the quantification of data contained in local trade directories (see also Brown, 1905; Kedslie, 1990; MacDonald, 1984).

[xxxix] Both Lee (1979) and Nobes and Parkers (1979) began their respective studies from 1840 to 1940 this study adds two periods prior to 1840 and extends the final period to include significant legislative changes that resulted from events occurring in the final decade of the nineteenth century.

[xl] Complete denial of the possibility of objective historical facts is an extreme position usually associated with post-modern historians which, despite Tyson's (1995, p.18) accusations, has featured significantly in accounting histories (Bryer, 1991; Hoskin and Macve, 1986, Walker, 1988 & 1991).

[xli] Norman refers to this as '*history realism*' (1991, p.400).

Appendix 3:
Accounting: Occupational earnings (1821-1911)

Table A3.1.0.:
***Accounting* classification ranking by average nominal annual earnings: Based on percentage of total occupied population (1821-1911)**

Year	Overall Rank		Year	Elite Score		Year	Non-elite: Score
1821	4		1821	98.38		1821	95.93
1831	4		1831	98.31		1831	97.75
1841	4		1841	97.84		1841	94.96
1851	4		1851	98.16		1851	95.40
1861	6		1861	96.06		1861	92.23
1871	6		1871	96.12		1871	90.86
1881	5		1881	97.19		1881	91.06
1891	5		1891	97.40		1891	89.37
1901	3		1901	99.15		1901	88.60
1911	5		1911	98.58		1911	86.98

Table A3.1.1.: Summary of overall earnings results for 36 occupational classifications (1821 to 1911)										
Occupational classification	**1821**		**1831**		**1841**		**1851**		**1861**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**100.00**	99.52	**100.00**	99.51	**100.00**	99.44	**100.00**	99.45	**100.00**	99.49
Engineering / surveyor	**99.51**	99.31	**99.50**	99.28	**99.43**	99.19	**99.44**	99.20	**99.48**	99.27
Religious	**99.30**	98.39	**99.27**	98.32	**94.97**	93.91	**99.19**	98.17	**98.52**	97.37
Accounting	**98.38**	95.95	**98.31**	95.77	**97.84**	94.98	**98.16**	95.42	**96.06**	92.24
Govt: Civil official	**95.94**	94.81	**95.76**	94.58	**99.18**	97.85	**95.41**	94.12	**97.36**	96.07
Medical	**94.80**	94.13	**94.57**	93.90	**93.90**	93.12	**94.11**	93.35	**99.27**	98.53
Metal trades	**94.12**	93.04	**90.14**	89.00	**87.68**	86.40	**89.26**	88.02	**91.16**	89.61
Domestic services and messengers	**93.03**	89.44	**93.84**	90.15	**93.11**	88.88	**93.34**	89.27	**89.60**	85.34
Printing trades	**89.43**	89.23	**88.99**	87.74	**86.39**	84.98	**86.86**	85.50	**85.33**	83.82
Teaching	**88.22**	87.22	**87.73**	86.69	**88.87**	87.69	**88.01**	86.87	**92.23**	91.17
Police, prison and guards	**87.21**	86.54	**78.48**	77.79	**84.68**	83.90	**59.34**	58.59	**57.74**	56.89
Textile trades	**86.53**	82.14	**76.73**	72.13	**83.89**	78.72	**75.45**	70.50	**72.93**	68.75
Building trades	**82.13**	74.26	**86.68**	78.49	**78.71**	68.55	**85.20**	76.33	**83.81**	74.44
Commercial delivery and postal services	**74.25**	74.02	**76.18**	76.74	**84.97**	84.69	**85.49**	85.21	**73.40**	72.94
Transport trades	**74.01**	73.25	**77.78**	76.99	**78.71**	77.82	**76.32**	75.46	**74.44**	73.41
Mining occupations	**73.24**	63.34	**72.14**	61.84	**68.54**	56.91	**70.49**	59.35	**68.74**	57.75
General manufacturing and dealing	**63.33**	50.05	**61.83**	48.02	**56.90**	41.29	**58.58**	43.63	**56.88**	39.92
Agricultural occupations	**50.04**	00.00	**48.01**	00.00	**41.28**	00.00	**43.62**	00.00	**39.91**	00.00
Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-elite**
Legal	**100.00**	99.52	**100.00**	99.53	**100.00**	99.54	**100.00**	99.54	**100.00**	99.56
Engineers and surveyors	**98.79**	98.62	**97.59**	97.20	**98.90**	98.54	**99.53**	99.16	**99.55**	99.30
Religious	**98.61**	97.42	**98.80**	97.60	**98.53**	97.41	**87.91**	86.76	**86.97**	85.88
Accounting	**96.12**	90.88	**97.19**	91.07	**97.40**	89.39	**99.15**	88.62	**98.58**	86.99
Govt: Civil official	**97.41**	96.13	**91.06**	89.90	**89.38**	88.18	**86.75**	85.19	**84.40**	82.59
Medical	**99.51**	98.80	**99.52**	98.81	**99.53**	98.91	**88.61**	87.92	**99.28**	98.59
Metal trades	**89.88**	87.94	**84.51**	82.45	**86.97**	84.90	**83.77**	81.07	**82.57**	79.94
Domestic services and messengers	**87.93**	83.52	**88.62**	84.52	**70.32**	63.70	**68.99**	62.26	**62.32**	55.48
Printing trades	**70.22**	68.54	**68.81**	66.76	**72.73**	70.33	**60.00**	57.27	**65.31**	62.33
Teaching	**90.87**	89.89	**89.89**	88.63	**88.17**	86.98	**85.18**	83.77	**85.86**	84.41
Police, prison and guards	**55.86**	54.91	**65.48**	64.54	**48.05**	46.76	**21.01**	19.53	**23.54**	21.94
Textile trades	**73.71**	70.23	**71.91**	68.82	**84.90**	82.03	**62.25**	60.01	**79.93**	77.45
Building trades	**83.51**	73.72	**82.44**	71.92	**82.02**	72.74	**81.06**	69.00	**77.44**	67.17
Commercial delivery and postal services	**56.61**	55.87	**64.53**	63.97	**46.75**	45.92	**39.60**	38.29	**21.93**	19.61
Transport trades	**68.53**	67.31	**66.75**	65.50	**63.69**	62.22	**57.26**	55.30	**67.16**	65.32
Mining occupations	**67.30**	56.62	**63.96**	51.85	**62.21**	48.05	**55.29**	39.61	**55.47**	37.09
General manufacturing and dealing	**54.91**	35.94	**51.84**	29.87	**45.91**	24.89	**38.28**	21.02	**37.08**	23.52
Agricultural occupations	**35.94**	00.00	**29.86**	00.00	**24.88**	00.00	**19.52**	00.00	**19.60**	00.00

Table A3.2.1.: Ranking of occupational classifications by average nominal annual earnings (1821): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	447.50	6.70	0.49	100.00
2	*Engineers and surveyor*	326.43	2.90	0.21	99.51
3	*Religious*	266.55	12.60	0.92	99.30
4	***Accounting***	**229.64**	**33.60**	**2.44**	**98.38**
5	*Govt: Civil official*	219.25	15.70	1.14	95.94
6	*Medical*	217.60	9.20	0.68	94.80
7	*Metal trades*	92.71	15.10	1.09	94.12
8	*Domestic services and messengers*	81.35	49.60	3.60	93.03
9	*Printing trades*	71.14	16.70	1.21	89.43
10	*Teaching*	69.35	13.90	1.01	88.22
11	*Police, prison and guards*	69.18	9.20	0.68	87.21
12	*Textile trades*	67.60	60.60	4.40	86.53
13	*Building trades*	63.02	108.50	7.88	82.13
14	*Commercial delivery and postal services*	60.60	3.30	0.24	74.25
15	*Transport trades*	57.23	10.60	0.77	74.01
16	*Mining occupations*	53.37	136.40	9.91	73.24
17	*General manufacturing and dealing*	41.74	182.90	13.29	63.33
18	*Agricultural occupations*	39.05	688.50	50.04	50.04
Totals:			1,376.00	100.00	

Table A3.2.2.: Ranking of occupational classifications by average nominal annual earnings (1831): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	522.50	9.20	0.50	100.00
2	*Engineers and surveyors*	365.71	4.10	0.23	99.50
3	*Religious*	254.60	17.30	0.96	99.27
4	***Accounting***	**240.29**	**46.20**	**2.55**	**98.31**
5	*Govt: Civil official*	222.95	21.60	1.19	95.76
6	*Medical*	175.20	12.70	0.68	94.57
7	*Domestic services and messengers*	84.39	68.30	3.75	93.89
8	*Metal trades*	80.69	20.80	1.15	90.14
9	*Printing trades*	70.23	23.00	1.26	88.99
10	*Teaching*	69.35	19.20	1.05	87.73
11	*Building trades*	66.35	149.40	8.20	86.68
12	*Police, prison and guards*	62.95	12.70	0.70	78.48
13	*Transport trades*	62.22	14.60	0.80	77.78
14	*Commercial delivery and postal services*	59.01	4.60	0.25	76.98
15	*Textile trades*	58.50	83.50	4.59	76.73
16	*Mining occupations*	54.61	187.70	10.31	72.14
17	*General manufacturing and dealing*	43.65	251.70	13.82	61.83
18	*Agricultural occupations*	31.04	874.20	48.01	48.01
Totals:			1,820.80	100.00	

Table A3.2.3.: Ranking of occupational classifications by average nominal annual earnings (1841): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,166.67	11.70	0.57	100.00
2	*Engineers and surveyors*	398.89	5.20	0.25	99.43
3	*Govt: Civil official*	276.42	27.60	1.34	99.18
4	***Accounting***	**269.11**	**59.00**	**2.87**	**97.84**
5	*Religious*	258.76	22.10	1.07	94.97
6	*Medical*	200.92	16.20	0.79	93.90
7	*Domestic services and messengers*	87.20	87.30	4.24	93.11
8	*Teaching*	81.89	24.50	1.19	88.87
9	*Metal trades*	77.26	26.60	1.29	87.68
10	*Printing trades*	70.23	29.30	1.42	86.39
11	*Commercial delivery and postal services*	58.70	5.90	0.29	84.97
12	*Police, prison and guards*	63.33	16.20	0.79	84.68
13	*Textile trades*	64.56	106.60	5.18	83.89
14	*Transport trades*	62.74	18.60	0.90	78.71
15	*Building trades*	59.72	190.80	9.27	77.81
16	*Mining occupations*	56.41	239.70	11.64	68.54
17	*General manufacturing and dealing*	39.29	321.50	15.62	56.90
18	*Agricultural occupations*	30.03	849.60	41.28	41.28
Total:			2,058.40	100.00	

Table A3.2.4.: Ranking of occupational classifications by average nominal annual earnings (1851): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,837.50	16.40	0.56	100.00
2	*Engineers and surveyors*	479.00	7.30	0.25	99.44
3	*Religious*	267.09	30.40	1.03	99.19
4	***Accounting***	**235.81**	**81.00**	**2.75**	**98.16**
5	*Govt: Civil official*	234.87	38.20	1.30	95.41
6	*Medical*	200.92	22.60	0.77	94.11
7	*Domestic services and messengers*	88.88	119.90	4.08	93.34
8	*Metal trades*	84.05	36.70	1.25	89.26
9	*Teaching*	81.11	33.90	1.15	88.01
10	*Printing trades*	74.72	40.2	1.37	86.86
11	*Commercial delivery and postal services*	66.45	8.40	0.29	85.49
12	*Building trades*	66.35	261.20	8.88	85.20
13	*Transport trades*	64.12	25.50	0.87	76.32
14	*Textile trades*	58.64	146.00	4.96	75.45
15	*Mining occupations*	55.44	328.00	11.15	70.49
16	*Police, prison and guards*	53.62	22.30	0.76	59.34
17	*General manufacturing and dealing*	44.83	440.00	14.96	58.58
18	*Agricultural occupations*	29.04	1,283.00	43.62	43.62
Total			2,941.00	100.00	

Table A3.2.5.: Ranking of occupational classifications by average nominal annual earnings (1861): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,600.00	16.10	0.52	100.00
2	*Engineers and surveyors*	529.15	6.70	0.21	99.48
3	*Medical*	343.00	23.10	0.75	99.27
4	*Religious*	272.30	34.50	1.16	98.52
5	*Govt: Civil official*	251.33	40.30	1.30	97.36
6	***Accounting***	**248.47**	**118.50**	**3.83**	**96.06**
7	*Teaching*	93.76	33.20	1.07	92.23
8	*Metal trades*	88.77	48.40	1.56	91.16
9	*Domestic services and messengers*	82.21	132.20	4.27	89.60
10	*Printing trades*	74.72	47.20	1.52	85.33
11	*Building trades*	72.90	289.90	9.37	83.81
12	*Transport trades*	69.11	32.10	1.04	74.44
13	*Commercial delivery and postal services*	67.15	14.50	0.47	73.40
14	*Textile trades*	63.26	129.60	4.19	72.93
15	*Mining occupations*	62.89	340.30	11.00	68.74
16	*Police, prison and guards*	53.94	26.50	0.86	57.74
17	*General manufacturing and dealing*	44.18	524.90	16.97	56.88
18	*Agricultural occupations*	36.04	1,233.90	39.91	39.91
Total			3,091.90	100.00	

Table A3.2.6.: Ranking of occupational classifications by average nominal annual earnings (1871): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,326.67	15.80	0.49	100.00
2	*Medical*	645.40	23.70	0.72	99.51
3	*Engineers and surveyors*	579.13	6.10	0.18	98.79
4	*Religious*	293.84	39.50	1.20	98.61
5	*Govt: Civil official*	281.02	42.60	1.29	97.41
6	***Accounting***	**268.63**	**173.40**	**5.25**	**96.12**
7	*Teaching*	97.02	32.70	0.99	90.87
8	*Metal trades*	94.38	64.20	1.95	89.88
9	*Domestic services and messengers*	87.34	145.80	4.42	87.93
10	*Building trades*	83.33	323.50	9.80	83.51
11	*Textile trades*	82.55	115.30	3.49	73.71
12	*Printing trades*	79.92	55.80	1.69	70.22
13	*Transport trades*	76.83	40.60	1.23	68.53
14	*Mining occupations*	66.20	352.80	10.69	67.30
15	*Commercial delivery and postal services*	63.72	24.80	0.75	56.61
16	*Police, prison and guards*	55.86	31.50	0.95	55.86
17	*General manufacturing and dealing*	51.44	626.20	18.98	54.91
18	*Agricultural occupations*	41.05	1,185.50	35.93	35.93
Total			3,299.80	100.00	

Table A3.2.7.: Ranking of occupational classifications by average nominal annual earnings (1881): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,280.00	17.40	0.48	100.00
2	*Medical*	520.29	26.00	0.72	99.52
3	*Religious*	315.37	44.00	1.21	98.80
4	*Engineers and surveyors*	312.97	14.80	0.40	97.59
5	***Accounting***	**286.65**	**221.50**	**6.13**	**97.19**
6	*Govt: Civil official*	275.29	40.30	1.17	91.06
7	*Teaching*	120.80	46.00	1.27	89.89
8	*Domestic services and messengers*	97.05	148.50	4.11	88.62
9	*Metal trades*	96.68	74.90	2.07	84.51
10	*Building trades*	87.18	380.20	10.53	82.44
11	*Textile trades*	85.77	111.90	3.10	71.91
12	*Printing trades*	86.42	74.50	2.06	68.81
13	*Transport trades*	81.38	45.60	1.26	66.75
14	*Police, prison and guards*	76.73	35.00	0.96	65.49
15	*Commercial delivery and postal services*	74.65	20.60	0.57	64.53
16	*Mining occupations*	59.58	437.70	12.12	63.96
17	*General manufacturing and dealing*	55.88	793.80	21.98	51.84
18	*Agricultural occupations*	41.52	1,078.00	29.86	29.86
Total			3,610.70	100.00	

Table A3.2.8.: Ranking of occupational classifications by average nominal annual earnings (1891): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,342.60	20.00	0.47	100.00
2	*Medical*	475.47	26.80	0.63	99.53
3	*Engineers and surveyors*	380.61	15.40	0.37	98.90
4	*Religious*	336.90	47.90	1.13	98.53
5	***Accounting***	**268.06**	**339.40**	**8.02**	**97.40**
6	*Govt: Civil official*	215.01	51.30	1.21	89.38
7	*Teaching*	133.90	50.60	1.20	88.17
8	*Metal trades*	107.06	87.40	2.07	86.97
9	*Textile trades*	93.60	122.00	2.88	84.90
10	*Building trades*	91.52	393.10	9.29	82.02
11	*Printing trades*	90.04	102.10	2.41	72.73
12	*Domestic services and messengers*	89.51	280.70	6.63	70.32
13	*Transport trades*	87.80	62.60	1.48	63.69
14	*Mining occupations*	82.75	599.10	14.16	62.21
15	*Police, prison and guards*	72.33	55.20	1.30	48.05
16	*Commercial delivery and postal services*	70.40	35.40	0.84	46.75
17	*General manufacturing and dealing*	62.68	890.00	21.03	45.91
18	*Agricultural occupations*	41.94	1,053.00	24.88	24.88
Total			4,232.00	100.00	

Table A3.2.9.: Ranking of occupational classifications by average nominal annual earnings (1901): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,500.00	21.00	0.47	100.00
2	*Engineers and surveyors*	333.99	17.40	0.38	99.53
3	***Accounting***	**286.86**	**463.10**	**10.54**	**99.15**
4	*Medical*	265.39	30.60	0.70	88.61
5	*Religious*	238.00	50.90	1.16	87.91
6	*Govt: Civil official*	159.63	68.90	1.57	86.75
7	*Teaching*	147.50	61.90	1.41	85.18
8	*Metal trades*	116.50	118.90	2.71	83.77
9	*Building trades*	103.35	530.00	12.07	81.06
10	*Domestic services and messengers*	101.97	296.00	6.74	68.99
11	*Textile trades*	101.40	98.70	2.25	62.25
12	*Printing trades*	92.66	119.80	2.74	60.00
13	*Transport trades*	92.51	86.50	1.97	57.26
14	*Mining occupations*	89.37	689.10	15.69	55.29
15	*Commercial delivery and postal services*	72.20	57.80	1.32	39.60
16	*General manufacturing and dealing*	68.90	758.40	17.27	38.28
17	*Police, prison and guards*	68.69	65.70	1.49	21.01
18	*Agricultural occupations*	46.12	857.20	19.52	19.52
Totals:			4,391.90	100.00	

Table A3.2.10.: Ranking of occupational classifications by average nominal annual earnings (1911): Based on percentage of total occupied population

Rank	Occupational classification	Ave. nominal annual earnings	Occupational weighting	Percentage	Percentile (high boundary)
1	*Legal*	1,343.50	21.30	0.45	100.00
2	*Engineers and surveyors*	287.37	12.20	0.27	99.55
3	*Medical*	272.75	33.00	0.70	99.26
4	***Accounting***	**229.89**	546.40	**11.61**	**98.56**
5	*Religious*	206.00	52.40	1.11	86.95
6	*Teaching*	176.15	68.70	1.46	85.84
7	*Govt: Civil official*	161.61	86.00	1.83	84.38
8	*Metal trades*	125.21	124.20	2.64	82.55
9	*Textile trades*	108.50	117.40	2.49	79.91
10	*Building trades*	105.14	483.70	10.28	77.42
11	*Transport trades*	102.34	87.20	1.85	67.14
12	*Printing trades*	97.29	141.00	2.99	65.29
13	*Domestic services and messengers*	85.91	322.50	6.85	62.30
14	*Mining occupations*	83.63	865.60	18.39	55.45
15	*General manufacturing and dealing*	74.04	638.50	13.57	37.06
16	*Police, prison and guards*	70.62	74.30	1.58	23.49
17	*Commercial delivery and postal services*	67.95	109.50	2.33	21.91
18	*Agricultural occupations*	46.96	922.50	19.60	19.60
Totals:			4,706.4	100.00	

Table A3.3.0.: Williamson's occupational weightings (1821-1911)

(in thousands)

Code	1821	1831	1841	1851	1861	1871	1881	1891	1901	1911
1L	688.5	874.2	849.6	1,283.0	1,233.9	1,185.5	1,078.0	1,053.0	857.2	922.5
2L	182.9	251.7	321.5	440.0	524.9	626.2	793.8	890.0	758.4	638.5
3L	49.6	68.3	87.3	119.9	132.2	145.8	148.5	280.7	296.0	322.5
4L	3.3	4.6	5.9	8.4	14.5	24.8	20.6	35.4	57.8	109.5
5L	9.2	12.7	16.2	22.3	26.5	31.5	35.0	55.2	65.7	74.3
6L	136.4	187.7	239.7	328.0	340.3	352.8	437.7	599.1	689.1	865.6
1H	15.7	21.6	27.6	38.2	40.3	42.6	40.3	51.3	68.9	86.0
2H	10.6	14.6	18.6	25.5	32.1	40.6	45.6	62.6	86.5	87.2
3H	15.1	20.8	26.6	36.7	48.4	64.2	74.9	87.4	118.9	124.2
4H	108.5	149.4	190.8	261.2	289.9	323.5	380.2	393.1	530.0	483.7
5H	60.6	83.5	106.6	146.0	129.6	115.3	111.9	122.0	98.7	117.4
6H	16.7	23.0	29.3	40.2	47.2	55.8	74.5	102.1	119.8	141.0
7H	12.6	17.3	22.1	30.4	34.5	39.5	44.0	47.9	50.9	52.4
8H	6.7	9.2	11.7	16.4	16.1	15.8	17.4	20.0	21.0	21.3
9H	33.6	46.2	59.0	81.0	118.5	173.4	221.5	339.4	463.1	546.4
10H	9.2	12.7	16.2	22.6	23.1	23.7	26.0	26.8	30.6	33.0
11H	13.9	19.2	24.5	33.9	33.2	32.7	46.0	50.6	61.9	68.7
12H	2.9	4.1	5.2	7.3	6.7	6.1	14.8	15.4	17.4	12.2

Source: Williamson, J.G., (1982). The Structure of Pay in Britain 1710-1911, *Research in Economic History*, Vol.7, pages 1-54

Codes as per table: '*Williamson Occupational Codes*'; 1821 data based on family units; 1831 and 1841 based on males 20+; 1851 to 1911 based on males 10+.

