SOC 2010:
The revision of the Standard Occupational Classification 2000

Peter Elias and Margaret Birch

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1.   Introduction

A classification of occupations provides a framework for describing the kind of work that people do. By organising jobs into groups that reflect the typical skills and expertise required to perform them well, occupational classifications enable analysts to measure changes in the labour market, match jobs to workers and/or provide relevant advice to job seekers. To achieve these objectives, a classification must be both up-to-date and have a clear, meaningful structure appropriate for the uses to which it will be put.

Jobs are not static entities. Innovation and the introduction of new technologies, changes in the organisation of work, revisions to occupational training and qualification requirements, together with shifts in demand for different types of goods and services and the ways in which these are met – all impact on the nature of occupations. To measure and monitor such changes, analysts need to place occupational information within a stable framework. However, as change progresses, there is also a need to adjust the classification from time to time, ensuring that the classification reflects new areas of work and associated training and qualification requirements.

The Office for National Statistics has adopted a ten year cycle for the revision of the UK national occupational classification. While the conceptual basis of the UK national occupational classification has remained unchanged since 1990[1], the 2010 Standard Occupational Classification is now the second revision. Previous articles have described the introduction of the Standard Occupational Classification in 1990 (Thomas and Elias 1989) and its revision in 2000 (Elias *et al.* 2000). This article presents a summary of the main changes that have been made to the 2000 version of the Standard Occupational Classification[2] (referred to as 'SOC2000'), redefining the national standard as the 2010 version of the Standard Occupational Classification (referred to as 'SOC2010').

The main areas of change involve:

- the introduction of a stricter definition of managers;
- the reallocation of most nursing occupations from Major Group 3 to Major Group 2;

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[1] OPCS (1990a and 1990b).
[2] ONS (2000a and 2000b).

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- a reclassification of occupations associated with information technologies;
- further alignment with the 2008 revision of the International Standard Classification of Occupations (ISCO08), specifically via the introduction of a limited number of supervisory unit groups.

Details of these changes are given in the sections below, with the final section specifically addressing issues of maintaining continuity alongside the need for change.

2.   The redefinition of managers

Relative to many other countries, a significantly higher proportion of the working population in the UK is classified via SOC2000 as managers[3]. An international comparison of occupational structures based on information collected from 25 European countries and the USA in 2003 (European Commission, 2004) indicated that the proportions of employment in ISCO88 Major Group 1 in nearly all EU countries and the US show a deviation from the EU average of +/- 2.5 percentage points[4]. However, the UK and Ireland[5] stand out by showing a deviation of **+6 percentage points** from the EU average**.** It is unlikely that this reflects major differences in the organisation and structure of work in the UK and most probably relates to the use of the job title 'manager' and associated classification methods and procedures in SOC2000.

Closer examination of EU Labour Force Survey statistics shows that the problem is located within ISCO Sub major Group 12 'Corporate Managers', a category which corresponds reasonably well with SOC2000 Sub major Group 11 'Corporate Managers'. This problem was noted during the process of revising SOC90 to create SOC2000. A number of SOC90 job titles which were indexed to SOC90 Sub major Group 11 were repositioned, particularly job titles using the word 'executive' or 'administrator' which were reallocated to major groups 3 or 4 of SOC2000. However, another change was also implemented during the development of SOC2000 which countered the effect of repositioning these job titles. With a few exceptions, all job titles with the word 'manager' in the title were allocated to Major Group 1. This rule was adopted to simplify the allocation of job titles within the (then) developing

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3   Major Group 1 is defined as 'managers' in both SOC2000 and the 1988 International Standard Classification of Occupations (ISCO 88).

4   Cyprus, Italy and Romania deviate by approximately -2.6 percentage points. Similar tabulations received by the IER from Eurostat for 2006 show the same pattern.

5   Ireland uses an occupational classification based on the UK Standard Occupational Classification. For the 2006 Census of Population the version used was based on SOC90.