Table A3.4.0.: Williamson's average nominal earnings (per classification)

Occupational classification	1819	1827	1835	1851	1861	1871	1881	1891	1901	1911
Agricultural Labourers	39.05	31.04	30.03	29.04	36.04	41.05	41.52	41.94	46.12	46.96
General Labourers	41.74	43.65	39.29	44.83	44.18	51.44	55.88	62.68	68.90	74.04
Messengers Porters (exc. Govt.)	81.35	84.39	87.20	88.88	82.21	87.34	97.05	89.51	101.97	85.91
Govt. Low wage	60.60	59.01	58.70	66.45	67.15	63.72	74.65	70.40	72.20	67.95
Police Guards Watchmen	69.18	62.95	63.33	53.62	53.94	55.86	76.73	72.33	68.69	70.62
Miners	53.37	54.61	56.41	55.44	62.89	66.20	59.58	82.75	89.37	83.63
Govt. High wage	219.25	222.95	276.42	234.87	251.33	281.02	275.29	215.01	159.63	161.61
Skilled in Shipbuilding	57.23	62.22	62.74	64.12	69.11	76.83	81.38	87.80	92.51	102.34
Skilled in Engineers	92.71	80.69	77.26	84.05	88.77	94.38	96.68	107.06	116.50	125.21
Skilled in building trades	63.02	66.35	59.72	66.35	72.90	83.33	87.18	91.52	103.35	105.14
Skilled in textiles	67.60	58.50	64.56	58.64	63.26	82.55	85.77	93.60	101.40	108.50
Skilled in printing	71.14	70.23	70.23	74.72	74.72	79.92	86.42	90.04	92.66	97.29
Teachers	69.35	69.35	81.89	81.11	93.76	97.02	120.80	133.90	147.50	176.15
Clerks Exc. Govt.	229.64	240.29	269.11	235.81	248.47	268.63	286.65	268.06	286.86	229.89
Clergymen	266.55	254.60	258.76	267.09	272.30	293.84	315.37	336.90	238.00	206.00
Medical Officers surgeons	217.60	175.20	200.92	200.92	343.00	645.40	520.29	475.47	265.39	272.75
Solicitors Barristers	447.50	522.50	1166.67	1837.50	1600.00	1326.67	1280.00	1342.60	1500.00	1343.50
Engineers Surveyors	326.43	365.71	398.89	479.00	529.15	579.13	312.97	380.61	333.99	287.37

Source: Williamson, J.G., (1982). The Structure of Pay in Britain 1710-1911, *Research in Economic History*, Vol.7, pages 1-54

Codes as per table: '*Williamson Occupational Codes*'; 1821 data based on family units; 1831 and 1841 based on males 20+; 1851 to 1911 based on males 10+.

Table A3.5.0.: Williamson's occupational classifications

Codes	Occupational classification	Sub-classifications
1L	**Agricultural labourers**	Farmers (+families); Agricultural labourers; Farm servants; Shepherds; Horse keepers; Horseman, teamster, carter; Woodman; Gardner, Nurserymen, Seedsmen; Drover, Animal keepers; dealer; Knacker, Cat meat dealer, vermin destroyer, Fisherman; Game keeper.
2L	**General labourers and others**	Dock labourer, wharf labour, Factory hands, textile workers, Clay, sand gravel, chalk labours; Brick/tile makers, burners, Paviour, road labour, Platelayer, railway labours, navy; (Other: stone, clay and road making); Factory labour (undefined); General labour; Artisan, mechanic, apprentice (undefined) Town drainage services, chimney sweep, soot merchant; Rag gatherer/dealer; Scavenger, cross sweeper.
3L	**Messengers & porters**	Messenger, Porter, Watchmen; Coal heaver/porter/labourer; Coke/charcoal/peat cutter/burner; Railway porter.
4L	**Govt: Low wage**	Guards, Watchmen, Messengers, Post office letter carriers, porters, janitors
5L	**Police and guards**	Railway guards, Prison officers and Police.
6L	**Miners**	Coal miners (underground), Ironstone/copper/tin/lead/stone/slate miners.
1H	**Govt: High wage**	Civil service (officers and clerks), Municipal, parish, district, union officers; Other local and county officials
2H	**Skilled in shipbuilding**	Shipwrights: Ship and barge builder (wood and/or iron)
3H	**Skilled in engineering**	Engine and machine; millwrights, fitter and turners, boiler makers; Spinning and weaving machine makers; Agriculture machine and implement makers; Domestic machine and implement makers; Tool makers; Cutter and scissor/file/saw/pin/needle/steel, Pen/pencil/makers; Watch and clock maker; Philosophical instrument makers, Optician; Electrical apparatus/ surgical instruments/ weighing and measurement/ surgical instrument makers; Gunsmith and gun manufacturers; Sword, bayonet cutter/ musical instrument makers; Type cutter, Die/ seal/ coin/ medal maker; Fishing, tackle and toy makers; Nail manufactures; Anchor chain manufacturers; Copper goods/ lead and leaden goods/ tin, tin plate/ zinc and zinc goods/ other iron and steel workers; Metal refiners, workers and turners; Brass, bronze manufacture, brazier; White metal, plate ware, manufacturer; Wire drawer, maker workers; Bolt, nut, rivet, screw makers; Lamp, lantern makers; machinist, machine workers (undefined).
4H	**Skilled in building**	Builders; Joiners; Bricklayers, Masons, Carpenters, Plasterers; Slater, Tilers; Paper hangers; Whitewashers; Plumbers; Painters and Glaziers.
5H	**Skilled in textiles**	Wool staplers; Woollen cloth manufacturers; Wool, woollen goods, dyer/ printers; Worsted and stuff manufacturers; Flannel, blanket manufacturer; Fuller; (Others wool workers); Silk, satin, dyers and manufacturers; Crape/ gauze/ cotton/ calico/ printers, dyers, bleachers and manufacturers; Flax/ linen/ lace/ fustian/ tape/ thread/ hemp/ jute manufacturers; Rope/ twine/ mat/ net makers; canvas/ sailcloth/ felt/ carpet/ rug manufacturers; Weavers, cutters, dyers, scourers (undefined); Draper (general), Linen draper, Mercer, Fancy goods (textile workers); Trimming makers; Embroiderers.
6H	**Skilled in printing**	Bookbinders; Printers; Lithographer; Copper and steel plate printer; Compositors.
7H	**Clergymen**	Clergyman (established church); Roman Catholic priest; Minister, Priest of other religious bodies; Missionary, Scripture reader, Itinerant preacher; Church officers (includes: royal, ecclesiastical, university and private patronage).
8H	**Solicitors& barristers**	Solicitors; Barristers.
9H	**Clerks (non-govt)**	**Bank clerks; Law clerks; Auctioneers and appraiser; Accountants; Commercial clerks; Railway clerks and station agents.**
10H	**Medical officers, surgeons**	Physician, Surgeon, General practitioners; Dentist, Dental apparatus makers; Veterinary surgeon.
11H	**Teachers**	School masters, Teachers, Professor; Lecturers both charity schools and civilian.
12H	**Engineers & surveyors**	Civil engineers; Mining engineers; Land and house surveyor, Ship surveyor

Source: Williamson, J.G., (1982). The Structure of Pay in Britain 1710-1911, *Research in Economic History*, Vol.7, pages 1-54 Codes as per table: '*Williamson Occupational Codes*'; 1821 data based on family units; 1831 and 1841 based on males 20+; 1851 to 1911 based on males 10+.

Appendix 4:
Accounting: Occupational education (1821 – 1911)

Table A4.1.0.: Educational results for *Accounting* classification ranking (1821 to 1911)							
Year	**Rank**		**Year**	**Elite Score**		**Year**	**Non-elite Score**
1821	**9**		**1821**	**96.94**		**1821**	**96.53**
1831	**9**		**1831**	**96.46**		**1831**	**95.92**
1841	**8**		**1841**	**96.79**		**1841**	**96.09**
1851	**8**		**1851**	**96.41**		**1851**	**95.54**
1861	**8**		**1861**	**96.00**		**1861**	**95.27**
1871	**7**		**1871**	**96.34**		**1871**	**94.83**
1881	**6**		**1881**	**96.18**		**1881**	**93.82**
1891	**7**		**1891**	**96.10**		**1891**	**94.03**
1901	**7**		**1901**	**95.81**		**1901**	**93.16**
1911	**5**		**1911**	**98.25**		**1911**	**95.05**

Table A4.1.1.: Summary of overall educational results for 36 occupational classifications (1821 to 1911)										
Occupational classification	**1821**		**1831**		**1841**		**1851**		**1861**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**98.01**	97.55	**97.76**	97.29	**97.63**	97.15	**96.81**	96.42	**96.37**	96.01
Engineers & surveyors	**98.76**	98.69	**98.71**	98.61	**98.69**	98.54	**98.66**	98.40	**97.42**	97.08
Religious	**99.80**	99.51	**99.77**	99.45	**99.77**	99.43	**99.80**	99.42	**99.15**	98.74
Accounting	**96.94**	96.53	**96.46**	95.92	**96.79**	96.90	**96.41**	95.54	**96.00**	95.27
Govt: Civil official	**97.54**	97.20	**97.28**	96.92	**97.14**	96.80	**97.12**	96.89	**97.07**	96.38
Medical	**99.50**	98.77	**99.44**	98.72	**99.42**	98.70	**99.41**	98.65	**99.84**	99.16
Metal trades	**61.94**	57.35	**53.45**	48.72	**11.88**	7.30	**58.98**	53.96	**73.45**	66.88
Domestic services and messengers	**78.28**	61.95	**48.71**	32.58	**76.97**	56.49	**73.38**	58.99	**45.26**	29.48
Printing trades	**78.44**	78.29	**77.63**	77.41	**77.36**	76.98	**73.80**	73.39	**29.47**	28.96
Teaching	**98.68**	98.02	**98.60**	97.77	**98.53**	97.64	**98.43**	97.13	**98.73**	97.43
Police, prison and guards	**100.00**	99.81	**100.00**	99.78	**100.00**	99.78	**100.00**	99.81	**100.00**	99.85
Textile trades	**57.34**	34.33	**77.40**	53.46	**58.48**	36.12	**53.95**	30.70	**66.87**	45.27
Building trades	**96.52**	90.64	**95.91**	89.91	**95.52**	89.25	**95.53**	88.01	**95.26**	87.38
Commercial delivery and postal services	**97.19**	96.95	**96.91**	96.47	**96.09**	95.53	**88.00**	87.38	**74.09**	73.46
Transport trades	**5.47**	2.75	**6.71**	2.95	**3.87**	00.00	**4.50**	00.00	**9.77**	4.66
Mining occupations	**2.74**	00.00	**2.94**	00.00	**7.29**	3.88	**8.66**	4.51	**4.65**	00.00
General manufacturing and dealing	**90.63**	78.45	**89.90**	77.64	**89.24**	77.37	**87.37**	73.81	**87.37**	74.10
Agricultural occupations	**34.32**	5.48	**32.57**	6.72	**36.11**	11.89	**30.69**	8.67	**28.95**	9.78
Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**96.72**	96.35	**93.81**	93.42	**94.02**	93.63	**95.15**	92.76	**92.54**	92.15
Engineers & surveyor	**98.53**	98.12	**98.44**	97.94	**98.90**	98.71	**98.80**	98.62	**98.80**	98.66
Religious	**99.69**	99.27	**98.68**	99.22	**98.70**	98.21	**98.61**	98.12	**98.65**	98.26
Accounting	**96.34**	94.83	**96.18**	93.82	**96.10**	94.03	**95.81**	93.16	**98.25**	95.05
Govt: Civil official	**94.82**	94.47	**93.41**	93.05	**98.20**	97.71	**96.41**	95.82	**93.34**	92.55
Medical	**99.26**	98.54	**99.21**	98.45	**99.70**	98.91	**99.70**	98.81	**99.60**	98.81
Metal trades	**70.22**	62.98	**84.35**	78.27	**93.62**	85.73	**68.20**	56.81	**67.87**	57.28
Domestic services and messengers	**43.00**	26.00	**47.21**	30.06	**25.27**	7.71	**23.46**	4.71	**23.50**	8.21
Printing trades	**43.65**	43.01	**60.99**	60.19	**60.32**	59.13	**56.80**	55.41	**57.27**	55.48
Teaching	**98.11**	96.73	**97.93**	96.19	**97.70**	96.11	**98.11**	96.42	**95.04**	93.35
Police, prison and guards	**100.00**	99.70	**100.00**	99.69	**100.00**	99.71	**100.00**	99.71	**100.00**	99.61
Textile trades	**62.97**	43.66	**24.90**	6.33	**48.48**	30.18	**41.16**	23.47	**41.30**	23.51
Building trades	**94.46**	86.33	**93.04**	84.36	**68.42**	60.33	**76.71**	68.21	**76.52**	67.88
Commercial delivery and postal services	**70.93**	70.23	**61.86**	61.00	**7.70**	4.72	**3.08**	00.00	**3.10**	00.00
Transport trades	**5.37**	00.00	**6.32**	00.00	**4.71**	00.00	**4.70**	3.09	**8.20**	3.11
Mining occupations	**10.52**	5.38	**30.05**	24.91	**30.17**	25.28	**46.46**	41.17	**47.40**	41.31
General manufacturing and dealing	**86.32**	70.94	**78.26**	61.87	**85.72**	68.43	**92.75**	76.72	**92.14**	76.53
Agricultural occupations	**25.99**	10.53	**60.18**	47.22	**59.12**	48.49	**55.40**	46.47	**55.47**	47.41

Table A4.2.0.: Ranking of occupational classifications (1821 and 1831)

A: Weighting (percentage)	B: Cumulative (percentage)	C: Occupational <15 (percentage)	D: Occupational Ranking

1821	A	B	C	D	1831	A	B	C	D
Police, prison and guard	0.20	100.00	0.00	1	*Police, prison and guard*	0.23	100.00	0.00	1
Religious	0.30	99.80	0.31	2	*Religious*	0.33	99.77	0.29	2
Medical	0.74	99.50	0.53	3	*Medical*	0.73	99.44	0.35	3
Engineers & surveyors	0.08	98.76	2.00	4	*Engineers & surveyors*	0.11	98.71	1.70	4
Teaching	0.67	98.68	2.29	5	*Teaching*	0.84	98.60	1.81	5
Legal	0.47	98.01	2.31	6	*Legal*	0.48	97.76	2.37	6
Govt: Civil official	0.35	97.54	2.76	7	*Govt: Civil official*	0.37	97.28	2.52	7
Commercial delivery and postal services	0.25	97.19	3.63	8	*Commercial delivery and postal services*	0.45	96.91	3.70	8
Accounting	0.42	96.94	4.21	9	*Accounting*	0.55	96.46	3.92	9
Building trades	5.89	96.52	5.04	10	Building trades	6.01	95.91	4.39	10
General manufacturing and dealing	12.19	90.63	6.28	11	*General manufacturing and dealing*	12.27	89.90	5.63	11
Printing trades	0.16	78.44	8.02	12	*Printing trades*	0.23	77.63	7.62	12
Domestic services and messengers	16.34	78.28	10.14	13	*Textile trades*	23.95	77.40	9.08	13
Metal trades	4.60	61.94	10.92	14	*Metal trades*	4.74	53.45	9.53	14
Textile trades	23.02	57.34	11.01	15	*Domestic services and messengers*	16.14	48.71	10.18	15
Agricultural occupations	28.85	34.32	12.35	16	*Agricultural occupations*	25.86	32.57	11.11	16
Transportation trades	2.73	5.47	12.64	17	*Transportation trades*	3.77	6.71	12.36	17
Mining occupations	2.74	2.74	20.88	18	*Mining occupations*	2.94	2.94	15.59	18

Table A4.2.1.: Ranking of occupational classifications (1841 and 1851)

A: Weighting (percentage)	B: Cumulative (percentage)	C: Occupational <15 (percentage)	D: Occupational Ranking

1841	A	B	C	D	1851	A	B	C	D
Police, prison and guard	0.23	100.00	0.00	1	*Police, prison and guard*	0.20	100.00	0.00	1
Religious	0.35	99.77	0.35	2	*Religious*	0.39	99.80	0.29	2
Medical	0.73	99.42	0.59	3	*Medical*	0.75	99.41	0.39	3
Engineers & surveyors	0.16	98.69	1.40	4	*Engineers & surveyors*	0.26	98.66	0.50	4
Teaching	0.90	98.53	1.41	5	*Teaching*	1.28	98.40	1.24	5
Legal	0.49	97.63	2.35	6	*Govt: Civil official*	0.31	97.12	2.05	6
Govt: Civil official	0.35	97.14	2.35	7	*Legal*	0.40	96.81	2.20	7
Accounting	0.70	96.79	3.66	8	*Accounting*	0.88	96.41	2.87	8
Commercial delivery and postal services	0.57	96.09	3.80	9	*Building trades*	7.53	95.53	3.41	9
Building trades	6.28	95.52	3.86	10	*Commercial delivery and postal services*	0.63	88.00	4.00	10
General manufacturing and dealing	11.88	89.24	4.66	11	*General manufacturing and dealing*	13.57	87.37	4.01	11
Printing trades	0.39	77.36	6.81	12	*Printing trades*	0.42	73.80	4.01	11
Domestic services and messengers	18.49	76.97	7.48	13	*Domestic services and messengers*	14.40	73.38	5.11	13
Textile trades	22.37	58.48	7.83	14	*Metal trades*	5.03	58.98	5.51	14
Agricultural occupations	24.23	36.11	9.67	15	*Textile trades*	23.26	53.95	5.53	15
Metal trades	4.59	11.88	10.74	16	*Agricultural occupations*	22.03	30.69	5.61	16
Mining occupations	3.42	7.29	12.04	17	*Mining occupations*	4.16	8.66	10.76	17
Transportation trades	3.87	3.87	12.39	18	*Transportation trades*	4.50	4.50	14.02	18

Table A4.2.2.: Ranking of occupational classifications (1861 and 1871)

A: Weighting (percentage)	B: Cumulative (percentage)	C: Occupational <15 (percentage)	D: Occupational Ranking

1861	A	B	C	D	1871	A	B	C	D
Police, prison and guard	0.16	100.00	0.00	1	*Police, prison and guard*	0.31	100.00	0.00	1
Medical	0.69	99.84	0.45	2	*Religious*	0.43	99.69	0.17	2
Religious	0.42	99.15	0.47	3	*Medical*	0.73	99.26	0.47	3
Teaching	1.31	98.73	1.21	4	*Engineers & surveyors*	0.42	98.53	0.70	4
Engineers & surveyors	0.35	97.42	1.30	5	*Teaching*	1.39	98.11	1.78	5
Govt: Civil official	0.70	97.07	1.69	6	*Legal*	0.38	96.72	2.30	6
Legal	0.37	96.37	2.27	7	*Accounting*	1.52	96.34	3.07	7
Accounting	0.74	96.00	3.26	8	*Govt: Civil official*	0.36	94.82	3.13	8
Building trades	7.89	95.26	3.30	9	*Building trades*	8.14	94.46	3.14	9
General manufacturing and dealing	13.28	87.37	3.55	10	*General manufacturing and dealing*	15.39	86.32	3.36	10
Commercial delivery and postal services	0.64	74.09	3.80	11	*Commercial delivery and postal services*	0.71	70.93	3.70	11
Metal trades	6.58	73.45	4.02	12	*Metal trades*	7.25	70.22	3.76	12
Textile trades	21.61	66.87	5.17	13	*Textile trades*	19.32	62.97	5.16	13
Domestic services and messengers	15.79	45.26	5.80	14	*Printing trades*	0.65	43.65	5.59	14
Printing trades	0.52	29.47	6.99	15	*Domestic services and messengers*	17.01	43.00	5.99	15
Agricultural occupations	19.18	28.95	7.06	16	*Agricultural occupations*	15.47	25.99	6.39	16
Transportation trades	5.12	9.77	9.33	17	*Mining occupations*	4.61	10.52	8.60	17
Mining occupations	4.65	4.65	10.69	18	*Transportation trades*	5.91	5.37	9.19	18

Table A4.2.3.: Ranking of occupational classifications (1881 and 1891)

A: Weighting (percentage)	B: Cumulative (percentage)	C: Occupational <15 (percentage)	D: Occupational Ranking

1881	A	B	C	D	1891	A	B	C	D
Police, prison and guard	0.32	100.00	0.00	1	*Police, prison and guard*	0.30	100.00	0.00	1
Religious	0.47	99.68	0.17	2	*Medical*	0.80	99.70	0.11	2
Medical	0.77	99.21	0.35	3	*Engineers & surveyors*	0.20	98.90	0.11	3
Engineers & surveyors	0.51	98.44	0.40	4	Religious	0.50	98.70	0.24	4
Teaching	1.75	97.93	2.06	5	*Govt: Civil official*	0.50	98.20	1.94	5
Accounting	2.37	96.18	2.23	6	*Teaching*	1.60	97.70	2.07	6
Legal	0.40	93.81	2.30	7	*Accounting*	2.08	96.10	2.14	7
Govt: Civil official	0.37	93.41	2.86	8	*Legal*	0.40	94.02	2.27	8
Building trades	8.69	93.04	2.91	9	*Metal trades*	7.90	93.62	2.45	9
Metal trades	6.09	84.35	2.97	10	*General manufacturing and dealing*	17.30	85.72	2.48	10
General manufacturing and dealing	16.40	78.26	3.21	11	*Building trades*	8.10	68.42	2.78	11
Commercial delivery and postal services	0.87	61.86	3.80	12	*Printing trades*	1.20	60.32	3.87	12
Printing trades	0.81	60.99	5.05	13	*Agricultural occupations*	10.64	59.12	3.94	13
Agricultural occupations	12.97	60.18	5.11	14	*Textile trades*	18.31	48.48	3.96	14
Domestic services and messengers	17.16	47.21	5.18	15	*Mining occupations*	4.90	30.17	4.21	15
Mining occupations	5.15	30.05	5.24	16	*Domestic services and messengers*	17.57	25.27	4.24	16
Textile trades	18.58	24.90	5.43	17	*Commercial delivery and postal services*	2.99	7.70	4.38	17
Transportation trades	6.32	6.32	7.83	18	*Transportation trades*	4.71	4.71	5.71	18

Table A4.2.4.: Ranking of occupational classifications (1901 and 1911)

A: Weighting (percentage)	B: Cumulative (percentage)	C: Occupational <15 (percentage)	D: Occupational Ranking

1901	A	B	C	D	1911	A	B	C	D
Police, prison and guard	0.30	100.00	0.00	1	*Police, prison and guard*	0.40	100.00	0.00	1
Medical	0.90	99.70	0.08	2	*Medical*	0.80	99.60	0.07	2
Engineers & surveyors	0.19	98.80	0.10	3	*Engineers & surveyors*	0.15	98.80	0.10	3
Religious	0.50	98.61	0.22	4	*Religious*	0.40	98.65	0.21	4
Teaching	1.70	98.11	1.04	5	*Accounting*	3.21	98.25	0.46	5
Govt: Civil official	0.60	96.41	1.81	6	*Teaching*	1.70	95.04	1.02	6
Accounting	2.66	95.81	1.92	7	*Govt: Civil official*	0.80	93.34	1.57	7
Legal	0.40	93.15	2.10	8	*Legal*	0.40	92.54	2.05	8
General manufacturing and dealing	16.04	92.75	2.18	9	*General manufacturing and dealing*	15.62	92.14	2.12	9
Building trades	8.51	76.71	2.31	10	*Building trades*	8.65	76.52	2.14	10
Metal trades	11.40	68.20	2.42	11	*Metal trades*	10.60	67.87	2.39	11
Printing trades	1.40	56.80	2.85	12	*Printing trades*	1.80	57.27	2.45	12
Agricultural occupations	8.94	55.40	2.96	13	*Agricultural occupations*	8.07	55.47	2.63	13
Mining occupations	5.30	46.46	3.09	14	*Mining occupations*	6.10	47.40	2.81	14
Textile trades	17.70	41.16	3.21	15	*Textile trades*	17.80	41.30	2.81	15
Domestic services and messengers	16.06	23.46	3.51	16	*Domestic services and messengers*	15.30	23.50	3.08	16
Transportation trades	4.32	4.70	4.50	17	*Transportation trades*	5.10	8.20	3.53	17
Commercial delivery and postal services	3.08	3.08	5.21	18	*Commercial delivery and postal services*	3.10	3.10	5.28	18

Table A4.3.0.: Percentage weighting of occupational classifications (1821 and 1831)

A: Percentage of occupied population	B: Percentage of < 15 years	C: Weighting within occupational classification	D: Weighted percentage of < 15 years within occupational classification

1821		A	B	C	D
Legal					
Lawyers	M	0.47	2.31	1.00	2.31
	F	0.00	0.00	0.00	0.00
Weighting		**0.47**	**Percentage**		**2.31**
Medical					
Doctor	M	0.52	1.09	0.70	0.53
	F	0.22	0.00	0.30	0.00
Weighting		**0.74**	**Percentage**		**0.53**
Accounting					
Commercial services	M	0.41	4.30	0.98	4.21
	F	0.01	0.00	0.00	0.00
Weighting		**0.42**	**Percentage**		**4.21**
Religious					
Religious	M	0.30	0.31	1.00	0.31
	F	0.00	0.00	0.00	0.00
Weighting		**0.30**	**Percentage**		**0.31**
Teaching					
Education: general and literature and science	M	0.26	5.87	0.39	2.29
	F	0.41	0.00	0.61	0.00
Weighting		**0.67**	**Percentage**		**2.29**
Govt: Civil official					
Administration	M	0.35	2.76	1.00	2.76
	F	0.00	0.00	0.00	0.00
Weighting		**0.35**	**Percentage**		**2.76**
Metal trades					
Metal workers	M	3.10	11.80	0.67	7.91
	F	0.24	2.62	0.05	0.13
Machinery and tools	M	0.65	9.59	0.14	1.34
	F	0.05	1.00	0.01	0.01
Mechanical instruments	M	0.25	4.80	0.06	0.29
	F	0.01	0.77	0.00	0.00
Unspecified	M	0.21	19.95	0.05	1.00
	F	0.09	12.13	0.02	0.24
Weighting		**4.60**	**Percentage**		**10.92**
Textile trades					
Furs, leather and glue	M	0.52	8.29	0.02	0.01
	F	0.01	2.69	0.00	0.00
Paper, floorcloth and waterproof	M	0.09	16.00	0.01	0.16
	F	0.00	4.86	0.00	0.00
Textiles and dyeing	M	6.40	13.17	0.28	3.69
	F	5.80	19.32	0.25	4.83
Dressmaking	M	6.42	4.87	0.28	1.36
	F	3.57	5.99	0.16	0.96
Weighting		**23.02**	**Percentage**		**11.01**
Engineers & surveyors					
Engineers, surveyors	M	0.08	2.00	1.00	2.00
	F	0.00	0.00	0.00	0.00
Weighting		**0.08**	**Percentage**		**2.00**
Building trades					

1831		A	B	C	D
Legal					
	M	0.48	2.37	1.00	2.37
	F	0.00	0.00	0.00	0.00
Weighting		**0.48**	**Percentage**		**2.37**
Medical					
	M	0.50	1.00	0.69	0.35
	F	0.23	0.00	0.31	0.00
Weighting		**0.73**	**Percentage**		**0.35**
Accounting					
	M	0.54	4.00	0.98	3.92
	F	0.01	0.00	0.02	0.00
Weighting		**0.55**	**Percentage**		**3.92**
Religious					
	M	0.32	0.30	0.97	0.29
	F	0.01	0.00	0.03	0.00
Weighting		**0.33**	**Percentage**		**0.29**
Teaching					
	M	0.35	4.30	0.42	1.81
	F	0.49	0.00	0.58	0.00
Weighting		**0.84**	**Percentage**		**1.81**
Govt: Civil official					
	M	0.36	2.60	0.97	2.52
	F	0.01	0.00	0.03	0.00
Weighting		**0.37**	**Percentage**		**2.52**
Metal trades					
	M	3.09	10.80	0.65	7.02
	F	0.29	2.20	0.06	0.13
	M	0.66	8.10	0.14	1.13
	F	0.08	0.90	0.02	0.02
	M	0.28	4.30	0.06	0.26
	F	0.01	0.70	0.00	0.00
	M	0.21	17.00	0.04	0.68
	F	0.12	9.80	0.03	0.29
Weighting		**4.74**	**Percentage**		**9.53**
Textile trades					
	M	0.54	7.10	0.03	0.21
	F	0.04	2.40	0.00	0.00
	M	0.14	13.60	0.01	0.14
	F	0.02	4.60	0.00	0.00
	M	6.65	10.90	0.28	3.05
	F	5.76	16.00	0.24	3.84
	M	4.82	3.80	0.20	0.76
	F	5.98	4.50	0.24	1.08
Weighting		**23.95**	**Percentage**		**9.08**
Engineers & surveyors					
	M	0.11	1.70	1.00	1.70
	F	0.00	0.00	0.00	0.00
Weighting		**0.11**	**Percentage**		**1.70**
Building trades					

Operative	M	3.19	4.85	0.54	2.62		M	3.28	4.20	0.55	2.31
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Road making	M	0.34	4.81	0.06	0.29		M	0.34	4.00	0.06	0.24
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Woodworking	M	2.26	5.52	0.38	2.10		M	2.30	4.90	0.37	1.81
	F	0.10	1.65	0.02	0.03		F	0.09	1.30	0.02	0.03
Weighting		**5.89**	**Percentage**		**5.04**		**Weighting**	**6.01**	**Percentage**		**4.39**
Transportation trades							***Transportation trades***				
Shipbuilding	M	0.23	4.42	0.08	0.35		M	0.41	4.00	0.11	0.44
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Navigation and docks	M	2.40	13.86	0.88	12.20		M	3.20	13.90	0.85	11.82
	F	0.07	1.51	0.03	0.05		F	0.07	1.30	0.02	0.03
Railways	M	0.03	3.68	0.01	0.04		M	0.09	3.30	0.02	0.07
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**2.73**	**Percentage**		**12.64**		**Weighting**	**3.77**	**Percentage**		**12.36**
Commercial delivery and postal services							***Commercial delivery and postal services***				
Road Transport	M	0.25	3.63	1.00	3.63		M	0.45	3.70	1.00	3.70
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.25**	**Percentage**		**3.63**		**Weighting**	**0.45**	**Percentage**		**3.70**
Printing trades							***Printing trades***				
Printing and bookbinding	M	0.15	8.48	0.94	7.97		M	0.22	7.90	0.96	7.58
	F	0.01	0.88	0.06	0.05		F	0.01	1.00	0.04	0.04
Weighting		**0.16**	**Percentage**		**8.02**		**Weighting**	**0.23**	**Percentage**		**7.62**
Domestic services and messengers							***Domestic services and messengers***				
Indoor domestic	M	2.03	1.10	0.12	0.13		M	1.78	1.00	0.11	0.11
	F	13.17	12.32	0.81	9.97		F	13.06	11.25	0.81	10.02
Outdoor domestic	M	0.01	2.29	0.00	0.00		M	0.01	2.20	0.00	0.00
	F	0.01	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Other domestic services	M	0.09	0.49	0.01	0.01		M	0.13	0.50	0.01	0.01
	F	1.03	0.48	0.06	0.03		F	1.15	0.50	0.07	0.04
Weighting		**16.34**	**Percentage**		**10.14**		**Weighting**	**16.14**	**Percentage**		**10.18**
Mining occupations							***Mining occupations***				
Miners	M	2.22	23.73	0.81	19.22		M	2.41	17.80	0.82	14.60
	F	0.11	0.70	0.04	0.03		F	0.10	0.60	0.03	0.02
Quarrymen and brick makers	M	0.37	11.71	0.14	1.60		M	0.39	6.80	0.14	0.95
	F	0.02	2.61	0.01	0.03		F	0.02	2.10	0.01	0.02
Salt and water works	M	0.01	6.96	0.00	0.00		M	0.01	2.60	0.00	0.00
	F	0.01	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Weighting		**2.74**	**Percentage**		**20.88**		**Weighting**	**2.94**	**Percentage**		**15.59**
General manufacturing and dealing							***General manufacturing and dealing***				
Earthenware manufacturer	M	0.42	15.96	0.03	0.48		M	0.41	13.20	0.03	0.40
	F	0.11	8.89	0.01	0.09		F	0.12	7.80	0.01	0.08
Fuel gas and chemical manufacturer	M	0.01	8.14	0.00	0.00		M	0.04	6.80	0.00	0.00
	F	0.01	4.61	0.00	0.00		F	0.01	3.70	0.00	0.00
Food, drink and smoke: manufacturer	M	1.40	4.00	0.12	0.48		M	1.44	3.70	0.12	0.45
	F	0.09	0.00	0.01	0.00		F	0.09	0.00	0.01	0.00
General labour: Industrial	M	3.69	11.87	0.30	3.56		M	3.66	10.00	0.31	3.10
	F	0.15	0.50	0.01	0.01		F	0.15	0.40	0.01	0.00
Dealing: Raw materials	M	0.53	11.87	0.04	0.48		M	0.52	9.70	0.04	0.39
	F	0.03	1.81	0.00	0.00		F	0.04	1.50	0.00	0.00
Dealing: Clothing material and dress	M	0.63	4.75	0.05	0.23		M	0.63	4.10	0.06	0.25
	F	0.00	0.51	0.00	0.00		F	0.00	0.50	0.00	0.00
Dealing: Food, drink and smoke	M	2.61	2.37	0.21	0.50		M	2.70	2.30	0.23	0.53
	F	0.43	0.20	0.03	0.01		F	0.45	0.20	0.03	0.01
Lodging and coffee houses	M	0.41	0.00	0.03	0.00		M	0.32	0.00	0.02	0.00
	F	0.47	0.00	0.05	0.00		F	0.32	0.00	0.02	0.00
Dealing: Furniture, utensils and stationary	M	0.31	5.04	0.03	0.15		M	0.36	4.60	0.03	0.14
	F	0.01	0.28	0.00	0.00		F	0.02	0.30	0.00	0.00

General dealing (unspecified)	M	0.55	5.23	0.05	0.26		M	0.69	4.30	0.06	0.26
	F	0.33	1.12	0.03	0.03		F	0.30	1.00	0.02	0.02
Weighting		**12.19**	**Percentage**		**6.28**		**Weighting**	**12.27**	**Percentage**		**5.63**
Police, prison and guard							***Police, prison and guard***				
Police and prisons	M	0.20	0.00	1.00	0.00		M	0.22	0.00	0.96	0.00
	F	0.00	0.00	0.00	0.00		F	0.01	0.00	0.04	0.00
Weighting		**0.20**	**Percentage**		**0.00**		**Weighting**	**0.23**	**Percentage**		**0.00**
Agricultural occupations							***Agricultural occupations***				
Farmers and their relatives	M	5.39	0.65	0.19	0.12		M	4.99	1.20	0.19	0.23
	F	0.53	0.00	0.02	0.00		F	0.39	0.00	0.02	0.00
Agricultural labours and shepherds	M	18.97	18.05	0.66	11.91		M	17.05	16.00	0.66	10.56
	F	1.77	1.50	0.06	0.09		F	1.50	1.30	0.06	0.08
Nurserymen and gardeners	M	1.48	2.70	0.05	0.14		M	1.15	2.60	0.04	0.10
	F	0.01	0.10	0.00	0.00		F	0.01	0.10	0.00	0.00
Agricultural drainage and machinery attendants	M	0.00	0.00	0.00	0.00		M	0.00	0.00	0.00	0.00
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Breeding and dealing (livestock)	M	0.57	4.37	0.02	0.09		M	0.57	4.00	0.02	0.08
	F	0.01	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Fishermen	M	0.10	8.10	0.00	0.00		M	0.15	6.20	0.01	0.06
	F	0.02	0.00	0.00	0.00		F	0.04	0.00	0.00	0.00
Weighting		**28.85**	**Percentage**		**12.35**		**Weighting**	**25.86**	**Percentage**		**11.11**
Total (%)		**100.00**					**Total (%)**	**100.00**			

Table A4.3.1.: Percentage weighting of occupational classifications (1841 and 1851)

A: Percentage of occupied population	B: Percentage of < 15 years	C: Weighting within occupational classification	D: Weighted percentage of < 15 years within occupational classification

1841		A	B	C	D	1851		A	B	C	D
Legal						***Legal***					
Lawyers	M	0.49	2.35	1.00	2.35		M	0.40	2.20	1.00	2.20
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.49**	**Percentage**		**2.35**	**Weighting**		**0.40**	**Percentage**		**2.20**
Medical						***Medical***					
Doctor	M	0.48	0.89	0.66	0.59		M	0.42	0.70	0.56	0.39
	F	0.25	0.00	0.34	0.00		F	0.33	0.00	0.44	0.00
Weighting		**0.73**	**Percentage**		**0.59**	**Weighting**		**0.75**	**Percentage**		**0.39**
Accounting						***Accounting***					
Commercial services	M	0.69	3.70	0.99	3.66		M	0.87	2.90	0.99	2.87
	F	0.01	0.00	0.01	0.00		F	0.01	0.00	0.01	0.00
Weighting		**0.70**	**Percentage**		**3.66**	**Weighting**		**0.88**	**Percentage**		**2.87**
Religious						***Religious***					
Religious	M	0.35	0.30	1.00	0.35		M	0.38	0.30	0.97	0.29
	F	0.00	0.00	0.00	0.00		F	0.01	0.00	0.03	0.00
Weighting		**0.35**	**Percentage**		**0.35**	**Weighting**		**0.39**	**Percentage**		**0.29**
Teaching						***Teaching***					
Education: general and literature and science	M	0.37	3.30	0.41	1.35		M	0.37	3.20	0.30	0.96
	F	0.53	0.10	0.59	0.06		F	0.91	0.40	0.70	0.28
Weighting		**0.90**	**Percentage**		**1.41**	**Weighting**		**1.28**	**Percentage**		**1.24**
Govt: Civil official						***Govt: Civil official***					
Administration	M	0.33	2.50	0.94	2.35			0.29	2.20	0.93	2.05
	F	0.02	0.00	0.06	0.00			0.02	0.00	0.07	0.00
Weighting		**0.35**	**Percentage**		**2.35**	**Weighting**		**0.31**	**Percentage**		**2.05**
Metal trades						***Metal trades***					
Metal workers	M	2.98	9.90	0.65	6.44		M	3.12	6.10	0.62	3.74
	F	0.25	1.80	0.05	0.09		F	0.28	1.20	0.06	0.07
Machinery and tools	M	0.71	7.60	0.16	1.22		M	1.02	4.90	0.20	0.98
	F	0.05	0.80	0.01	0.01		F	0.05	0.70	0.01	0.01
Mechanical instruments	M	0.30	3.80	0.07	2.27		M	0.30	3.20	0.06	0.19
	F	0.01	0.60	0.00	0.00		F	0.01	0.40	0.00	0.00
Unspecified	M	0.19	14.00	0.04	0.56		M	0.25	10.30	0.05	0.52
	F	0.10	7.50	0.02	0.15		F	0.00	0.00	0.00	0.00
Weighting		**4.59**	**Percentage**		**10.74**	**Weighting**		**5.03**	**Percentage**		**5.51**
Textile trades						***Textile trades***					
Furs, leather and glue	M	0.50	5.90	0.02	0.01		M	0.55	3.30	0.03	0.10
	F	0.04	2.10	0.00	0.00		F	0.08	1.60	0.00	0.00
Paper, floorcloth and waterproof	M	0.15	11.30	0.01	0.11		M	0.17	6.30	0.01	0.06
	F	0.03	4.50	0.00	0.00		F	0.10	3.70	0.00	0.00
Textiles and dyeing	M	5.75	9.60	0.26	2.50		M	5.74	7.30	0.25	1.83
	F	5.77	13.90	0.26	3.62		F	5.85	8.70	0.25	2.18
Dressmaking	M	5.89	3.20	0.26	0.83		M	4.93	2.30	0.21	0.48
	F	4.24	4.00	0.19	0.76		F	5.84	3.50	0.25	0.88
Weighting		**22.37**	**Percentage**		**7.83**	**Weighting**		**23.26**	**Percentage**		**5.53**
Engineers & surveyors						***Engineers & surveyors***					
Engineers, surveyors	M	0.16	1.40	1.00	1.40		M	0.25	0.50	1.00	0.50
	F	0.00	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Weighting		**0.16**	**Percentage**		**1.40**			**0.26**			**0.50**
Building trades						***Building trades***					