National Statistics Socio-economic Classification. The net effect of these changes was to reduce the size of Major Group 1 as defined via the previous classification (SOC90) from 19 per cent of male employment in 1996/97 to 18 per cent when defined in SOC2000, and from 12 per cent to 8 per cent for females (ONS, 2000a).

In developing SOC2010 this issue has been readdressed. The fact that UK statistical practice in this area is still at odds with the major countries elsewhere in the EU and the US suggests that non action is not an option, in that it would ultimately diminish the perceived value within the global community of official occupational information from the UK. Analysts and policy makers frequently make use of occupational information at this broad aggregate level. A lack of national comparability at this highly visible level could give rise to misleading interpretation of national statistical evidence.

2.1   Defining managers

In discussion with occupational experts from other countries[6] it has become apparent that a more stringent approach is taken with the use of the job title 'manager'. The title 'manager', qualified in some way, is frequently used in the UK to denote what would be regarded as supervisory or administrative positions in many other countries. Furthermore, the title is often used in the UK to denote the management of a set of activities that constitute a narrowly-defined role, rather than the broader and more strategic managerial functions that characterise managerial functions in other countries.

The SOC review team approached this issue first by examining more closely the definition of corporate managers as described in SOC2000 and in the International Standard Classification of Occupations (ISCO08)[7]. The boxes below reproduce these definitions.

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[6]   Discussions were held with occupational experts from Germany, Netherlands, USA, Norway at the European Social Survey Quality Enhancement Workshop, Mannheim, 27th September 2008 and with experts from a wide range of countries at the Harmonisation Workshop, Council of European Social Survey Data Archives, Paris 3rd April 2008.

[7]   ISCO88, the 1988 version of the International Standard Classification of Occupations is currently being revised and will be published shortly as ISCO08 (http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm)

SOC2000 definition	ISCO 08 definition
Sub-major group 11: Corporate managers	**Sub-major group 12: Administrative and commercial managers**
'Job holders in this sub-major group formulate government policy: direct the operations of major organisations, government departments and special interest organisations; organise and direct production, processing, maintenance and construction operations in industry; formulate, implement and advise on specialist functional activities within organisations; direct the operations of branches and offices of financial institutions; organise and co-ordinate the transportation of passengers, the storage and distribution of freight, and the sale of goods; manage the operations of the emergency services, customs and excise, the prison service and the armed forces; and co-ordinate the provision of health and social care services and establishments.'	*'Administrative and commercial managers plan, organize, direct, control and coordinate the financial, administrative, human resource, policy, planning, research and development, advertising, public relations, and sales and marketing activities of enterprises and organizations, or of enterprises that provide such services to other enterprises and organizations.'* **Sub-major group 13: Production and specialized services managers** *'Production and specialized services managers plan direct and coordinate the production of the goods and the provision of the specialized professional and technical services provided by an enterprise or organization. They are responsible for manufacturing, mining, construction, logistics, information and communications technology operations, for large scale agricultural, forestry and fisheries operations, and for the provision of health, education, social welfare, banking, insurance and other professional and technical services.'*

The international definition of managers stresses the role of the manager as one for which the key tasks are 'planning, organising, directing, controlling and coordinating resources (financial, administrative, human and technical)'. The UK definition uses phrases such as 'organise and coordinate', which has led to a broad and flexible interpretation of the managerial role.