Operative	M	3.52	3.70	0.56	2.07		M	4.61	3.40	0.61	2.07
	F	0.02	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Road making	M	0.42	3.20	0.07	0.23		M	0.49	1.40	0.07	0.10
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Woodworking	M	2.25	4.30	0.36	1.55		M	2.32	4.00	0.31	1.24
	F	0.07	1.10	0.01	0.01		F	0.11	0.30	0.01	0.00
Weighting		**6.28**	**Percentage**		**3.86**		**Weighting**	**7.53**	**Percentage**		**3.41**
Transportation trades							***Transportation trades***				
Shipbuilding	M	0.42	3.60	0.11	0.40		M	0.40	3.00	0.09	0.27
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Navigation and docks	M	3.31	14.00	0.85	11.90		M	3.57	17.20	0.79	13.59
	F	0.02	1.10	0.01	0.01		F	0.14	1.20	0.03	0.04
Railways	M	0.12	2.80	0.03	0.08		M	0.39	1.20	0.09	0.12
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**3.87**	**Percentage**		**12.39**		**Weighting**	**4.50**	**Percentage**		**14.02**
Commercial delivery and postal services							***Commercial delivery and postal services***				
Road Transport	M	0.57	3.80	1.00	3.80		M	0.63	4.00	1.00	4.00
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.57**	**Percentage**		**3.80**		**Weighting**	**0.63**	**Percentage**		**4.00**
Printing trades							***Printing trades***				
Printing and bookbinding	M	0.36	7.30	0.92	6.72		M	0.37	4.40	0.88	3.87
	F	0.03	1.10	0.08	0.09		F	0.05	1.20	0.12	0.14
Weighting		**0.39**	**Percentage**		**6.81**		**Weighting**	**0.42**	**Percentage**		**4.01**
Domestic services and messengers							***Domestic services and messengers***				
Indoor domestic	M	3.67	0.90	0.20	0.18		M	1.22	0.70	0.09	0.07
	F	13.28	10.20	0.71	7.24		F	10.22	6.90	0.71	4.90
Outdoor domestic	M	0.10	2.10	0.01	0.02		M	0.42	1.70	0.03	0.05
	F	0.03	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Other domestic services	M	0.25	0.50	0.02	0.01		M	0.21	0.70	0.01	0.01
	F	1.16	0.50	0.06	0.03		F	2.33	0.50	0.16	0.08
Weighting		**18.49**	**Percentage**		**7.48**		**Weighting**	**14.40**	**Percentage**		**5.11**
Mining occupations							***Mining occupations***				
Miners	M	2.69	14.40	0.78	11.23		M	3.19	12.30	0.77	9.47
	F	0.09	0.50	0.03	0.01		F	0.09	0.50	0.02	0.01
Quarrymen and brick makers	M	0.61	4.50	0.17	0.77		M	0.84	6.40	0.20	1.28
	F	0.03	1.60	0.01	0.02		F	0.01	0.60	0.00	0.00
Salt and water works	M	0.03	0.80	0.01	0.01		M	0.03	0.00	0.01	0.00
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**3.42**	**Percentage**		**12.04**		**Weighting**	**4.16**	**Percentage**		**10.76**
General manufacturing and dealing							***General manufacturing and dealing***				
Earthenware manufacturer	M	0.38	13.20	0.03	0.40		M	0.45	12.90	0.03	0.39
	F	0.14	6.70	0.01	0.07		F	0.15	5.20	0.01	0.05
Fuel gas and chemical manufacturer	M	0.01	5.60	0.00	0.00		M	0.21	3.30	0.02	0.07
	F	0.00	2.90	0.00	0.00		F	0.02	0.50	0.00	0.00
Food, drink and smoke: manufacturer	M	1.37	3.40	0.12	0.41		M	1.55	2.60	0.11	0.29
	F	0.11	0.00	0.01	0.00		F	0.16	0.20	0.01	0.00
General labour: Industrial	M	3.35	8.20	0.29	2.38		M	4.16	6.20	0.32	1.98
	F	0.10	0.30	0.01	0.00		F	0.09	0.10	0.01	0.00
Dealing: Raw materials	M	0.40	7.60	0.03	0.23		M	0.48	2.00	0.04	0.08
	F	0.02	1.20	0.00	0.00		F	0.01	0.50	0.00	0.00
Dealing: Clothing material and dress	M	0.59	3.60	0.05	0.18		M	0.57	2.70	0.05	0.14
	F	0.08	0.50	0.01	0.01		F	0.12	0.50	0.01	0.01
Dealing: Food, drink and smoke	M	2.86	2.20	0.24	0.53		M	2.96	1.80	0.20	0.79
	F	0.56	0.20	0.05	0.01		F	0.57	0.20	0.05	0.01
Lodging and coffee houses	M	0.04	0.00	0.00	0.00		M	0.07	0.00	0.00	0.00
	F	0.11	0.00	0.01	0.00		F	0.21	0.00	0.02	0.00
Dealing: Furniture, utensils and stationary	M	0.40	4.30	0.03	0.13		M	0.43	3.30	0.03	0.10
	F	0.05	0.30	0.00	0.00		F	0.06	0.00	0.00	0.00

General dealing (unspecified)	M	0.95	3.50	0.08	0.28			M	0.92	1.20	0.07	0.08
	F	0.36	1.00	0.03	0.03			F	0.38	0.90	0.02	0.02
Weighting		**11.88**	**Percentage**		**4.66**		**Weighting**		**13.57**	**Percentage**		**4.01**
Police, prison and guard							***Police, prison and guard***					
Police and prisons	M	0.23	0.00	1.00	0.00			M	0.20	0.00	1.00	0.00
	F	0.00	0.00	0.00	0.00			F	0.00	0.00	0.00	0.00
Weighting		**0.23**	**Percentage**		**0.00**		**Weighting**		**0.20**	**Percentage**		**0.00**
Agricultural occupations							***Agricultural occupations***					
Farmers and their relatives	M	4.71	0.75	0.19	0.14			M	4.43	0.00	0.20	0.00
	F	0.36	0.00	0.02	0.00			F	0.28	0.00	0.01	0.00
Agricultural labours and shepherds	M	15.95	14.00	0.66	9.24			M	13.77	8.40	0.63	5.30
	F	1.43	1.10	0.06	0.07			F	1.77	1.10	0.08	0.09
Nurserymen and gardeners	M	1.07	2.50	0.04	0.10			M	0.94	2.20	0.04	0.09
	F	0.01	0.10	0.00	0.00			F	0.03	0.10	0.00	0.00
Agricultural drainage and machinery attendants	M	0.00	0.00	0.00	0.00			M	0.00	0.00	0.00	0.00
	F	0.00	0.00	0.00	0.00			F	0.00	0.00	0.00	0.00
Breeding and dealing (livestock)	M	0.49	3.60	0.02	0.07			M	0.59	2.50	0.03	0.09
	F	0.01	0.00	0.00	0.00			F	0.01	0.00	0.00	0.00
Fishermen	M	0.16	5.10	0.01	0.05			M	0.21	4.10	0.01	0.04
	F	0.04	0.00	0.00	0.00			F	0.00	0.00	0.00	0.00
Weighting		**24.23**	**Percentage**		**9.67**		**Weighting**		**22.03**	**Percentage**		**5.61**
Total (%)		**100.00**					**Total (%)**		**100.00**			

Table A4.3.2.: Percentage weighting of occupational classifications (1861 and 1871)

A: Percentage of occupied population	B: Percentage of < 15 years	C: Weighting within occupational classification	D: Weighted percentage of < 15 years within occupational classification

1861		A	B	C	D	1871		A	B	C	D
Legal						***Legal***					
Lawyers	M	0.37	2.27	1.00	2.27		M	0.38	2.30	1.00	2.30
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.37**	**Percentage**		**2.27**	**Weighting**		**0.38**	**Percentage**		**2.30**
Medical						***Medical***					
Doctor	M	0.39	0.80	0.56	0.45		M	0.57	0.60	0.78	0.47
	F	0.30	0.00	0.44	0.00		F	0.16	0.00	0.22	0.00
Weighting		**0.69**	**Percentage**		**0.45**	**Weighting**		**0.73**	**Percentage**		**0.47**
Accounting						***Accounting***					
Commercial services	M	0.73	3.30	0.99	3.26		M	1.49	3.10	0.99	3.07
	F	0.01	0.00	0.01	0.00		F	0.03	0.00	0.01	0.00
Weighting			**Percentage**		**3.26**	**Weighting**		**1.52**	**Percentage**		**3.07**
Religious						***Religious***					
Religious	M	0.39	0.50	0.93	0.47		M	0.38	0.20	0.84	0.17
	F	0.03	0.00	0.07	0.00		F	0.05	0.00	0.16	0.00
Weighting		**0.42**	**Percentage**		**0.47**	**Weighting**		**0.43**	**Percentage**		**0.17**
Teaching						***Teaching***					
Education: general and literature and science	M	0.40	1.00	0.31	0.31		M	0.43	1.30	0.31	0.40
	F	0.91	1.30	0.69	0.90		F	0.96	2.00	0.69	1.38
Weighting		**1.31**	**Percentage**		**1.21**	**Weighting**		**1.39**	**Percentage**		**1.78**
Govt: Civil official						***Govt: Civil official***					
Administration	M	0.66	1.80	0.94	1.69			0.33	3.40	0.92	3.13
	F	0.04	0.00	0.06	0.00			0.03	0.10	0.08	0.00
Weighting		**0.70**	**Percentage**		**1.69**	**Weighting**		**0.36**	**Percentage**		**3.13**
Metal trades						***Metal trades***					
Metal workers	M	3.79	6.60	0.58	2.20		M	3.98	4.80	0.55	**2.19**
	F	0.32	1.30	0.05	0.02		F	0.27	0.70	0.04	0.03
Machinery and tools	M	1.66	5.20	0.25	1.30		M	1.62	3.70	0.21	0.78
	F	0.08	0.80	0.01	0.01		F	0.08	0.40	0.03	0.01
Mechanical instruments	M	0.36	3.10	0.06	0.19		M	0.35	2.30	0.05	0.12
	F	0.01	0.30	0.00	0.00		F	0.01	0.30	0.00	0.00
Unspecified	M	0.30	6.50	0.04	0.26		M	0.64	6.20	0.03	0.50
	F	0.06	3.70	0.01	0.04		F	0.30	3.20	0.04	0.13
Weighting		**6.58**	**Percentage**		**4.02**	**Weighting**		**7.25**	**Percentage**		**3.76**
Textile trades						***Textile trades***					
Furs, leather and glue	M	0.52	3.10	0.02	0.06		M	0.48	2.30	0.03	0.07
	F	0.09	1.60	0.00	0.00		F	0.10	1.30	0.00	0.00
Paper, floorcloth and waterproof	M	0.16	7.50	0.01	0.08		M	0.20	5.30	0.01	0.05
	F	0.12	5.10	0.01	0.05		F	0.13	3.80	0.00	0.00
Textiles and dyeing	M	4.81	6.80	0.22	1.50		M	4.04	6.50	0.21	1.37
	F	5.76	8.60	0.27	2.32		F	5.43	9.20	0.29	2.67
Dressmaking	M	4.13	2.00	0.19	0.38		M	3.55	1.50	0.18	0.27
	F	6.02	2.80	0.28	0.78		F	5.39	2.60	0.28	0.73
Weighting		**21.61**	**Percentage**		**5.17**	**Weighting**		**19.32**	**Percentage**		**5.16**
Engineers & surveyors						***Engineers & surveyors***					
Engineers, surveyors	M	0.35	1.30	1.00	1.30		M	0.42	0.70	1.00	0.70
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.35**	**Percentage**		**1.30**	**Weighting**		**0.42**	**Percentage**		**0.70**
Building trades						***Building trades***					

Operative	M	5.01	3.24	0.63	**2.04**		M	5.28	3.20	0.65	2.08
	F	0.01	0.00	0.00	**0.00**		F	0.01	0.00	0.00	0.00
Road making	M	0.51	1.90	0.07	**0.13**		M	0.57	1.50	0.07	0.11
	F	0.00	0.00	0.00	**0.00**		F	0.00	0.00	0.00	0.00
Woodworking	M	2.21	4.00	0.28	**1.12**		M	2.09	3.62	0.26	0.94
	F	0.15	0.40	0.02	**0.01**		F	0.19	0.60	0.02	0.01
Weighting		**7.89**	**Percentage**		**3.30**		**Weighting**	**8.14**	**Percentage**		**3.14**
Transportation trades							***Transportation trades***				
Shipbuilding	M	0.60	3.60	0.12	0.43		M	0.55	2.20	0.09	0.20
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Navigation and docks	M	3.72	11.80	0.73	8.61		M	3.71	13.50	0.63	8.51
	F	0.08	0.40	0.01	0.00		F	0.11	0.50	0.02	0.01
Railways	M	0.72	2.10	0.14	0.29		M	1.54	1.80	0.26	0.47
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**5.12**	**Percentage**		**9.33**		**Weighting**	**5.91**	**Percentage**		**9.19**
Commercial delivery and postal services							***Commercial delivery and postal services***				
Road Transport	M	0.64	3.80	1.00	3.80		M	0.71	3.70	1.00	3.70
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.64**	**Percentage**		**3.80**		**Weighting**	**0.71**	**Percentage**		**3.70**
Printing trades							***Printing trades***				
Printing and bookbinding	M	0.45	7.80	0.87	6.79		M	0.56	6.30	0.86	5.42
	F	0.07	1.50	0.13	0.20		F	0.09	1.20	0.14	0.17
Weighting		**0.52**	**Percentage**		**6.99**		**Weighting**	**0.65**	**Percentage**		**5.59**
Domestic services and messengers							***Domestic services and messengers***				
Indoor domestic	M	0.98	0.80	0.06	0.05		M	1.02	0.60	0.06	0.04
	F	10.74	8.10	0.68	5.51		F	12.07	8.30	0.71	5.89
Outdoor domestic	M	0.89	2.40	0.06	0.15		M	0.67	1.70	0.04	0.07
	F	0.01	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Other domestic services	M	0.22	0.50	0.01	0.01		M	0.23	0.30	0.01	0.00
	F	2.95	0.40	0.19	0.08		F	3.01	0.50	0.18	0.09
Weighting		**15.79**	**Percentage**		**5.80**		**Weighting**	**17.01**	**Percentage**		**5.99**
Mining occupations							***Mining occupations***				
Miners	M	3.60	11.90	0.77	9.16		M	3.62	9.50	0.79	7.51
	F	0.06	0.20	0.01	0.00		F	0.06	0.20	0.01	0.00
Quarrymen and brick makers	M	0.93	7.40	0.20	1.48		M	0.87	5.90	0.18	1.06
	F	0.02	0.50	0.00	0.00		F	0.03	0.60	0.01	0.01
Salt and water works	M	0.04	2.40	0.02	0.05		M	0.03	2.00	0.01	0.02
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**4.65**	**Percentage**		**10.69**		**Weighting**	**4.61**	**Percentage**		**8.60**
General manufacturing and dealing							***General manufacturing and dealing***				
Earthenware manufacturer	M	0.46	10.90	0.04	0.44		M	0.48	7.10	0.03	0.21
	F	0.15	4.50	0.01	0.05		F	0.17	3.70	0.01	0.04
Fuel gas and chemical manufacturer	M	0.27	3.10	0.02	0.06		M	0.34	2.30	0.02	0.05
	F	0.02	0.80	0.00	0.00		F	0.04	1.30	0.00	0.00
Food, drink and smoke: manufacturer	M	1.46	3.20	0.11	0.35		M	1.43	2.70	0.09	0.24
	F	0.17	0.30	0.01	0.00		F	0.18	0.50	0.01	0.01
General labour: Industrial	M	3.35	6.60	0.25	1.65		M	4.48	6.20	0.29	1.80
	F	0.04	0.10	0.00	0.00		F	0.07	0.10	0.00	0.00
Dealing: Raw materials	M	0.56	2.70	0.04	0.11		M	0.69	3.60	0.05	0.18
	F	0.04	0.90	0.00	0.00		F	0.06	0.50	0.00	0.00
Dealing: Clothing material and dress	M	0.73	2.40	0.06	0.14		M	0.69	2.00	0.05	0.10
	F	0.19	0.20	0.01	0.00		F	0.25	0.70	0.02	0.01
Dealing: Food, drink and smoke	M	2.97	2.00	0.22	0.44		M	3.15	2.00	0.20	0.40
	F	0.63	0.20	0.05	0.01		F	0.65	0.20	0.05	0.01
Lodging and coffee houses	M	0.07	0.00	0.00	0.00		M	0.07	0.30	0.00	0.00
	F	0.20	0.00	0.01	0.00		F	0.24	0.30	0.02	0.01
Dealing: Furniture, utensils and stationary	M	0.52	3.60	0.04	0.14		M	0.58	3.40	0.04	0.14
	F	0.09	0.40	0.01	0.00		F	0.11	0.40	0.01	0.00
General dealing (unspecified)	M	1.01	1.70	0.08	0.14		M	1.25	1.80	0.08	0.14
	F	0.35	0.50	0.03	0.02		F	0.47	0.60	0.03	0.02

Weighting		**13.28**	**Percentage**		**3.55**		**Weighting**	**15.39**	**Percentage**		**3.36**
Police, prison and guard							***Police, prison and guard***				
Police and prisons	M	0.16	0.00	1.00	0.00		M	0.30	0.00	1.00	0.00
	F	0.00	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Weighting		**0.16**	**Percentage**		**0.00**		**Weighting**	**0.31**	**Percentage**		**0.00**
Agricultural occupations							***Agricultural occupations***				
Farmers and their relatives	M	3.86	0.00	0.20	0.00		M	3.36	0.60	0.21	0.13
	F	0.25	0.00	0.00	0.00		F	0.24	0.00	0.02	0.00
Agricultural labours and shepherds	M	12.21	10.15	0.67	6.80		M	9.30	9.90	0.60	5.94
	F	0.99	0.50	0.05	0.03		F	0.57	0.40	0.04	0.02
Nurserymen and gardeners	M	0.97	2.50	0.00	0.13		M	1.07	2.30	0.07	0.16
	F	0.02	0.00	0.00	0.00		F	0.02	0.10	0.00	0.00
Agricultural drainage and machinery attendants	M	0.03	0.00	0.00	0.00		M	0.04	0.00	0.00	0.00
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Breeding and dealing (livestock)	M	0.65	3.20	0.03	0.10		M	0.63	2.60	0.04	0.10
	F	0.01	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Fishermen	M	0.18	4.00	0.00	0.00		M	0.22	3.80	0.01	0.04
	F	0.01	0.00	0.00	0.00		F	0.01	0.00	0.00	0.00
Weighting		**19.18**	**Percentage**		**7.06**		**Weighting**	**15.47**	**Percentage**		**6.39**
Total (%)		**100.00**					**Total (%)**	**100.00**			

Table A4.3.3.: Percentage weighting of occupational classifications (1881 and 1891)

A: Percentage of occupied population	B: Percentage of < 15 years	C: Weighting within occupational classification	D: Weighted percentage of < 15 years within occupational classification

1881		A	B	C	D
Legal					
Lawyers	M	0.40	2.30	1.00	2.30
	F	0.00	0.00	0.00	0.00
Weighting		**0.40**	**Percentage**		**2.30**
Medical					
Doctor	M	0.54	0.50	0.70	0.35
	F	0.23	0.00	0.30	0.00
Weighting		**0.77**	**Percentage**		**0.35**
Accounting					
Commercial services	M	2.30	2.80	0.97	2.23
	F	0.07	0.00	0.03	0.00
Weighting		**2.37**	**Percentage**		**2.23**
Religious					
Religious	M	0.40	0.20	0.85	0.17
	F	0.07	0.00	0.15	0.00
Weighting		**0.47**	**Percentage**		**0.17**
Teaching					
Education: general and literature and science	M	0.54	0.20	0.31	0.06
	F	1.21	2.90	0.69	2.00
Weighting		**1.75**	**Percentage**		**2.06**
Govt: Civil official					
Administration	M	0.33	3.20	0.89	2.85
	F	0.04	0.10	0.11	0.01
Weighting		**0.37**	**Percentage**		**2.86**
Metal trades					
Metal workers	M	3.07	3.20	0.50	1.60
	F	0.21	0.30	0.03	0.01
Machinery and tools	M	1.47	3.20	0.25	0.80
	F	0.07	0.30	0.01	0.00
Mechanical instruments	M	0.29	1.80	0.05	0.09
	F	0.01	0.20	0.00	0.00
Unspecified	M	0.87	3.20	0.14	0.45
	F	0.10	0.80	0.02	0.02
Weighting		**6.09**	**Percentage**		**2.97**
Textile trades					
Furs, leather and glue	M	0.45	1.00	0.02	0.02
	F	0.12	1.00	0.01	0.01
Paper, floorcloth and waterproof	M	0.23	2.90	0.01	0.03
	F	0.21	3.60	0.01	0.04
Textiles and dyeing	M	3.64	6.20	0.20	1.24
	F	5.19	6.90	0.28	1.93
Dressmaking	M	3.16	0.90	0.17	1.53
	F	5.58	2.10	0.30	0.63
Weighting		**18.58**	**Percentage**		**5.43**
Engineers & surveyors					
Engineers, surveyors	M	0.51	0.40	1.00	0.40
	F	0.00	0.00	0.00	0.00
Weighting		**0.51**	**Percentage**		**0.40**
Building trades					

1891		A	B	C	D
Legal					
	M	0.40	2.27	1.00	2.27
	F	0.00	0.00	0.00	0.00
Weighting		**0.40**	**Percentage**		**2.27**
Medical					
	M	0.20	0.43	0.25	0.11
	F	0.60	0.00	0.75	0.00
Weighting		**0.80**	**Percentage**		**0.11**
Accounting					
	M	1.93	2.33	0.92	2.14
	F	0.15	0.00	0.08	0.00
Weighting		**2.08**	**Percentage**		**2.14**
Religious					
	M	0.48	0.25	0.96	0.24
	F	0.02	0.00	0.04	0.00
Weighting		**0.50**	**Percentage**		**0.24**
Teaching					
	M	0.43	0.10	0.27	0.03
	F	1.17	2.80	0.73	2.04
Weighting		**1.60**	**Percentage**		**2.07**
Govt: Civil official					
		0.46	2.10	0.92	1.93
		0.04	0.10	0.08	0.01
Weighting		**0.50**	**Percentage**		**1.94**
Metal trades					
	M	4.16	2.62	0.53	1.39
	F	0.28	0.10	0.04	0.00
	M	2.02	2.81	0.26	0.73
	F	0.10	0.28	0.01	0.00
	M	0.29	1.33	0.04	0.05
	F	0.05	0.16	0.00	0.00
	M	0.93	2.36	0.12	0.28
	F	0.07	0.10	0.00	0.00
Weighting		**7.90**	**Percentage**		**2.45**
Textile trades					
	M	0.42	0.90	0.03	0.03
	F	0.13	0.71	0.01	0.01
	M	0.16	1.53	0.01	0.02
	F	0.17	3.36	0.01	0.03
	M	3.73	6.15	0.20	1.23
	F	5.03	6.73	0.28	1.89
	M	3.21	1.02	0.17	0.17
	F	5.46	2.00	0.29	0.58
Weighting		**18.31**	**Percentage**		**3.96**
Engineers & surveyors					
	M	0.20	0.11	1.00	0.11
	F	0.00	0.00	0.00	0.00
Weighting		**0.20**	**Percentage**		**0.11**
Building trades					

Operative	M	5.78	3.35	0.67	2.25		M	5.71	3.28	0.71	2.33
	F	0.02	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Road making	M	0.69	1.70	0.08	0.14		M	0.80	1.84	0.10	0.18
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Woodworking	M	2.03	2.20	0.23	0.51		M	1.36	1.61	0.16	0.26
	F	0.17	0.30	0.02	0.01		F	0.23	0.17	0.03	0.01
Weighting		**8.69**	**Percentage**		**2.91**		**Weighting**	**8.10**	**Percentage**		**2.78**
Transportation trades							***Transportation trades***				
Shipbuilding	M	0.63	1.80	0.10	0.18		M	0.57	1.54	0.12	0.18
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Navigation and docks	M	3.97	11.60	0.63	7.31		M	2.01	11.88	0.43	5.11
	F	0.08	0.30	0.01	0.00		F	0.00	0.10	0.00	0.00
Railways	M	1.62	1.30	0.26	0.34		M	2.13	0.93	0.45	0.42
	F	0.02	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**6.32**	**Percentage**		**7.83**		**Weighting**	**4.71**	**Percentage**		**5.71**
Commercial delivery and postal services							***Commercial delivery and postal services***				
Road Transport	M	0.87	3.80	1.00	3.80		M	2.99	4.38	1.00	4.38
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.87**	**Percentage**		**3.80**		**Weighting**	**2.99**	**Percentage**		**4.38**
Printing trades							***Printing trades***				
Printing and bookbinding	M	0.69	5.70	0.85	4.85		M	0.85	4.80	0.71	3.41
	F	0.12	1.30	0.15	0.20		F	0.35	1.58	0.29	0.46
Weighting		**0.81**	**Percentage**		**5.05**		**Weighting**	**1.20**	**Percentage**		**3.87**
Domestic services and messengers							***Domestic services and messengers***				
Indoor domestic	M	0.92	0.50	0.05	0.03		M	0.47	0.41	0.02	0.01
	F	11.64	7.20	0.68	4.90		F	11.38	6.16	0.65	4.00
Outdoor domestic	M	1.49	1.60	0.09	0.15		M	0.98	1.62	0.06	0.10
	F	0.01	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Other domestic services	M	0.57	0.30	0.03	0.02		M	0.93	0.31	0.05	0.02
	F	2.53	0.50	0.15	0.08		F	3.81	0.52	0.22	0.11
Weighting		**17.16**	**Percentage**		**5.18**		**Weighting**	**17.57**	**Percentage**		**4.24**
Mining occupations							***Mining occupations***				
Miners	M	4.03	5.80	0.78	4.52		M	4.45	4.20	0.91	4.05
	F	0.05	0.10	0.01	0.00		F	0.06	0.10	0.01	0.00
Quarrymen and brick makers	M	0.98	3.80	0.19	0.72		M	0.29	2.70	0.06	0.16
	F	0.03	0.10	0.00	0.00		F	0.01	0.10	0.00	0.00
Salt and water works	M	0.06	0.00	0.01	0.00		M	0.09	0.10	0.02	0.00
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**5.15**	**Percentage**		**5.24**		**Weighting**	**4.90**	**Percentage**		**4.21**
General manufacturing and dealing							***General manufacturing and dealing***				
Earthenware manufacturer	M	0.48	5.50	0.03	0.17		M	0.30	2.81	0.02	0.06
	F	0.18	2.60	0.01	0.03		F	0.15	1.52	0.01	0.02
Fuel gas and chemical manufacturer	M	0.40	1.00	0.02	0.02		M	0.57	1.10	0.03	0.03
	F	0.04	0.40	0.00	0.00		F	0.11	0.10	0.01	0.00
Food, drink and smoke: manufacturer	M	1.40	2.40	0.09	0.22		M	1.40	2.10	0.08	0.17
	F	0.26	0.70	0.02	0.01		F	0.50	0.70	0.03	0.02
General labour: Industrial	M	5.10	6.30	0.31	1.95		M	3.60	5.66	0.21	1.19
	F	0.03	0.00	0.00	0.00		F	1.27	0.00	0.07	0.00
Dealing: Raw materials	M	0.54	1.40	0.03	0.04		M	0.56	4.01	0.03	0.12
	F	0.03	0.20	0.00	0.00		F	0.06	0.63	0.00	0.00
Dealing: Clothing material and dress	M	0.69	1.40	0.04	0.06		M	0.62	1.35	0.03	0.04
	F	0.34	0.70	0.02	0.01		F	0.41	0.53	0.02	0.01
Dealing: Food, drink and smoke	M	3.24	2.40	0.20	0.48		M	3.51	3.11	0.21	0.65
	F	0.66	0.20	0.04	0.01		F	0.97	0.20	0.06	0.01
Lodging and coffee houses	M	0.09	0.00	0.00	0.00		M	0.12	0.00	0.00	0.00
	F	0.33	0.00	0.02	0.00		F	0.94	0.00	0.06	0.00
Dealing:	M	0.63	3.00	0.04	0.12		M	0.17	3.34	0.01	0.03

Furniture, utensils and stationary	F	0.14	0.40	0.01	0.00		F	0.05	0.39	0.00	0.00
General dealing (unspecified)	M	1.39	0.90	0.09	0.08		M	1.51	1.36	0.09	0.12
	F	0.43	0.50	0.02	0.01		F	0.48	0.38	0.03	0.01
Weighting		**16.40**	**Percentage**		**3.21**		**Weighting**	**17.30**	**Percentage**		**2.48**
Police, prison and guard							***Police, prison and guard***				
Police and prisons	M	0.32	0.00	1.00	0.32		M	0.30	0.00	1.00	030
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**0.32**	**Percentage**		**0.32**		**Weighting**	**0.30**	**Percentage**		**0.30**
Agricultural occupations							***Agricultural occupations***				
Farmers and their relatives	M	2.90	0.60	0.22	0.13		M	1.79	1.10	0.17	0.19
	F	0.20	0.00	0.02	0.00		F	0.18	0.00	0.02	0.00
Agricultural labours and shepherds	M	7.80	7.80	0.60	4.68		M	6.19	5.80	0.58	3.36
	F	0.35	0.20	0.03	0.01		F	0.20	0.10	0.02	0.00
Nurserymen and gardeners	M	0.73	2.20	0.06	0.13		M	1.55	2.06	0.15	0.31
	F	0.03	0.10	0.00	0.00		F	0.04	0.10	0.01	0.00
Agricultural drainage and machinery attendants	M	0.04	0.00	0.00	0.00		M	0.04	0.00	0.01	0.0
	F	0.01	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Breeding and dealing (livestock)	M	0.63	2.20	0.05	0.11		M	0.44	1.76	0.04	0.07
	F	0.01	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Fishermen	M	0.26	2.60	0.02	0.05		M	0.21	0.79	0.02	0.01
	F	0.01	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**12.97**	**Percentage**		**5.11**		**Weighting**	**10.64**	**Percentage**		**3.94**
Total (%)		**100.00**					**Total (%)**	**100.00**			

Table A4.3.4.: Percentage weighting of occupational classifications (1901 and 1911)

A: Percentage of occupied population	B: Percentage of < 15 years	C: Weighting within occupational classification	D: Weighted percentage of < 15 years within occupational classification

1901		A	B	C	D
Legal					
Lawyers	M	0.38	2.21	0.95	2.10
	F	0.02	0.00	0.05	0.00
Weighting		**0.40**	**Percentage**		**2.10**
Medical					
Doctor	M	0.20	0.34	0.22	0.08
	F	0.70	0.00	0.78	0.00
Weighting		**0.90**	**Percentage**		**0.08**
Accounting					
Commercial services	M	2.27	2.03	0.85	1.92
	F	0.39	0.00	0.15	0.00
Weighting		**2.66**	**Percentage**		**1.92**
Religious					
Religious	M	0.45	0.24	0.90	0.22
	F	0.05	0.00	0.10	0.00
Weighting		**0.50**	**Percentage**		**0.22**
Teaching					
Education: general and literature and science	M	0.44	0.10	0.26	0.11
	F	1.26	1.74	0.74	0.93
Weighting		**1.70**	**Percentage**		**1.04**
Govt: Civil official					
Administration	M	0.55	1.96	0.92	1.80
	F	0.05	0.10	0.08	0.01
Weighting		**0.60**	**Percentage**		**1.81**
Metal trades					
Metal workers	M	5.66	2.10	0.50	1.05
	F	0.39	0.10	0.03	0.00
Machinery and tools	M	3.67	3.60	0.32	1.17
	F	0.09	0.18	0.01	0.00
Mechanical instruments	M	0.45	0.84	0.04	0.03
	F	0.11	0.10	0.01	0.00
Unspecified	M	0.98	2.10	0.09	0.17
	F	0.05	0.10	0.00	0.00
Weighting		**11.40**			**2.42**
Textile trades					
Furs, leather and glue	M	0.45	0.78	0.02	0.02
	F	0.18	0.42	0.01	0.00
Paper, floorcloth and waterproof	M	0.38	1.10	0.02	0.02
	F	0.40	3.10	0.02	0.06
Textiles and dyeing	M	3.56	5.59	0.21	1.17
	F	4.20	5.39	0.24	1.30
Dressmaking	M	3.23	1.20	0.18	0.22
	F	5.30	1.38	0.30	0.42
Weighting		**17.70**	**Percentage**		**3.21**
Engineers & surveyors					
Engineers, surveyors	M	0.19	0.10	1.00	0.10
	F	0.00	0.00	0.00	0.00
Weighting		**0.19**	**Percentage**		**0.10**
Building trades					

1911		A	B	C	D
Legal					
	M	0.38	2.16	0.95	2.05
	F	0.02	0.00	0.05	0.00
Weighting		**0.40**	**Percentage**		**2.05**
Medical					
	M	0.22	0.24	0.27	0.07
	F	0.58	0.00	0.73	0.00
Weighting		**0.80**	**Percentage**		**0.07**
Accounting					
	M	0.85	1.73	0.26	0.46
	F	2.36	0.00	0.74	0.00
Weighting		**3.21**	**Percentage**		**0.46**
Religious					
	M	0.36	0.23	0.90	0.21
	F	0.04	0.00	0.10	0.00
Weighting		**0.40**	**Percentage**		**0.21**
Teaching					
	M	0.47	0.10	0.28	0.13
	F	1.23	1.68	0.72	0.89
Weighting		**1.70**	**Percentage**		**1.02**
Govt: Civil official					
	M	0.69	1.81	0.86	1.56
	F	0.11	0.10	0.14	0.01
Weighting		**0.80**	**Percentage**		**1.57**
Metal trades					
	M	5.37	2.10	0.51	1.07
	F	0.29	0.10	0.03	0.00
	M	3.31	3.50	0.31	1.09
	F	0.11	0.10	0.01	0.00
	M	0.33	0.74	0.03	0.02
	F	0.12	0.10	0.01	0.00
	M	1.03	2.10	0.10	0.21
	F	0.04	0.10	0.00	0.00
Weighting		**10.60**	**Percentage**		**2.39**
Textile trades					
	M	0.54	0.67	0.03	0.02
	F	0.19	0.13	0.01	0.00
	M	0.43	1.10	0.02	0.02
	F	0.43	2.90	0.02	0.06
	M	3.06	4.93	0.18	0.89
	F	4.39	4.96	0.25	1.24
	M	3.35	1.20	0.19	0.23
	F	5.41	1.16	0.30	0.35
Weighting		**17.80**	**Percentage**		**2.81**
Engineers & surveyors					
	M	0.15	0.10	1.00	0.10
	F	0.00	0.10	0.00	0.00
Weighting		**0.15**	**Percentage**		**0.10**
Building trades					

Operative	M	5.90	2.78	0.69	1.92		M	5.91	2.74	0.68	1.86
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Road making	M	0.98	1.82	0.11	0.20		M	1.0 4	1.80	0.12	0.14
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Woodworking	M	1.53	0.99	0.19	0.19		M	1.51	0.76	0.18	0.14
	F	0.10	0.10	0.01	0.00		F	0.19	0.10	0.02	0.00
Weighting		**8.51**	**Percentage**		**2.31**		**Weighting**	**8.65**	**Percentage**		**2.14**
Transportation trades							***Transportation trades***				
Shipbuilding	M	0.63	1.12	0.15	0.17		M	0.69	0.70	0.14	0.10
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Navigation and docks	M	1.66	10.70	0.38	4.07		M	1.88	9.20	0.37	3.40
	F	0.00	0.10	0.00	0.00		F	0.00	0.10	0.00	0.00
Railways	M	2.03	0.55	0.47	0.26		M	2.33	0.17	0.49	0.03
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**4.32**	**Percentage**		**4.50**		**Weighting**	**5.10**	**Percentage**		**3.53**
Commercial delivery and postal services							***Commercial delivery and postal services***				
Road Transport	M	3.08	3.21	1.00	3.21		M	3.10	2.28	1.00	2.28
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**3.08**	**Percentage**		**5.21**		**Weighting**	**3.10**	**Percentage**		**5.28**
Printing trades							***Printing trades***				
Printing and bookbinding	M	0.92	3.54	0.66	2.34		M	1.06	3.05	0.58	1.77
	F	0.48	1.49	0.34	0.51		F	0.74	1.61	0.42	0.68
Weighting		**1.40**	**Percentage**		**2.85**		**Weighting**	**1.80**	**Percentage**		**2.45**
Domestic services and messengers							***Domestic services and messengers***				
Indoor domestic	M	0.46	0.31	0.03	0.01		M	0.37	0.21	0.02	0.00
	F	9.48	5.48	0.59	3.23		F	8.68	4.90	0.57	2.79
Outdoor domestic	M	1.25	1.53	0.08	0.12		M	1.29	1.44	0.09	0.13
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Other domestic services	M	0.52	0.31	0.03	0.01		M	0.77	0.31	0.05	0.02
	F	4.35	0.51	0.27	0.14		F	4.19	0.50	0.27	0.14
Weighting		**16.06**	**Percentage**		**3.51**		**Weighting**	**15.30**	**Percentage**		**3.08**
Mining occupations							***Mining occupations***				
Miners	M	4.72	3.35	0.89	2.98		M	5.33	3.10	0.87	2.70
	F	0.08	0.10	0.02	0.00		F	0.11	0.10	0.02	0.00
Quarrymen and brick makers	M	0.39	1.43	0.08	0.11		M	0.52	1.17	0.09	0.11
	F	0.01	0.10	0.00	0.00		F	0.01	0.10	0.00	0.00
Salt and water works	M	0.10	0.10	0.01	0.00		M	0.13	0.10	0.02	0.00
	F	0.00	0.00	0.00	0.00		F	0.00	0.00	0.00	0.00
Weighting		**5.30**	**Percentage**		**3.09**		**Weighting**	**6.10**	**Percentage**		**2.81**
General manufacturing and dealing							***General manufacturing and dealing***				
Earthenware manufacturer	M	0.30	1.21	0.02	0.02		M	0.27	1.10	0.02	0.02
	F	0.15	1.43	0.01	0.01		F	0.19	1.30	0.01	0.01
Fuel gas and chemical manufacturer	M	0.80	1.10	0.05	0.06		M	0.82	1.12	0.05	0.06
	F	0.19	1.10	0.01	0.01		F	0.38	1.10	0.03	0.03
Food, drink and smoke: manufacturer	M	1.28	2.80	0.08	0.23		M	1.57	2.50	0.10	0.25
	F	0.55	0.72	0.03	0.02		F	0.67	0.74	0.04	0.03
General labour: Industrial	M	2.02	4.96	0.14	0.69		M	1.90	4.98	0.12	0.60
	F	0.91	0.00	0.06	0.00		F	0.60	0.00	0.04	0.00
Dealing: Raw materials	M	0.51	4.16	0.03	0.13		M	0.41	4.15	0.03	0.13
	F	0.06	0.98	0.00	0.00		F	0.10	1.33	0.00	0.00
Dealing: Clothing material and dress	M	0.65	2.04	0.04	0.08		M	0.59	1.94	0.04	0.08
	F	0.35	0.52	0.02	0.01		F	0.40	0.51	0.03	0.02
Dealing: Food, drink and smoke	M	3.42	2.79	0.21	0.59		M	3.37	2.69	0.22	0.59
	F	1.17	0.20	0.07	0.02		F	1.04	0.20	0.07	0.02
Lodging and coffee houses	M	0.18	0.00	0.01	0.00		M	0.16	0.00	0.01	0.00
	F	1.02	0.00	0.06	0.00		F	0.95	0.00	0.06	0.00
Dealing: Furniture, utensils and stationary	M	0.39	3.85	0.03	0.12		M	0.32	4.12	0.02	0.09
	F	0.13	0.41	0.01	0.00		F	0.21	0.40	0.01	0.00
General dealing (unspecified)	M	1.53	1.80	0.10	0.18		M	1.29	2.24	0.08	0.18
	F	0.43	0.26	0.02	0.01		F	0.38	0.20	0.02	0.01