To effect a definition of the managerial role which accords more closely with the broader, more strategic definition as used in ISCO88, the definition of managers within SOC2000 Major Group 1 was changed from its current definition:

> *'This major group covers occupations whose main tasks consist of*
> *the direction and coordination of the functioning of organisations*

> *and businesses, including internal departments and sections, often*
> *with the help of subordinate managers and supervisors.'*

to the following definition:

> *'This major group covers occupations whose tasks consist of*
> *planning, directing and coordinating resources to achieve the*
> *efficient functioning of organisations and businesses.'*

This revised definition focuses upon the managerial occupation as one which is associated specifically with control over resources ('planning, directing and coordinating') at the enterprise or organisational level and makes more explicit the strategic elements of the job rather than the day-to-day tasks. Where the job title 'manager' is used yet the job description does not indicate significant responsibilities for strategic control over resources (financial, material or human), consideration was given to the reallocation of such job titles and their associated task descriptions to alternative major groups. This required a careful examination of the mechanisms (index rules, guidance notes, coding procedures, *etc.*) by which such job titles and descriptions could be identified and excluded from Major Group 1.

2.2   Evidence to support the reclassification of managers

Two major sources of information were used to assist with the redefinition of managers in SOC2010: text responses to questions about the kind of work people do from the Labour Force Surveys (2002 - 2007)[8] and a sub sample of information from 2001 Census of Population. Suitably anonymised individual records from these sources provided just over 280,000 and 223,000 job titles respectively. Despite slight differences in the questions and the later timing of the Labour Force Surveys, both sources show fairly similar proportions of job titles classified to major group 1 (18.6 and 10.7 per cent for males and females respectively in the Labour Force Surveys compared with 18.0 and 10.5 per cent in the Census of Population).

All jobs classified within each unit group of Major Group 1 of SOC 2000 were analysed in detail, noting the text descriptions of the main tasks. This revealed that there is a number of commonly occurring job titles where the tasks were associated

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[8] The Labour Force Survey files from which job title and related information was extracted were: October – December 2002; September –November 2003; April – June 2004; October – December 2005; January – March 2007.

primarily with the organisation of a limited set of related duties, but did not constitute 'planning, directing and coordinating resources to achieve the efficient functioning of organisations and businesses'. Foremost among such job titles is the term 'project manager'. Inspection of the text responses to the question 'What did you mainly do in your job?' revealed that many people who gave their job title as 'project manager' were engaged in technical work or construction activities. Typical responses would be 'Implement software changes in companies', 'coordinating building projects', 'manage internet connections', 'updating health and safety contract for clients', 'supervise a team helping people with mental health problems get houses' and 'mainly giving IT support'.

The coding index to SOC2000 instructs coders to classify the text 'project manager' to a range of unit groups in Major Group 1, from 1121 *Production, works and maintenance managers* to 1185 *Residential and day care managers*. Analysis of job titles in the composite Labour Force Survey file indicated that there were 1,753 cases (0.6 per cent of all jobs) where the words 'project manager' or 'projects manager' appeared in the job title. Of these, 93 per cent had been coded to submajor group 11 *Corporate Managers*, predominantly to unit groups 1136 *Information and communication technology managers*, 1121 *Production, works and maintenance managers* and 1122 *Managers in construction.*

Job titles containing the words 'project(s) manager' accounted for more than 5 per cent of all the job titles classified to sub major group 11 in the composite Labour Force Survey file. We note also that 11 per cent of job titles containing the words 'project(s) manager' were not coded to SOC2000 by Labour Force Survey coders, indicating the difficulty of coding this ambiguous job title in the absence of any additional information. Job titles containing the words 'project(s) manager' and coded in SOC2000 to Major Group 1 were repositioned in SOC2010 to unit groups within Major Group 2, as shown in Table 1, below. Note that most of the SOC2010 unit groups listed in this table are newly created, some to facilitate this repositioning of 'project managers' *(e.g. 2424 Business and financial project management professionals; 2435 Planning and surveying project management professionals).*

Table 1:   Re-coding of 'project manager' titles

SOC90	SOC2000	SOC2010	Index entry
110	1121	2424	Manager, projects
110	1121	2129	Manager, project (manufacturing)
111	1122	2436	Manager, projects (building and contracting)
102	1113	2424	Manager, project (local government)
123	1134	2473	Manager, projects (advertising)
126	1136	2134	Manager, project, development, software
126	1136	2134	Manager, project, IT
126	1136	2134	Manager, project (computing)
126	1136	2134	Manager, project (telecommunications)
199	1137	2150	Manager, project (research and development)
131	1151	2424	Manager, project (financial services)
199	1184	2424	Manager, project (local government: social services)
370	1185	2424	Manager, project (local government: social services: residential)
199	1239	2424	Manager, project (publishing)

In addition to the repositioning of 'project managers' in SOC2010, a number of other job titles were investigated in detail to determine whether or not they should be reclassified. These are shown below. Where the job title appears with no additional qualifying information, it is coded within SOC2000 as shown in parentheses. Where more than one code is shown, this indicates that there is no default code for the job title without further qualifying information and coding will depend upon the sector of activity in which the respondent is employed.

- Administration manager (1152)

- Accounts manager (1152)

- Account manager (1132, 1134, 1135, 1151)

- Sales manager (1132)

- Office manager (1152)

- Payroll manager (1152)

- Practice manager (1152)

- Business manager (various – depends on sector of activity)

- Business development manager (various – depends on sector of activity)

Table 2 provides information from the Labour Force Survey showing, for each of these job titles, the percentage of job holders with a degree, the percentage with supervisory responsibilities, the percentage stating in their task descriptions that they had some degree of control across the establishment at which they worked and the extent of their control over resources. Based upon the information shown in this table, further case-by-case investigations were carried out for all jobs classified within

the unit groups where these job titles are currently positioned. Index entries were modified as appropriate to move specific job titles to Major Groups 2, 3, 4, 5 and 7.

Table 2:   Specific managerial job titles: qualifications, supervision, degree of control over establishment and resources

Specific job title	Number of cases	Column %	Has a degree ?	Responsible for supervising other people?	Has some control over establishment ?	Control over resources?			
						High	Medium	Low	Not stated
Administration manager	258	6.9	7.4	80.1	6.6	25.2	32.2	38.4	4.3
Accounts manager	361	9.7	16.3	62.8	0.3	3.9	25.5	67.0	3.6
Account manager	412	11.0	26.9	44.8	1.7	2.4	16.7	77.4	3.4
Sales manager	1,012	27.1	13.9	74.2	5.0	8.5	34.5	54.2	2.8
Office manager	903	24.2	11.0	77.8	5.5	37.9	21.9	36.0	4.2
Payroll manager	73	2.0	9.6	82.2	1.4	4.1	43.8	52.1	*
Practice manager	218	5.8	16.1	90.4	42.7	61.0	16.5	16.5	6.0
Business manager	223	6.0	35.0	82.0	16.6	18.4	26.9	42.6	12.1
Business development manager	269	7.2	34.6	55.0	4.5	3.3	11.9	75.1	9.7
Total	3,729	100.0	17.2	71.3	7.2	18.9	25.5	51.1	4.6

* indicates that the number in the cell fell below threshold for reporting
Source: Labour Force Survey composite file 2003-2007

2.3   Measuring the impact of change in the definition of managerial occupations

To gain an indication of the effect of these changes on the composition of Major Group 1, one complete quarter of the Labour Force Survey (January to March 2007) was recoded, reallocating job titles to other unit groups as appropriate. Table 3 shows, for the eight unit groups in SOC2000 most significantly affected by these changes, the unit groups to which job titles are now allocated in SOC2010.