Weighting		**16.04**	**Percentage**		**2.18**		**Weighting**		**15.62**	**Percentage**	**2.12**
Police, prison and guard							***Police, prison and guard***				
Police and prisons	M	0.30	0.00	1.00	0.00			M	0.40	0.00	1.00	0.00
	F	0.00	0.00	0.00	0.00			F	0.00	0.00	0.00	0.00
Weighting		**0.30**	**Percentage**		**0.00**		**Weighting**		**0.40**	**Percentage**	**0.00**
Agricultural occupations							***Agricultural occupations***				
Farmers and their relatives	M	1.45	0.98	0.16	0.16			M	1.28	1.04	0.16	0.16
	F	0.15	0.00	0.02	0.00			F	0.14	0.00	0.01	0.00
Agricultural labours and shepherds	M	4.22	4.81	0.47	2.26			M	3.83	4.12	0.48	1.98
	F	0.22	0.10	0.02	0.00			F	0.19	0.10	0.02	0.00
Nurserymen and gardeners	M	2.18	1.96	0.24	0.47			M	1.88	1.86	0.23	0.43
	F	0.05	0.10	0.01	0.00			F	0.06	0.10	0.01	0.00
Agricultural drainage and machinery attendants	M	0.05	0.00	0.01	0.00			M	0.05	0.00	0.01	0.00
	F	0.00	0.00	0.00	0.00			F	0.00	0.00	0.00	0.00
Breeding and dealing (livestock)	M	0.45	1.38	0.05	0.07			M	0.46	1.01	0.06	0.06
	F	0.00	0.00	0.00	0.00			F	0.03	0.00	0.00	0.00
Fishermen	M	0.17	0.10	0.02	0.00			M	0.15	0.10	0.02	0.00
	F	0.00	0.00	0.00	0.00			F	0.00	0.00	0.00	0.00
Weighting		**8.94**	**Percentage**		**2.96**		**Weighting**		**8.07**	**Percentage**	**2.63**
Total (%)		**100.00**					**Total (%)**		**100.00**		

Table A4.4.0.: Estimates and actuals of '*less than fifteen years of age*' participation (as a percentage of individual occupational classification - 1821 to 1911)

Occupational classification		**Census Periods**									
Legal		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Lawyers	M	2.31	2.37	2.35	2.20	2.27	2.30	2.30	2.27	2.21	2.16
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Doctor	M	1.09	1.00	0.89	0.70	0.80	0.60	0.50	0.43	0.34	0.24
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accounting		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Commercial services: Industrial	M	4.30	4.00	3.70	2.90	3.30	3.10	2.80	2.33	2.03	1.73
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Religious		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Religious	M	0.31	0.30	0.30	0.30	0.50	0.20	0.20	0.25	0.24	0.23
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Teaching		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Education: general	M	5.87	4.30	3.30	3.20	1.00	1.30	0.20	0.10	0.10	0.10
	F	0.00	0.00	0.10	0.40	1.30	2.00	2.90	2.80	1.74	1.68
Literature and science	M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Govt: Civil official		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Administration	M	2.76	2.60	2.50	2.20	1.80	3.40	3.20	2.10	1.96	1.81
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Metal workers	M	11.80	10.80	9.90	6.10	6.60	4.80	3.20	2.62	2.10	2.10
	F	2.62	2.20	1.80	1.20	1.30	0.70	0.30	0.10	0.10	0.10
Machinery and tools	M	9.59	8.10	7.60	4.90	5.20	3.70	3.20	2.81	3.60	3.50
	F	1.00	0.90	0.80	0.70	0.80	0.40	0.30	0.28	0.18	0.10
Mechanical instruments	M	4.80	4.30	3.80	3.20	3.10	2.30	1.80	1.33	0.84	0.74
	F	0.77	0.70	0.60	0.40	0.30	0.30	0.20	0.16	0.10	0.1
Unspecified mechanical	M	19.95	17.00	14.00	10.30	6.50	6.20	3.20	2.36	2.10	2.10
	F	12.13	9.80	7.50	0.00	3.70	3.20	0.80	0.10	0.10	0.10
Textile trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Furs, leather and glue	M	8.29	7.10	5.90	3.30	3.10	2.30	1.00	0.90	0.78	0.67
	F	2.69	2.40	2.10	1.60	1.60	1.30	1.00	0.71	0.42	0.13
Paper, floorcloth and waterproof	M	16.00	13.60	11.30	6.30	7.50	5.30	2.90	1.53	1.10	1.10
	F	4.86	4.60	4.50	3.70	5.10	3.80	3.60	3.36	3.10	2.90
Textiles and dyeing	M	13.17	10.90	9.60	7.30	6.80	6.50	6.20	6.15	5.59	4.93
	F	19.31	16.00	13.90	8.70	8.60	9.20	6.90	6.73	5.39	4.96
Dressmaking	M	4.87	3.80	3.20	2.30	2.00	1.50	0.90	1.02	1.20	1.20
	F	5.99	4.50	4.00	3.50	2.80	2.60	2.10	2.00	1.38	1.16
Engineers & surveyors		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Building Management	M	2.00	1.70	1.40	0.50	1.30	0.70	0.40	0.11	0.10	0.10
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Operative	M	4.85	4.20	3.70	3.40	3.24	3.20	3.35	3.28	2.78	2.74
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road making		4.81	4.00	3.20	1.40	1.90	1.50	1.70	1.84	1.82	1.80
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood workers	M	5.52	4.90	4.30	4.00	4.00	3.62	2.20	1.61	0.99	0.76
	F	1.65	1.30	1.10	0.30	0.40	0.60	0.30	0.17	0.10	0.10
Transportation trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**

Shipbuilding	M	4.42	4.00	3.60	3.00	3.60	2.20	1.80	1.54	1.12	0.70
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navigation and docks	M	13.86	13.90	14.00	17.20	11.80	13.50	11.60	11.88	10.70	9.20
	F	1.51	1.30	1.10	1.20	0.40	0.50	0.30	0.10	0.10	0.10
Railways	M	3.68	3.30	2.80	1.20	2.10	1.80	1.30	0.93	0.55	0.17
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commercial delivery and postal services		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Road transport	M	3.63	3.70	3.80	4.00	3.80	3.70	3.80	4.38	5.21	5.28
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Printing and bookbinding	M	8.48	7.90	7.30	4.40	7.80	6.30	5.70	4.80	3.54	3.05
	F	0.88	1.00	1.10	1.20	1.50	1.20	1.30	1.58	1.49	1.61
Domestic services and messengers		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Indoor domestic	M	1.10	1.00	0.90	0.70	0.80	0.60	0.50	0.41	0.31	0.21
	F	12.32	11.25	10.20	6.90	8.10	8.30	7.20	6.16	5.48	4.10
Outdoor domestic	M	2.29	2.20	2.10	1.70	2.40	1.70	1.60	1.62	1.53	1.44
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other domestic services	M	0.49	0.50	0.50	0.70	0.50	0.30	0.30	0.31	0.31	0.31
	F	0.48	0.50	0.50	0.50	0.40	0.50	0.50	0.52	0.51	0.50
Mining occupations		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Miners	M	23.73	17.80	14.40	12.30	11.90	9.50	5.80	4.20	3.35	3.10
	F	0.70	0.60	0.50	0.50	0.20	0.20	0.10	0.10	0.10	0.10
Quarrymen and brick makers	M	11.71	6.80	4.50	6.40	7.40	5.90	3.80	2.70	1.43	1.17
	F	2.61	2.10	1.60	0.60	0.50	0.60	0.10	0.10	0.10	0.10
Salt and water works	M	6.96	2.60	0.80	0.00	2.40	2.00	0.00	0.10	0.10	0.10
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General manufacturing and dealing		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Earthenware manufacturer	M	15.96	13.20	13.20	12.90	10.90	7.10	5.50	2.81	1.21	1.10
	F	8.89	7.80	6.70	5.20	4.50	3.70	2.60	1.52	1.43	1.30
Fuel gas and chemical manufacturer	M	8.14	6.80	5.60	3.30	3.10	2.30	1.00	1.10	1.10	1.12
	F	4.61	3.70	2.90	0.50	0.80	1.30	0.40	0.10	1.10	1.10
Food, drink and smoke: manufacturer	M	4.00	3.70	3.40	2.60	3.20	2.70	3.40	3.10	2.80	2.50
	F	0.00	0.00	0.00	0.20	0.30	0.50	0.70	0.70	0.72	0.74
General labour: Industrial	M	11.87	10.00	8.20	6.20	5.60	6.20	6.30	5.66	4.96	4.98
	F	0.50	0.40	0.30	0.10	0.10	0.10	0.00	0.00	0.00	0.00
Dealing: Raw materials	M	11.87	9.70	7.60	2.00	2.70	3.60	1.40	4.01	4.16	4.15
	F	1.81	1.50	1.20	0.50	0.90	0.50	0.20	0.63	0.98	1.33
Dealing: Clothing material and dress	M	4.75	4.10	3.60	2.70	2.40	2.00	1.40	2.35	2.04	1.94
	F	0.51	0.50	0.50	0.50	0.20	0.70	0.70	0.53	0.52	0.51
Dealing: Food, drink and smoke	M	2.37	2.30	2.20	1.80	2.00	2.00	2.90	3.11	2.79	2.69
	F	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Lodging and coffee houses	M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dealing: Furniture, utensils and stationary	M	5.04	4.60	4.30	3.30	3.60	3.40	3.00	3.34	3.85	4.12
	F	0.28	0.30	0.30	0.00	0.40	0.40	0.40	0.40	0.41	0.40
(unspecified)	M	5.23	4.30	3.50	1.20	1.70	1.80	0.90	1.36	1.80	2.24
	F	1.12	1.00	1.00	0.90	0.50	0.60	0.50	0.38	0.26	0.20
Police and prison		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Police and prisons	M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural occupations		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Farmers and their relatives	M	0.65	1.20	0.75	0.00	0.00	0.60	0.60	1.10	0.98	2.04
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural	M	18.05	16.00	14.00	8.40	10.15	9.90	7.80	5.80	4.81	4.12

labours and shepherds	F	1.50	1.30	1.10	1.10	0.50	0.40	0.20	0.10	0.10	0.10
Nurserymen and gardeners	M	2.70	2.60	2.50	2.20	2.50	2.30	2.20	2.06	1.96	1.86
	F	0.10	0.10	0.10	0.10	0.00	0.10	0.10	0.10	0.10	0.10
Agricultural drainage and machinery attendants	M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Breeding and dealing (livestock)	M	4.37	4.00	3.60	2.50	3.20	2.60	2.20	1.76	1.38	1.01
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fishermen	M	8.10	6.20	5.1	4.10	4.00	3.80	2.60	0.79	0.10	0.10
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A4.5.0.: Occupational weighting (as a percentage of occupied population): Actuals and estimates (1821 to 1911)

Occupational classification		Census Periods									
Legal		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Lawyers	M	0.47	0.48	0.49	0.40	0.37	0.38	0.40	0.40	0.38	0.38
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
Actual & estimated occupational weight		**0.47**	**0.48**	**0.49**	**0.40**	**0.37**	**0.38**	**0.40**	**0.40**	**0.40**	**0.40**
Medical		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Doctor	M	0.52	0.50	0.48	0.42	0.39	0.57	0.54	0.20	0.20	0.22
	F	0.22	0.23	0.25	0.33	0.30	0.16	0.23	0.60	0.70	0.58
Actual & estimated occupational weight		**0.74**	**0.73**	**0.73**	**0.75**	**0.69**	**0.73**	**0.77**	**0.80**	**0.90**	**0.80**
Accounting		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Commercial services	M	0.41	0.54	0.69	0.87	0.73	1.49	2.30	1.93	2.27	0.85
	F	0.01	0.01	0.01	0.01	0.01	0.03	0.07	0.15	0.39	2.36
Actual & estimated occupational weight		**0.42**	**0.55**	**0.70**	**0.88**	**0.74**	**1.52**	**2.37**	**2.08**	**2.66**	**3.21**
Religious		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Religious	M	0.30	0.32	0.35	0.38	0.39	0.38	0.40	0.48	0.45	0.36
	F	0.00	0.01	0.00	0.01	0.03	0.05	0.07	0.02	0.05	0.04
Actual & estimated occupational weight		**0.30**	**0. 33**	**0.35**	**0.39**	**0.42**	**0.43**	**0.47**	**0.50**	**0.50**	**0.40**
Teaching		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Education: general and literature and science	M	0.26	0.35	0.37	0.37	0.40	0.43	0.54	0.43	0.44	0.47
	F	0.41	0.49	0.53	0.91	0.91	0.96	1.21	1.17	1.26	1.23
Actual & estimated occupational weight		**0.67**	**0.84**	**0.90**	**1.28**	**1.31**	**1.39**	**1.75**	**1.60**	**1.70**	**1.70**
Govt: Civil official		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Administration	M	0.35	0.36	0.33	0.29	0.66	0.33	0.33	0.46	0.55	0.69
	F	0.00	0.01	0.02	0.02	0.04	0.03	0.04	0.04	0.05	0.11
Actual & estimated occupational weight		**0.35**	**0.37**	**0.35**	**0.31**	**0.70**	**0.36**	**0.37**	**0.50**	**0.60**	**0.80**
Metal trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Metal workers	M	3.10	3.09	2.98	3.12	3.79	3.98	3.07	4.16	5.66	5.37
	F	0.24	0.29	0.25	0.28	0.32	0.27	0.21	0.28	0.39	0.29
Machinery and tools	M	0.65	0.66	0.71	1.02	1.66	1.62	1.47	2.02	3.67	3.31
	F	0.05	0.08	0.05	0.05	0.08	0.08	0.07	0.10	0.09	0.11
Mechanical instruments	M	0.25	0.28	0.30	0.30	0.36	0.35	0.29	0.29	0.45	0.33
	F	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.11	0.12
Unspecified	M	0.21	0.21	0.19	0.15	0.30	0.64	0.87	0.93	0.98	1.03
	F	0.09	0.12	0.10	0.00	0.06	0.30	0.10	0.07	0.05	0.04
Actual & estimated occupational weight		**4.60**	**4.74**	**4.59**	**5.03**	**6.58**	**7.25**	**6.09**	**7.90**	**11.40**	**10.60**
Textile trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Furs, leather and glue	M	0.52	0.54	0.50	0.55	0.52	0.48	0.45	0.42	0.45	0.54
	F	0.01	0.04	0.04	0.08	0.09	0.10	0.12	0.13	0.18	0.19
Paper, floorcloth and waterproof	M	0.09	0.14	0.15	0.17	0.16	0.20	0.23	0.16	0.38	0.43
	F	0.00	0.02	0.03	0.10	0.12	0.13	0.21	0.17	0.40	0.43
Textiles and dyeing	M	6.40	6.65	5.75	5.74	4.81	4.04	3.64	3.73	3.56	3.06
	F	5.80	5.76	5.77	5.85	5.76	5.43	5.19	5.03	4.20	4.39
Dressmaking	M	6.42	4.82	5.89	4.93	4.13	3.55	3.16	3.21	3.23	3.35
	F	3.57	5.98	4.24	5.84	6.02	5.39	5.58	5.46	5.30	5.41
Actual & estimated occupational weight		**23.02**	**23.95**	**22.37**	**23.26**	**21.61**	**19.32**	**18.58**	**18.31**	**17.70**	**17.80**

Engineers & surveyors		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Engineers, surveyors	M	0.08	0.11	0.16	0.25	0.35	0.42	0.51	0.20	0.19	0.15
	F	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Actual & estimated occupational weight		**0.08**	**0.11**	**0.16**	**0.25**	**0.35**	**0.42**	**0.51**	**0.20**	**0.19**	**0.15**
Building trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Operative	M	3.19	3.28	3.52	4.61	5.01	5.28	5.78	5.71	5.90	5.91
	F	0.00	0.00	0.02	0.00	0.01	0.01	0.02	0.00	0.00	0.00
Road making	M	0.34	0.34	0.42	0.49	0.51	0.57	0.69	0.80	0.98	1.0 4
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woodworking	M	2.26	2.30	2.25	2.32	2.21	2.09	2.03	1.36	1.53	1.51
	F	0.10	0.09	0.07	0.11	0.15	0.19	0.17	0.23	0.10	0.19
Actual & estimated occupational weight		**5.89**	**6.01**	**6.28**	**7.53**	**7.89**	**8.14**	**8.69**	**8.10**	**8.51**	**8.65**
Transportation trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Shipbuilding	M	0.23	0.41	0.42	0.40	0.60	0.55	0.63	0.57	0.63	0.69
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navigation and docks	M	2.40	3.20	3.31	3.57	3.72	3.71	3.97	2.01	1.66	1.88
	F	0.07	0.07	0.02	0.14	0.08	0.11	0.08	0.00	0.00	0.00
Railways	M	0.03	0.09	0.12	0.39	0.72	1.54	1.62	2.13	2.03	2.53
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
Actual & estimated occupational weight		**2.73**	**3.77**	**3.87**	**4.50**	**5.12**	**5.91**	**6.32**	**4.71**	**4.32**	**5.10**
Commercial delivery and postal services		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Road Transport	M	0.25	0.45	0.57	0.63	0.64	0.71	0.87	2.99	3.08	3.10
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Actual & estimated occupational weight		**0.25**	**0.45**	**0.57**	**0.63**	**0.64**	**0.71**	**0.87**	**2.99**	**3.08**	**3.10**
Printing trades		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Printing and bookbinding	M	0.15	0.22	0.36	0.37	0.45	0.56	0.69	0.85	0.92	1.06
	F	0.01	0.01	0.03	0.05	0.07	0.09	0.12	0.35	0.48	0.74
Actual & estimated occupational weight		**0.16**	**0.23**	**0.39**	**0.42**	**0.52**	**0.65**	**0.81**	**1.20**	**1.40**	**1.80**
Domestic services and messengers		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Indoor domestic	M	2.03	1.78	3.67	1.22	0.98	1.02	0.92	0.47	0.46	0.37
	F	13.17	13.06	13.28	10.22	10.74	12.07	11.64	11.38	9.48	8.68
Outdoor domestic	M	0.01	0.01	0.10	0.42	0.89	0.67	1.49	0.98	1.25	1.29
	F	0.01	0.01	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.00
Other domestic services	M	0.09	0.13	0.25	0.21	0.22	0.23	0.57	0.93	0.52	0.77
	F	1.03	1.15	1.16	2.33	2.95	3.01	2.53	3.81	4.35	4.19
Actual & estimated occupational weight		**16.34**	**16.14**	**18.49**	**14.40**	**15.79**	**17.01**	**17.16**	**17.57**	**16.06**	**15.30**
Mining occupations		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Miners	M	2.22	2.41	2.69	3.19	3.60	3.62	4.03	4.45	4.72	5.33
	F	0.11	0.10	0.09	0.09	0.06	0.06	0.05	0.06	0.08	0.11
Quarrymen and brick makers	M	0.37	0.39	0.61	0.84	0.93	0.87	0.98	0.29	0.39	0.52
	F	0.02	0.02	0.03	0.03	0.02	0.03	0.03	0.01	0.01	0.01
Salt and water works	M	0.01	0.01	0.03	0.01	0.04	0.03	0.06	0.09	0.10	0.13
	F	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Actual & estimated occupational weight		**2.74**	**2.94**	**3.42**	**4.16**	**4.65**	**4.61**	**5.15**	**4.90**	**5.30**	**6.10**
General manufacturing and dealing		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Earthenware manufacturer	M	0.42	0.41	0.38	0.45	0.46	0.48	0.48	0.30	0.30	0.27
	F	0.11	0.12	0.14	0.15	0.15	0.17	0.18	0.15	0.15	0.19
Fuel gas and chemical manufacturer	M	0.01	0.04	0.01	0.21	0.27	0.34	0.40	0.57	0.80	0.82
	F	0.01	0.01	0.00	0.02	0.02	0.04	0.04	0.11	0.19	0.38
Food, drink and	M	1.40	1.44	1.37	1.55	1.46	1.43	1.40	1.40	1.28	1.57

smoke: manufacturer	F	0.09	0.09	0.11	0.16	0.17	0.18	0.26	0.50	0.55	0.67
General labour: Industrial	M	3.69	3.66	3.35	4.16	3.35	4.48	5.10	3.60	2.02	1.90
	F	0.15	0.15	0.10	0.09	0.04	0.07	0.03	1.27	0.91	0.60
Dealing: Raw materials	M	0.53	0.52	0.40	0.48	0.56	0.68	0.54	0.56	0.51	0.41
	F	0.03	0.04	0.02	0.01	0.04	0.06	0.03	0.06	0.06	0.10
Dealing: Clothing material and dress	M	0.63	0.63	0.59	0.57	0.73	0.69	0.69	0.62	0.65	0.59
	F	0.00	0.00	0.08	0.12	0.19	0.25	0.34	0.41	0.35	0.40
Dealing: Food, drink and smoke	M	2.61	2.70	2.86	2.96	2.97	3.15	3.24	3.51	3.42	3.37
	F	0.43	0.45	0.56	0.57	0.63	0.65	0.66	0.97	1.17	1.04
Lodging and coffee houses	M	0.41	0.32	0.04	0.07	0.07	0.07	0.09	0.12	0.18	0.16
	F	0.47	0.32	0.11	0.21	0.20	0.24	0.33	0.94	1.02	0.95
Dealing: Furniture, utensils and stationary	M	0.31	0.36	0.40	0.43	0.52	0.58	0.63	0.17	0.39	0.32
	F	0.01	0.02	0.05	0.06	0.09	0.11	0.14	0.05	0.13	0.21
General dealing (unspecified)	M	0.55	0.69	0.95	0.92	1.01	1.25	1.39	1.51	1.53	1.29
	F	0.33	0.30	0.36	0.38	0.35	0.47	0.43	0.48	0.43	0.38
Actual & estimated occupational weight		**12.19**	**12.27**	**11.88**	**13.57**	**13.28**	**15.39**	**16.40**	**17.30**	**16.04**	**15.62**
Police, prison and guard		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Police and prisons	M	0.20	0.22	0.23	0.20	0.16	0.30	0.32	0.30	0.30	0.40
	F	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Actual & estimated occupational weight		**0.20**	**0.23**	**0.23**	**0.20**	**0.16**	**0.31**	**0.33**	**0.30**	**0.30**	**0.40**
Agricultural occupations		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**01**	**11**
Farmers and their relatives	M	5.39	4.99	4.71	4.43	3.86	3.36	2.90	1.79	1.45	1.28
	F	0.53	0.39	0.36	0.28	0.25	0.24	0.20	0.18	0.15	0.14
Agricultural labours and shepherds	M	18.97	17.05	15.95	13.77	12.21	9.30	7.80	6.19	4.22	3.83
	F	1.77	1.50	1.43	1.77	0.99	0.57	0.35	0.20	0.22	0.19
Nurserymen and gardeners	M	1.48	1.15	1.07	0. 94	0.97	1.07	0.73	1.55	2.18	1.88
	F	0.01	0.01	0.01	0.03	0.02	0.02	0.03	0.04	0.05	0.06
Agricultural drainage and machinery attendants	M	0.00	0.00	0.00	0.00	0.03	0.04	0.04	0.04	0.05	0.05
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Breeding and dealing (livestock)	M	0.57	0.57	0.49	0.59	0.65	0.63	0.63	0.44	0.45	0.46
	F	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.03
Fishermen	M	0.10	0.15	0.16	0.21	0.18	0.22	0.26	0.21	0.17	0.15
	F	0.02	0.04	0.04	0.00	0.01	0.01	0.01	0.00	0.00	0.00
Actual & estimated occupational weight		**28.85**	**25.86**	**24.23**	**22.03**	**19.18**	**15.47**	**12.97**	**10.64**	**8.94**	**8.07**
Total percentage		**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Table A4.6.0.: Occupational classifications

Booth / Williamson classes	Occupational classification	Recorded occupation
Legal	**Lawyer**	Barristers and solicitors; Law clerks
Medical	**Doctor**	Medical practitioners; Dentists; Chemist; Sick nurse; Subordinate medical service
Accounting	**Commercial services**	Accountant; Bankers / bank clerks; Finance agents / clerks; Insurance agents / clerks; Brokers, agents & factors; Railway clerks; Commercial clerks; Insurance agents;
Religious	**Clergymen**	Clergyman (C of E); Clergyman (other); Church officials; Scripture readers
Teaching	**Education: general**	Teachers; Educational service, tutors
	Literature and science	Scientists
Govt: Civil official	**Administration**	Civil service officers; Hospital management; Officers of local authorities
Engineers and surveyors	**Engineers and surveyors**	Surveyors Engineers; Engineers and surveyors assistants; Other workers in engineering; Architects;
Metal trades	**Machinery and tools**	Boilermakers; Brassfounders and fitters; Fitters; Gas fitters; Roller engraver and cutter; Tool makers; Metal machinist; Engraving; Machinist; Fitters labourers; Die / seal, coin makers; File makers; Cutters (metal)
	Instruments makers	Instrument (scientific) manufacturer; Instrument (musical) manufacturer; Instrument (weighting) manufacturer; Instrument (surgical) manufacturer; Instrument makers (includes time pieces / mechanical toys)
	Metal workers	Blacksmith; Coppersmiths; Iron founders; Brass manufacturer / worker; Copper manufacturer / worker; Lead manufacturer; Tin plate and tin goods; White metalware; Zinc workers; Steel smelting; Wire drawers; Pig Iron maker; Puddling furnaces; Galvanised sheet makers; iron foundry labourers
	Unspecified	Irongoods and other metal work;
Textile trades	**Furs, leather and glue**	Footwear manufacture; Leathergood makers; Leather goods makers; Feathers, quill dressers; Furriers; Glove makers; Tanners
	Paper, floorcloth and waterproof	Bag and box maker; Floor cloth maker; Other workers in paper; Paper manufacture; Waterproof goods maker; Glue, size workers; Carpet rag felt maker
	Textiles and dyeing	Artificial flower maker; Millwright; Textile machinery; Dye makers; Textile factory hand; Other textile worker; Textile bleacher; Cotton manufacturer; Hosiery manufacturer; Silk manufacturers; Wool and worsted manufacturers; Oil and colour men
	Dressmaking	Milliner / dress maker; Shirt makers; Pattern makers; Tailors; Other workers in dress; Basket makers; Button makers; Hat makers
Building trades	**Operative**	Builders; Bricklayers; Cabinet maker; Carpenter / joiner; Shopfitting; Mason; Painter decorator glazier; Paperhanger whitewasher; Plasterers; Plumbers; Slaters; Contractor; Wooden fence maker; Sundry trades; Stove and grate makers; Architectural sculptors; Artisans; Brick layers labourer; Builders labourer; Carpenters labourer; Masons Labourer; Plasterers labourer
	Road making	Road contractors; Paviers, road labourers
	Wood, furniture, carriage building	Cork, wood workers; Japanners; Lock makers; Wood turners and box makers; Wood men; Cycle / car manufacturer; Other vehicle makers
Transportation trades	**Shipbuilding**	Wheelwrights; Seaman; Ship plater / riveter; Shipwright; Anchor chain maker; Other ship workers; Harbour and dock officials; Dock workers; Ship painter; Bargemen / watermen
	Navigation and docks	Navigation (on shore)
	Railways	Railway canal contractors; Railway coach makers; Railway drivers; Signalman; Tramway service; Railway ticketing workers; Engine drivers; Railway porters; Railway Navies; Omnibus service; Pointsman
Commercial delivery and postal services	**Roads**	Other on roads; Carrying services; Motor garage workers; Motor van drivers; Carmen, carriers; Cab proprieter
Printing trades	**Printing and bookbinding**	Book publishers; Newspaper printer; Bookbinders; Envelope makers; Lithographers; Paper stainers; Printers; Stationery manufacturer; Celluliod makers
Domestic services and messengers	**Indoor domestic**	Domestic indoor servant; Personal services
	Outdoor domestic	Chauffeurs; Domestic coachman and grooms; Domestic gardeners
	Other domestic services	Chimney sweeps; Messengers, porter and watchmen

Mining occupations	**Miners**	Mine owners/managers (Coal); Mine owners/managers (metal); Well / mine sinkers; Coal heaver; Costermongers; Coal and shale workers; Other mine services; Coal and shale miners; Copper miners; Iron miners; Lead miners; Mineral miners; Tin miners
	Quarrymen and brick makers	Quarry owners/managers; Stone and slate workers; Lime, clay quarry workers; Brick and tile makers
	Salt and water works	Mineral water manufacturer; Salt makers; Water works service
General manufacturing and dealing	**Earthenware manufacturer**	Earthenware manufacturer; Plaster and Cement manufacturers
	Fuel, gas and chemical manufacturer	Electricial workers; Chemical manufacturer; Explosive manufacturer; Gaswork service; Oil refiners; Coke manufacturer; Electricity supply
	Food, drink and smoke: manufacturer	Slaughterers; Bakers; Tobacco pipe makers; Tobacco manufacturer; Brewers; Distillers; Maltsters; Match manufacturers; Bread, cake and jam makers; Chocolate makers; Coopers; Creamery workers; Sugar refiners; Food manufacture (other); Curers; Millers
	General labour: Industrial	Scissor / cutler manufacturer; Toy / sporting manufacturer; Pin manufacturer; Saw manufacturer; Steel pen manufacturers; Sword makers; Umbrella makers; Bedstead maker; Bolts, nuts manufacture; Lamp. Candlestick makers; Nail manufacturers; Tube manufacturer; Grease, soap manufacturers; Glass manufacturer; Factory labourers (undefined); General labourers; Brush maker; India rubber workers; Fireworks makers; Gunsmiths
	Dealing: Raw materials	Coal /coke merchants; Dealers in stone; Dealer in skins; Iron monger; Dealer in Metals; Provision dealers; Timber dealers; Dealer in bricks and earthenware; Dealer in oils
	Dealing: Clothing material and dress	Drapers; Boot dealers; Hat dealer; Haberdasher; Dealers in dress; Dealer in textiles; Rag dealers
	Dealing: Food, drink and smoke	Butchers; Clothiers / outfitters; Wine and spirit merchant; Corn dealers; Fishmongers; Green grocer; Grocer; Dealers in food; Tobacconists; Milk seller; Dealers (sundries); Grocer general; Cooks
	Lodging and coffee houses	Coffee /eating housekeepers; Innkeeper; Lodging house keepers; Waiters; Sea cooks; Cellarman; Club service; Barman Lodgekeeper, caretaker; Others in hotels
	Dealing: Furniture, utensils and stationary	Furniture dealer; Stationers and paper dealers; Newspaper agents
	Dealing: General and unspecified	Dealers (commodity undefined); Salesmen (buyers); Auctioneers / house agents; Dealer (instruments & toys); Dealer in arts; Commercial traveller; Pawn brokers; Catmeat / knackers dealer; Shopkeepers (undefined); Warehousemen
Police, prison and guards	**Police and prisons**	Prison guards; Police
Agricultural occupations	**Farmers and their relatives**	Farmers and graziers; Farmers relatives; Farm bailiff; Veterinary surgeons
	Agricultural labours and shepherds	Shepherds; Drovers; Animal keepers; Gamekeepers; Bone and horn workers; Agricultural labourers; Others in agriculture
	Nurserymen and gardeners	Non-domestic gardener; Manure makers
	Agricultural drainage and machinery attendants	Drainage; Agricultural machine attendents
	Breeding and dealing (livestock)	Cattle dealers
	Fishermen	Fisherman
Other	Authors; Actors; Musicians; Art, Music theatre services; Painters and artists; Performers / exhibitors; Photographers; Others in literature; Army officers; Men of army; Navel officers; Men of navy; Private means; Pensioner; Retired; Student; Officers of commercial societies; Advertising / bill posting; Telegraph / telephone service; Undertaker; Hairdressers; Telegraphists; Sawyer; Dust disposal; Bill posters; Sandwich man	

Appendix 5:
Accounting: Nam-Powers Ranking
(1821-1911)

Table A5.1.0.: *Accounting* classification *Nam–Powers* Results (1821 to 1911)				
Year		**Elite**		**Non-elite**
1821	Ranked by educational proxy	96.94		96.53
	Ranked by average annual earnings	98.38		95.93
	***Nam-Powers* score**	**97.67**		**96.23**
1831	Ranked by educational proxy	96.46		95.92
	Ranked by average annual earnings	98.31		97.75
	***Nam-Powers* score**	**97.39**		**96.83**
1841	Ranked by educational proxy	96.79		96.09
	Ranked by average annual earnings	97.84		94.96
	***Nam-Powers* score**	**97.32**		**95.53**
1851	Ranked by educational proxy	96.41		95.54
	Ranked by average annual earnings	98.16		95.40
	***Nam-Powers* score**	**97.29**		**95.47**
1861	Ranked by educational proxy	96.00		95.27
	Ranked by average annual earnings	96.06		92.23
	***Nam-Powers* score**	**96.03**		**93.75**
1871	Ranked by educational proxy	96.34		94.83
	Ranked by average annual earnings	96.12		90.86
	***Nam-Powers* score**	**96.23**		**92.84**
1881	Ranked by educational proxy	96.18		93.82
	Ranked by average annual earnings	97.19		91.06
	***Nam-Powers* score**	**96.69**		**92.44**
1891	Ranked by educational proxy	96.10		94.03
	Ranked by average annual earnings	97.40		89.37
	***Nam-Powers* score**	**96.75**		**91.70**
1901	Ranked by educational proxy	95.81		93.16
	Ranked by average annual earnings	99.15		89.37
	***Nam-Powers* score**	**97.48**		**91.26**
1911	Ranked by educational proxy	98.25		95.05
	Ranked by average annual earnings	98.58		86.98
	***Nam-Powers* score**	**98.42**		**91.02**

Table A5.1.1.: *Accounting* classification nominal *Nam–Powers* rankings (1821 to 1911)

Year		Elite		Year		Non-elite
1821	*Nam-Powers* ranking	7/36		1821	*Nam-Powers* ranking	11/36
1831	*Nam-Powers* ranking	7/36		1831	*Nam-Powers* ranking	11/36
1841	*Nam-Powers* ranking	9/36		1841	*Nam-Powers* ranking	11/36
1851	*Nam-Powers* ranking	7/36		1851	*Nam-Powers* ranking	12/36
1861	*Nam-Powers* ranking	1/36		1861	*Nam-Powers* ranking	14/36
1871	*Nam-Powers* ranking	9/36		1871	*Nam-Powers* ranking	14/36
1881	*Nam-Powers* ranking	8/36		1881	*Nam-Powers* ranking	11/36
1891	*Nam-Powers* ranking	7/36		1891	*Nam-Powers* ranking	13/36
1901	*Nam-Powers* ranking	4/36		1901	*Nam-Powers* ranking	12/36
1911	*Nam-Powers* ranking	5/36		1911	*Nam-Powers* ranking	10/36

Table A5.1.2.: Summary of overall *Nam-Powers* results for 36 occupational classifications (1821 to 1911)

Occupational classification	**1821**		**1831**		**1841**		**1851**		**1861**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**99.00**	98.54	**98.88**	98.40	**98.82**	98.30	**98.41**	97.94	**98.19**	97.75
Engineers and surveyors	**99.13**	99.00	**99.11**	98.95	**99.06**	98.87	**99.05**	98.80	**98.45**	98.18
Religious	**99.55**	98.95	**99.52**	98.89	**97.37**	96.67	**99.50**	98.80	**98.94**	98.06
Accounting	**97.67**	96.23	**97.39**	**95.85**	**97.32**	**95.94**	**97.29**	**95.48**	**96.03**	**93.76**
Govt: Civil official	**96.74**	96.00	**96.52**	95.75	**98.16**	97.33	**96.27**	95.54	**97.22**	96.23
Medical	**97.15**	96.45	**97.01**	96.31	**96.66**	95.91	**96.76**	96.00	**99.56**	98.85
Metal trades	**78.03**	75.20	**71.80**	68.86	**49.78**	46.85	**74.12**	70.99	**82.31**	78.25
Domestic services and messengers	**85.65**	75.70	**71.30**	61.37	**84.94**	73.69	**83.36**	74.13	**67.43**	57.41
Printing trades	**83.94**	83.76	**83.31**	82.58	**81.88**	80.98	**86.18**	79.45	**57.40**	56.39
Teaching	**93.45**	92.62	**93.17**	92.23	**93.70**	92.67	**93.21**	92.00	**95.48**	94.30
Police, prison and guards	**93.61**	93.18	**89.24**	88.79	**92.34**	91.84	**79.67**	79.20	**78.87**	78.37
Textile trades	**71.94**	58.24	**77.07**	62.80	**71.19**	57.42	**64.70**	50.60	**69.90**	57.01
Building trades	**89.33**	82.45	**91.30**	84.20	**87.12**	78.90	**90.37**	82.17	**89.54**	80.91
Commercial delivery and postal services	**85.72**	85.49	**86.55**	86.61	**90.53**	90.11	**86.75**	86.30	**73.75**	73.20
Transport trades	**39.74**	38.00	**42.25**	39.97	**41.29**	38.91	**40.41**	37.73	**42.11**	39.04
Mining occupations	**37.99**	31.67	**37.54**	30.92	**37.92**	30.40	**39.58**	31.93	**36.70**	28.88
General manufacturing and dealing	**76.98**	64.25	**75.87**	62.83	**73.07**	59.33	**72.98**	58.72	**72.13**	57.01
Agricultural occupations	**42.18**	2.74	**40.29**	3.36	**38.70**	5.95	**37.16**	4.34	**34.43**	4.89
Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**98.36**	97.94	**96.91**	96.48	**97.01**	96.57	**97.58**	96.15	**96.27**	95.86
Engineers and surveyors	**98.66**	98.37	**98.02**	97.57	**98.90**	98.63	**99.17**	98.89	**99.18**	98.98
Religious	**99.15**	98.35	**98.74**	98.41	**98.62**	97.81	**93.26**	92.44	**92.81**	92.07
Accounting	**96.23**	**92.86**	**96.69**	**92.45**	**96.75**	**91.71**	**97.48**	**90.89**	**98.42**	**91.02**
Govt: Civil official	**96.12**	95.30	**92.24**	91.48	**93.79**	92.95	**91.58**	90.51	**88.87**	87.57
Medical	**99.39**	98.67	**99.37**	98.63	**99.62**	98.91	**94.16**	93.37	**99.44**	98.70
Metal trades	**80.05**	75.46	**84.43**	80.36	**90.29**	85.32	**75.99**	68.94	**75.22**	68.61
Domestic services and messengers	**65.47**	54.76	**67.92**	57.29	**47.80**	35.71	**46.23**	33.49	**42.91**	31.85
Printing trades	**56.94**	55.78	**64.90**	63.48	**66.53**	64.73	**58.40**	56.34	**61.29**	58.91
Teaching	**94.49**	93.31	**93.91**	92.41	**92.94**	91.55	**91.65**	90.10	**90.45**	88.88
Police, prison and guards	**77.93**	77.31	**82.75**	82.12	**74.03**	73.24	**60.51**	59.62	**61.77**	60.78
Textile trades	**68.34**	56.95	**48.41**	37.58	**66.69**	56.11	**51.71**	41.74	**60.62**	50.48
Building trades	**88.99**	80.03	**87.74**	78.14	**75.22**	66.54	**78.89**	68.61	**76.98**	67.53
Commercial delivery and postal services	**63.77**	63.05	**63.20**	62.49	**27.23**	25.32	**21.34**	19.15	**12.52**	9.81
Transport trades	**36.95**	33.66	**36.54**	32.75	**34.20**	31.11	**30.98**	29.20	**37.68**	34.22
Mining occupations	**38.91**	31.00	**47.00**	38.38	**46.19**	36.67	**50.88**	40.39	**51.44**	39.20
General manufacturing and dealing	**70.62**	53.44	**65.05**	45.87	**65.82**	46.66	**65.52**	48.87	**64.61**	50.03
Agricultural occupations	**30.97**	5.27	**45.02**	23.61	**42.00**	24.25	**37.46**	23.24	**37.54**	23.70