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Table 3   The redefinition of certain SOC2000 managerial occupations in SOC2010

SOC2000		Repositioned to	SOC2010	
1121	Production works and maintenance managers	81%	**1121**	Production managers and directors in manufacturing
	(N=782)	7%	**2129**	Engineering professionals n.e.c.
		6%	**5**	SKILLED TRADES OCCUPATIONS
1122	Managers in construction	72%	**1122**	Production managers and directors in construction
	(N=659)	23%	**2436**	Construction project managers and related professionals
		3%	**5319**	Construction and building trades n.e.c.
1131	Financial managers and chartered secretaries	74%	**1131**	Financial managers and directors
	(N=438)	5%	**2424**	Business and financial project management professionals
		5%	**2429**	Business, research and administrative professionals n.e.c.
		12%	**3538**	Financial accounts managers
1132	Marketing and sales managers	33%	**1132**	Marketing and sales directors
	(N=1,101)	4%	**2424**	Business and financial project management professionals
		59%	**3545**	Sales accounts and business development managers
1136	Information and communication technology managers	31%	**1136**	Information technology and telecommunications directors
	(N=607)	43%	**2133**	IT specialist managers
		22%	**2134**	IT project and programme managers
1151	Financial institution managers	47%	**1150**	Financial institution managers and directors
	(N=413)	12%	**2424**	Business and financial project management professionals
		3%	**3533**	Insurance underwriters
		20%	**3538**	Financial accounts managers
		13%	**4123**	Bank and post office clerks
1152	Office managers	14%	**3538**	Financial accounts managers
	(N=587)	65%	**4161**	Office managers
		3%	**7220**	Customer service managers and supervisors
1163	Retail and wholesale managers	87%	**1190**	Managers and directors in retail and wholesale
	(N=944)	10%	**7130**	Sales supervisors

Source: Labour Force Survey January – March 2007 (recoded data file).

3.   **The reallocation of nursing occupations**

Nursing occupations have previously been classified as 'Associate Professional' occupations. Investigations concluded during the development of SOC2000 showed that only a small proportion of nurses held a high level qualification (university degree or equivalent). This situation has changed significantly over the last ten years. While it is still possible to enter nursing without a degree-level qualification, increasingly it is the case that entry into a nursing occupation is via a degree-level route. Between 1993/94 and 2006/07, the Labour Force Survey indicates that the proportion of young nurses (26-35 years old) with a degree-level qualification rose from 4 per cent to 32 per cent. In liaison with the professional body for nursing (Royal College of Nursing) the decision was made to reallocate nursing occupations from Major Group 3 in SOC2000 to Major Group 2 in SOC2010.

4.   **The reclassification of occupations associated with information technologies**

Occupations associated with information technology (IT) and telecommunications have also been subject to rapid change over the past ten years, with significant growth in web-based communications, the sharp increase in web transactions (e.g. advertising, buying, selling) the application of IT through virtually all sectors of the economy. However, there remains a problem of heterogeneity in the use of job titles in the sector, first noted in the development of SOC2000. In consultation with the lead industry body in this area (e-skills UK), certain changes have been made to the structure of minor group 213 (Information Technology and Telecommunications Professionals). The changes are as shown in Table 4 below.

Table 4:   The redefinition of IT and telecommunications occupations in SOC2010

SOC2000	SOC2010
Major Group 1	
1136 Information and communication technology managers	1136 Information technology and telecommunications directors
Major Group 2	
213 Information and communication technology professionals	213 Information Technology and Telecommunications Professionals
2131 IT strategy and planning professionals	2133 IT specialist managers
2132 Software professionals	2134 IT project and programme managers
	2135 IT business analysts, architects and systems designers
	2136 Programmers and software development professionals
	2137 Web design and development professionals
	2139 Information technology and telecommunications professionals n.e.c.
Major Group 3	
313 IT Service Delivery Occupations	**313 Information Technology Technicians**
3131 IT operations technicians	3131 IT operations technicians
3132 IT user support technicians	3132 IT user support technicians

5.   The introduction of a limited number of supervisory unit groups

The 2008 revision to the International Standard Classification of Occupations (ISCO08) introduces a limited number of supervisory unit groups. These have been defined in areas of work where the role of the supervisor is distinct and is generally regarded as a separate occupational area from the type of work that is being supervised. Where possible, corresponding supervisory categories have been incorporated within SOC2010. This was not possible for mining supervisors (the resulting unit group would be below the limit of statistical data release for most data sources) and the category 'Manufacturing Supervisors' was considered too broadly defined.

Table 5 below shows the correspondence between the new ISCO08 categories and their counterparts in SOC2010.

**Table 5:   Correspondence between ISCO08 supervisory unit groups and SOC2010 supervisory unit groups**

ISCO08 unit groups	SOC2010 unit groups	
3121 Mining supervisors	Not defined	
3341 Office supervisors	{ Office managers	4161
	Office supervisors	4162
3122 Manufacturing supervisors	Skilled metal, electrical and electronic trades supervisors	5250
3123 Construction supervisors	Construction and building trades supervisors	5330
5151 Cleaning and housekeeping supervisors in offices, hotels and other establishments	Cleaning and housekeeping managers and supervisors	6240
5222 Shop supervisors	{ Sales supervisors	7130
	Customer service managers and supervisors	7220

6.   The overall impact of reclassification from SOC2000 to SOC2010

To gain some indication of the manner in which this revision of the Standard Occupational Classification impacts upon the interpretation of trends in occupational structure of employment in the UK, the 1996/97 winter quarter of the Labour Force Survey was recoded from SOC2000 to SOC2010, comparing this information with similarly recoded data for the 2007 January/March Quarter of the Labour Force Survey.

Figures 9 (a and b) and 10 (a and b) show the overall impact of these changes at the level of Major Groups of the Standard Occupational Classification. Examining first the effect on male employment, the reclassification of managerial occupations stands out as the single most important change, reducing the size of male employment in Major Group 1 as recorded in the first quarter of 2007 from 19.0 per cent of all employment to 12.8 per cent.

Figure 9a: **Percentage distribution of male employment in Dec 1996 – Feb 1997, SOC2000 and SOC2010**
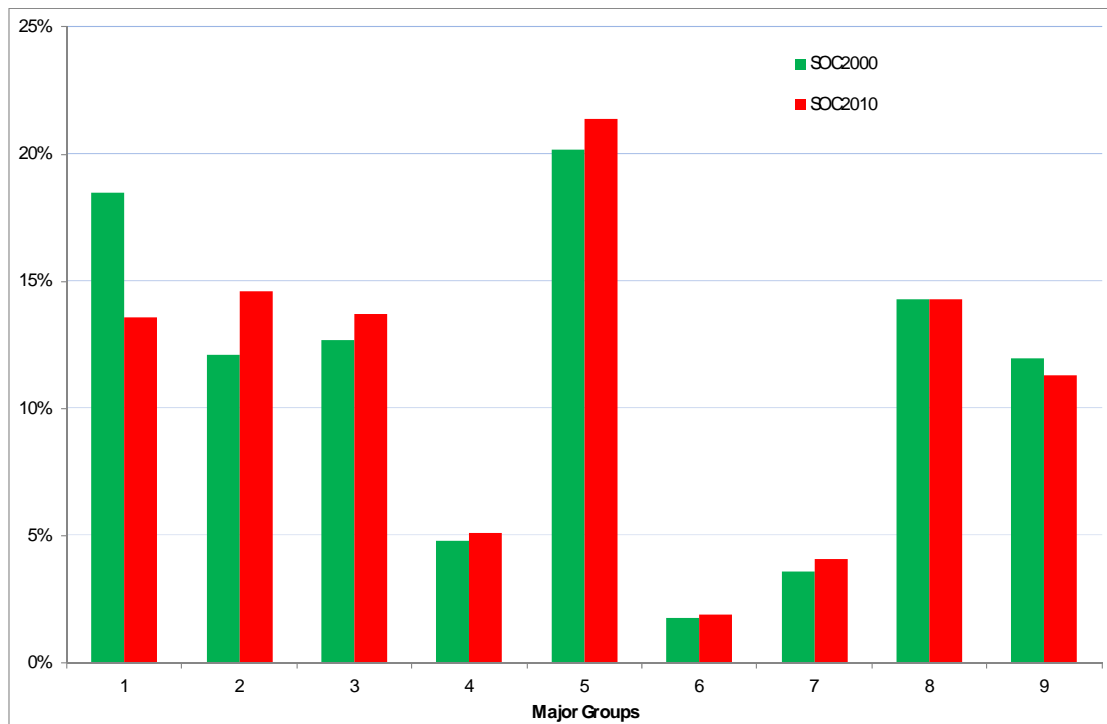
Source: *Labour Force Survey* (unweighted data).