Table A5.1.3.: Summary of nominal *Nam-Powers* rankings for 36 occupational classifications (1821 to 1911)

Occupational classification	**1821**		**1831**		**1841**		**1851**		**1861**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**3/4**	6	**5**	6	**3**	4	**5**	6	**5**	8
Engineers and surveyors	**2**	3/4	**2**	3	**1**	2	**2**	3/4	**4**	6
Religious	**1**	5	**1**	4	**6**	9	**1**	3/4	**2**	7
Accounting	**7**	**11**	**7**	**11**	**8**	**11**	**7**	**12**	**11**	**14**
Govt: Civil official	**9**	12	**9**	12	**5**	7	**9**	11	**9**	10
Medical	**8**	10	**8**	10	**10**	12	**8**	10	**1**	3
Metal trades	**24**	27	**25**	27	**29**	30	**25**	27	**16**	20
Domestic services and messengers	**19**	26	**26**	30	**20**	24	**19**	24	**25**	26
Printing trades	**21**	22	**21**	22	**21**	22	**18**	22	**27**	28
Teaching	**14**	16	**13**	14	**13**	14	**13**	14	**12**	13
Police, prison and guards	**13**	15	**16**	17	**15**	16	**21**	23	**18**	19
Textile trades	**28**	30	**23**	29	**26**	28	**28**	30	**24**	29
Building trades	**17**	23	**15**	20	**19**	23	**15**	20	**15**	17
Commercial delivery and postal services	**18**	20	**19**	18	**17**	18	**16**	17	**21**	22
Transport trades	**32**	33	**32**	33	**31**	32	**31**	33	**31**	32
Mining occupations	**34**	35	**34**	35	**34**	35	**32**	35	**33**	35
General manufacturing and dealing	**25**	29	**24**	28	**25**	27	**26**	29	**23**	29
Agricultural occupations	**31**	36	**31**	36	**33**	36	**34**	36	**34**	36
Occupational classification	**1871**		**1881**		**1891**		**1901**		**1911**	
	Elite	**Non-elite**	**Elite**	**Non-elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**	**Elite**	**Non-Elite**
Legal	**6**	8	**7**	9	**8**	9	**3**	5	**6**	7
Engineers and surveyors	**4**	5	**5**	6	**3**	4	**1**	2	**2**	3
Religious	**2**	7	**2**	4	**5**	6	**8**	9	**8**	9
Accounting	**9**	**14**	**8**	**11**	**7**	**13**	**4**	**12**	**5**	**10**
Govt: Civil official	**10**	11	**13**	14	**10**	11	**11**	13	**13**	14
Medical	**1**	3	**1**	3	**1**	2	**6**	7	**1**	4
Metal trades	**16**	20	**16**	19	**15**	16	**16**	17	**16**	17
Domestic services and messengers	**23**	29	**21**	27	**26**	31	**27**	31	**28**	33
Printing trades	**27**	28	**23**	24	**22**	24	**22**	23	**21**	24
Teaching	**12**	13	**10**	12	**12**	14	**10**	14	**11**	12
Police, prison and guards	**18**	19	**17**	18	**18**	19	**20**	21	**20**	22
Textile trades	**22**	26	**28**	33	**20**	25	**24**	28	**23**	26
Building trades	**15**	17	**15**	20	**17**	21	**15**	18	**15**	18
Commercial delivery and postal services	**24**	25	**25**	26	**34**	35	**35**	36	**35**	36
Transport trades	**32**	33	**34**	35	**32**	33	**32**	33	**30**	32
Mining occupations	**31**	35	**29**	32	**28**	30	**25**	28	**25**	29
General manufacturing and dealing	**21**	30	**22**	30	**23**	27	**19**	26	**19**	27
Agricultural occupations	**34**	36	**31**	36	**29**	36	**30**	34	**31**	34

Table A5.2.0.: Ranking of occupational classifications by *Nam-Powers* score (1821)

	Elite				Non-elite			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	98.01	99.00	3/4	99.52	97.55	98.54	6
Engineers and surveyors	99.51	98.76	99.13	2	99.31	98.69	99.00	3/4
Religious	99.30	99.80	99.55	1	98.39	99.51	98.95	5
Accounting	**98.38**	**96.94**	**97.67**	**7**	**95.95**	**96.53**	**96.23**	**11**
Govt: Civil official	95.94	97.54	96.74	9	94.81	97.20	96.00	12
Medical	94.80	99.50	97.15	8	94.13	98.77	96.45	10
Metal trades	94.12	61.94	78.03	24	93.04	57.35	75.20	27
Domestic services and messengers	93.03	78.28	85.65	19	89.44	61.95	75.70	26
Printing trades	89.43	78.44	83.94	21	89.23	78.29	83.76	22
Teaching	88.22	98.68	93.45	14	87.22	98.02	92.62	16
Police, prison and guards	87.21	100.00	93.61	13	86.54	99.81	93.18	15
Textile trades	86.53	57.34	71.94	28	82.14	34.33	58.24	30
Building trades	82.13	96.52	89.33	17	74.26	90.64	82.45	23
Commercial delivery and postal services	74.25	97.19	85.72	18	74.02	96.95	85.49	20
Transport trades	74.01	5.47	39.74	32	73.25	2.75	38.00	33
Mining occupations	73.24	2.74	37.99	34	63.34	00.00	31.67	35
General manufacturing and dealing	63.33	90.63	76.98	25	50.05	78.45	64.25	29
Agricultural occupations	50.04	34.32	42.18	31	00.00	5.48	2.74	36

Table A5.2.1.: Ranking of occupational classifications by *Nam-Powers* score (1831)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	97.76	98.88	5	99.51	97.29	98.40	6
Engineers and surveyors	99.50	98.71	99.11	2	99.28	98.61	98.95	3
Religious	99.27	99.77	99.52	1	98.32	99.45	98.89	4
Accounting	**98.31**	**96.46**	**97.39**	**7**	**95.77**	**95.92**	**95.85**	**11**
Govt: Civil official	95.76	97.28	96.52	9	94.58	96.92	95.75	12
Medical	94.57	99.44	97.01	8	93.90	98.72	96.31	10
Metal trades	90.14	53.45	71.80	25	89.00	48.72	68.86	27
Domestic services and messengers	93.84	48.71	71.30	26	90.15	32.58	61.37	30
Printing trades	88.99	77.63	83.31	21	87.74	77.41	82.58	22
Teaching	87.73	98.60	93.17	13	86.69	97.77	92.23	14
Police, prison and guards	78.48	100.00	89.24	16	77.79	99.78	88.79	17
Textile trades	76.73	77.40	77.07	23	72.13	53.46	62.80	29
Building trades	86.68	95.91	91.30	15	78.49	89.91	84.20	20
Commercial delivery and postal services	76.18	96.91	86.55	19	76.74	96.47	86.61	18
Transport trades	77.78	6.71	42.25	32	76.99	2.95	39.97	33
Mining occupations	72.14	2.94	37.54	34	61.84	00.00	30.92	35
General manufacturing and dealing	61.83	89.90	75.87	24	48.02	77.64	62.83	28
Agricultural occupations	48.01	32.57	40.29	31	00.00	6.72	3.36	36

Table A5.2.2.: Ranking of occupational classifications by *Nam-Powers* score (1841)

	Elite				Non-elite			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	97.63	98.82	3	99.44	97.15	98.30	4
Engineers and surveyors	99.43	98.69	99.06	1	99.19	98.54	98.87	2
Religious	94.97	99.77	97.37	6	93.91	99.43	96.67	9
Accounting	**97.84**	**96.79**	**97.32**	**8**	**94.98**	**96.90**	**95.94**	**11**
Govt: Civil official	99.18	97.14	98.16	5	97.85	96.80	97.33	7
Medical	93.90	99.42	96.66	10	93.12	98.70	95.91	12
Metal trades	87.68	11.88	49.78	29	86.40	7.30	46.85	30
Domestic services and messengers	93.11	76.97	84.94	20	88.88	56.49	73.69	24
Printing trades	86.39	77.36	81.88	21	84.98	76.98	80.98	22
Teaching	88.87	98.53	93.70	13	87.69	97.64	92.67	14
Police, prison and guards	84.68	100.00	92.34	15	83.90	99.78	91.84	16
Textile trades	83.89	58.48	71.19	26	78.72	36.12	57.42	28
Building trades	78.71	95.52	87.12	19	68.55	89.25	78.90	23
Commercial delivery and postal services	84.97	96.09	90.53	17	84.69	95.53	90.11	18
Transport trades	78.71	3.87	41.29	31	77.82	00.00	38.91	32
Mining occupations	68.54	7.29	37.92	34	56.91	3.88	30.40	35
General manufacturing and dealing	56.90	89.24	73.07	25	41.29	77.37	59.33	27
Agricultural occupations	41.28	36.11	38.70	33	00.00	11.89	5.95	36

Table A5.2.3.: Ranking of occupational classifications by *Nam-Powers* score (1851)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	96.81	98.41	5	99.45	96.42	97.94	6
Engineers and surveyors	99.44	98.66	99.05	2	99.20	98.40	98.80	3/4
Religious	99.19	99.80	99.50	1	98.17	99.42	98.80	3/4
Accounting	**98.16**	**96.41**	**97.29**	**7**	**95.42**	**95.54**	**95.48**	**12**
Govt: Civil official	95.41	97.12	96.27	9	94.12	96.89	95.54	11
Medical	94.11	99.41	96.76	8	93.35	98.65	96.00	10
Metal trades	89.26	58.98	74.12	25	88.02	53.96	70.99	27
Domestic services and messengers	93.34	73.38	83.36	19	89.27	58.99	74.13	24
Printing trades	86.86	73.80	86.18	18	85.50	73.39	79.45	22
Teaching	88.01	98.43	93.21	13	86.87	97.13	92.00	14
Police, prison and guards	59.34	100.00	79.67	21	58.59	99.81	79.20	23
Textile trades	75.45	53.95	64.70	28	70.50	30.70	50.60	30
Building trades	85.20	95.53	90.37	15	76.33	88.01	82.17	20
Commercial delivery and postal services	85.49	88.00	86.75	16	85.21	87.38	86.30	17
Transport trades	76.32	4.50	40.41	31	75.46	00.00	37.73	33
Mining occupations	70.49	8.66	39.58	32	59.35	4.51	31.93	35
General manufacturing and dealing	58.58	87.37	72.98	26	43.63	73.81	58.72	29
Agricultural occupations	43.62	30.69	37.16	34	00.00	8.67	4.34	36

Table A5.2.4.: Ranking of occupational classifications by *Nam-Powers* score (1861)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	96.37	98.19	5	99.49	96.01	97.75	8
Engineers and surveyors	99.48	97.42	98.45	4	99.27	97.08	98.18	6
Religious	98.52	99.15	98.94	2	97.37	98.74	98.06	7
Accounting	**96.06**	**96.00**	**96.03**	**11**	**92.24**	**95.27**	**93.76**	**14**
Govt: Civil official	97.36	97.07	97.22	9	96.07	96.38	96.23	10
Medical	99.27	99.84	99.56	1	98.53	99.16	98.85	3
Metal trades	91.16	73.45	82.31	16	89.61	66.88	78.25	20
Domestic services and messengers	89.60	45.26	67.43	25	85.34	29.48	57.41	26
Printing trades	85.33	29.47	57.40	27	83.82	28.96	56.39	28
Teaching	92.23	98.73	95.48	12	91.17	97.43	94.30	13
Police, prison and guards	57.74	100.00	78.87	18	56.89	99.85	78.37	19
Textile trades	72.93	66.87	69.90	24	68.75	45.27	57.01	29
Building trades	83.81	95.26	89.54	15	74.44	87.38	80.91	17
Commercial delivery and postal services	73.40	74.09	73.75	21	72.94	73.46	73.20	22
Transport trades	74.44	9.77	42.11	31	73.41	4.66	39.04	32
Mining occupations	68.74	4.65	36.70	33	57.75	00.00	28.88	35
General manufacturing and dealing	56.88	87.37	72.13	23	39.92	74.10	57.01	29
Agricultural occupations	39.91	28.95	34.43	34	00.00	9.78	4.89	36

Table A5.2.5.: Ranking of occupational classifications by *Nam-Powers* score (1871)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	96.72	98.36	6	99.52	96.35	97.94	8
Engineers and surveyors	98.79	98.53	98.66	4	98.62	98.12	98.37	5
Religious	98.61	99.69	99.15	2	97.42	99.27	98.35	7
Accounting	**96.12**	**96.34**	**96.23**	**9**	**90.88**	**94.83**	**92.86**	**14**
Govt: Civil official	97.41	94.82	96.12	10	96.13	94.47	95.30	11
Medical	99.51	99.26	99.39	1	98.80	98.54	98.67	3
Metal trades	89.88	70.22	80.05	16	87.94	62.98	75.46	20
Domestic services and messengers	87.93	43.00	65.47	23	83.52	26.00	54.76	29
Printing trades	70.22	43.65	56.94	27	68.54	43.01	55.78	28
Teaching	90.87	98.11	94.49	12	89.89	96.73	93.31	13
Police, prison and guards	55.86	100.00	77.93	18	54.91	99.70	77.31	19
Textile trades	73.71	62.97	68.34	22	70.23	43.66	56.95	26
Building trades	83.51	94.46	88.99	15	73.72	86.33	80.03	17
Commercial delivery and postal services	56.61	70.93	63.77	24	55.87	70.23	63.05	25
Transport trades	68.53	5.37	36.95	32	67.31	00.00	33.66	33
Mining occupations	67.30	10.52	38.91	31	56.62	5.38	31.00	35
General manufacturing and dealing	54.91	86.32	70.62	21	35.94	70.94	53.44	30
Agricultural occupations	35.94	25.99	30.97	34	00.00	10.53	5.27	36

Table A5.2.6.: Ranking of occupational classifications by *Nam-Powers* score (1881)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	93.81	96.91	7	99.53	93.42	96.48	9
Engineers and surveyors	97.59	98.44	98.02	5	97.20	97.94	97.57	6
Religious	98.80	98.68	98.74	2	97.60	99.22	98.41	4
Accounting	**97.19**	**96.18**	**96.69**	**8**	**91.07**	**93.82**	**92.45**	**11**
Govt: Civil official	91.06	93.41	92.24	13	89.90	93.05	91.48	14
Medical	99.52	99.21	99.37	1	98.81	98.45	98.63	3
Metal trades	84.51	84.35	84.43	16	82.45	78.27	80.36	19
Domestic services and messengers	88.62	47.21	67.92	21	84.52	30.06	57.29	27
Printing trades	68.81	60.99	64.90	23	66.76	60.19	63.48	24
Teaching	89.89	97.93	93.91	10	88.63	96.19	92.41	12
Police, prison and guards	65.48	100.00	82.75	17	64.54	99.69	82.12	18
Textile trades	71.91	24.90	48.41	28	68.82	6.33	37.58	33
Building trades	82.44	93.04	87.74	15	71.92	84.36	78.14	20
Commercial delivery and postal services	64.53	61.86	63.20	25	63.97	61.00	62.49	26
Transport trades	66.75	6.32	36.54	34	65.50	00.00	32.75	35
Mining occupations	63.96	30.05	47.00	29	51.85	24.91	38.38	32
General manufacturing and dealing	51.84	78.26	65.05	22	29.87	61.87	45.87	30
Agricultural occupations	29.86	60.18	45.02	31	00.00	47.22	23.61	36

Table A5.2.7.: Ranking of occupational classifications by *Nam-Powers* score (1891)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	94.02	97.01	8	99.54	93.63	96.57	9
Engineers and surveyors	98.90	98.90	98.90	3	98.54	98.71	98.63	4
Religious	98.53	98.70	98.62	5	97.41	98.21	97.81	6
Accounting	**97.40**	**96.10**	**96.75**	**7**	**89.39**	**94.03**	**91.71**	**13**
Govt: Civil official	89.38	98.20	93.79	10	88.18	97.71	92.95	11
Medical	99.53	99.70	99.62	1	98.91	98.91	98.91	2
Metal trades	86.97	93.62	90.29	15	84.90	85.73	85.32	16
Domestic services and messengers	70.32	25.27	47.80	26	63.70	7.71	35.71	31
Printing trades	72.73	60.32	66.53	22	70.33	59.13	64.73	24
Teaching	88.17	97.70	92.94	12	86.98	96.11	91.55	14
Police, prison and guards	48.05	100.00	74.03	18	46.76	99.71	73.24	19
Textile trades	84.90	48.48	66.69	20	82.03	30.18	56.11	25
Building trades	82.02	68.42	75.22	17	72.74	60.33	66.54	21
Commercial delivery and postal services	46.75	7.70	27.23	34	45.92	4.72	25.32	35
Transport trades	63.69	4.71	34.20	32	62.22	00.00	31.11	33
Mining occupations	62.21	30.17	46.19	28	48.05	25.28	36.67	30
General manufacturing and dealing	45.91	85.72	65.82	23	24.89	68.43	46.66	27
Agricultural occupations	24.88	59.12	42.00	29	00.00	48.49	24.25	36

Table A5.2.8.: Ranking of occupational classifications by *Nam-Powers* score (1901)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	95.15	97.58	3	99.54	92.76	96.15	5
Engineers and surveyors	99.53	98.80	99.17	1	99.16	98.62	98.89	2
Religious	87.91	98.61	93.26	8	86.76	98.12	92.44	9
Accounting	**99.15**	**95.81**	**97.48**	**4**	**88.62**	**93.16**	**90.89**	**12**
Govt: Civil official	86.75	96.41	91.58	11	85.19	95.82	90.51	13
Medical	88.61	99.70	94.16	6	87.92	98.81	93.37	7
Metal trades	83.77	68.20	75.99	16	81.07	56.81	68.94	17
Domestic services and messengers	68.99	23.46	46.23	27	62.26	4.71	33.49	31
Printing trades	60.00	56.80	58.40	22	57.27	55.41	56.34	23
Teaching	85.18	98.11	91.65	10	83.77	96.42	90.10	14
Police, prison and guards	21.01	100.00	60.51	20	19.53	99.71	59.62	21
Textile trades	62.25	41.16	51.71	24	60.01	23.47	41.74	28
Building trades	81.06	76.71	78.89	15	69.00	68.21	68.61	18
Commercial delivery and postal services	39.60	3.08	21.34	35	38.29	00.00	19.15	36
Transport trades	57.26	4.70	30.98	32	55.30	3.09	29.20	33
Mining occupations	55.29	46.46	50.88	25	39.61	41.17	40.39	28
General manufacturing and dealing	38.28	92.75	65.52	19	21.02	76.72	48.87	26
Agricultural occupations	19.52	55.40	37.46	30	00.00	46.47	23.24	34

Table A5.2.9.: Ranking of occupational classifications by *Nam-Powers* score (1911)

	Elite				**Non-elite**			
Occupational classification	Earn	Ed.	**N-P**	**Rank**	Earn	Ed.	**N-P**	**Rank**
Legal	100.00	92.54	96.27	6	99.56	92.15	95.86	7
Engineers and surveyors	99.55	98.80	99.18	2	99.30	98.66	98.98	3
Religious	86.97	98.65	92.81	8	85.88	98.26	92.07	9
Accounting	**98.58**	**98.25**	**98.42**	**5**	**86.99**	**95.05**	**91.02**	**10**
Govt: Civil official	84.40	93.34	88.87	13	82.59	92.55	87.57	14
Medical	99.28	99.60	99.44	1	98.59	98.81	98.70	4
Metal trades	82.57	67.87	75.22	16	79.94	57.28	68.61	17
Domestic services and messengers	62.32	23.50	42.91	28	55.48	8.21	31.85	33
Printing trades	65.31	57.27	61.29	21	62.33	55.48	58.91	24
Teaching	85.86	95.04	90.45	11	84.41	93.35	88.88	12
Police, prison and guards	23.54	100.00	61.77	20	21.94	99.61	60.78	22
Textile trades	79.93	41.30	60.62	23	77.45	23.51	50.48	26
Building trades	77.44	76.52	76.98	15	67.17	67.88	67.53	18
Commercial delivery and postal services	21.93	3.10	12.52	35	19.61	00.00	9.81	36
Transport trades	67.16	8.20	37.68	30	65.32	3.11	34.22	32
Mining occupations	55.47	47.40	51.44	25	37.09	41.31	39.20	29
General manufacturing and dealing	37.08	92.14	64.61	19	23.52	76.53	50.03	27
Agricultural occupations	19.60	55.47	37.54	31	00.00	47.41	23.70	34