Figure 9b: **Percentage distribution of male employment in Jan – Mar 2007, SOC2000 and SOC2010**
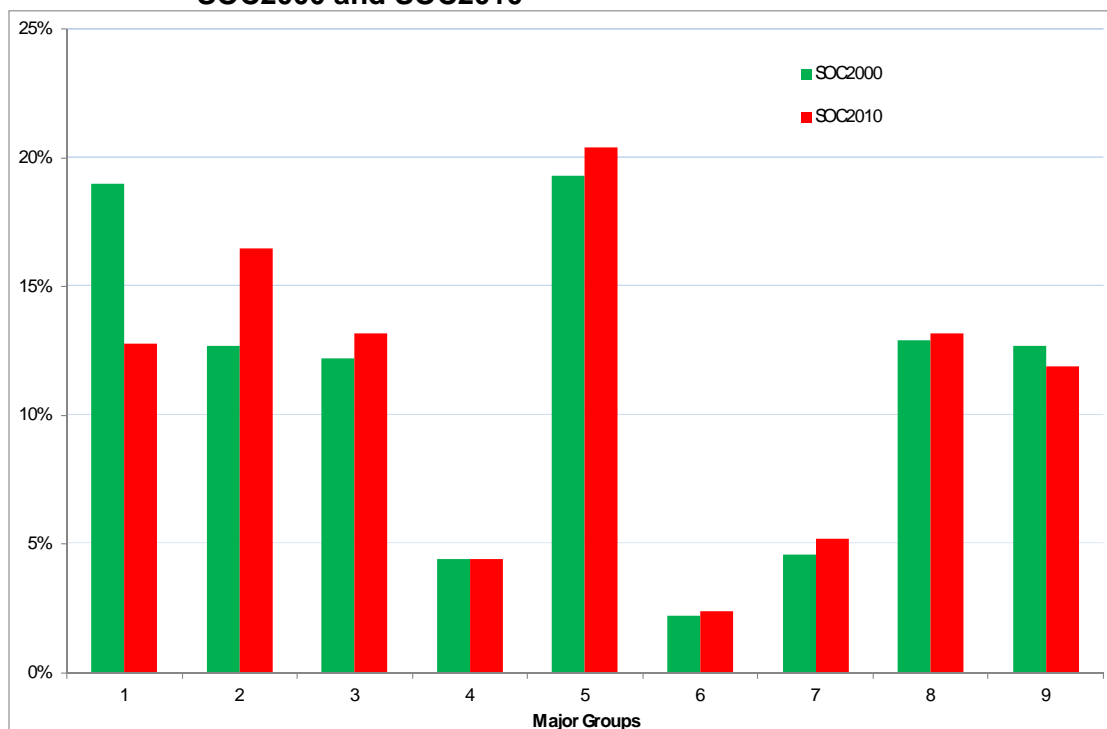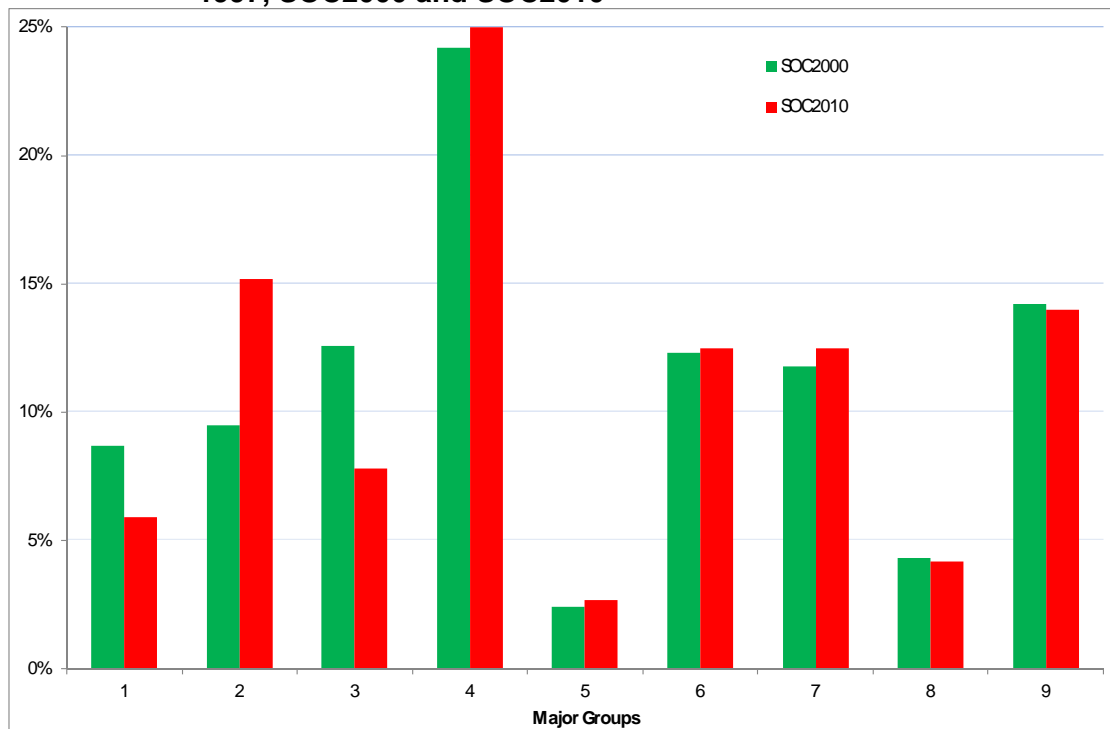

Source: *Labour Force Survey* (unweighted data).

The reclassification of the winter quarter 1996/97 Labour Force Survey shows a similar effect, with the share of male employment in this Major Group falling from 18.5 to a 13.6 per cent. Corresponding rises take place in Major Groups 2, 3 and 5 in both periods. Comparing the changes recorded between 1996/97 and 2007 by the two classifications shows that the modest growth over this decade in both Major Groups 1 and 2 by SOC2000 now become a decline in the occupational share held by Major Group 1 of SOC2010 and a corresponding increase in the share of employment in SOC2010 Major Group 2. This arises because of the significant growth which took place in this ten year period in those occupations which are now reallocated from Major Group 1 of SOC2000 to Major Group 2 of SOC2010.

Figures 10a and 10b show similar information for female employment. Again, a fall in the share of employment classified to Major Group 1 is recorded, though the decline is not as great as is shown for males. The reclassification of nursing occupations from Major Group 3 to Major Group 2 also has significant impact at this level of aggregation, with the share of female employment in SOC2000 Major Group 3 (as measured in the first quarter of 2007) falling from 14.0 per cent to 10.2 per cent. Examining the changing shares of female employment over this decade, the share of employment in Major Group 1 with stronger growth shown in Major Groups 2 and 3 falls significantly with the reallocation

Figure 10a: **Percentage distribution of female employment in Dec 1996 – Feb 1997, SOC2000 and SOC2010**

Source: *Labour Force Survey* (unweighted data).

Figure 10b: **Percentage distribution of female employment in Jan – Mar 2007, SOC2000 and SOC2010**
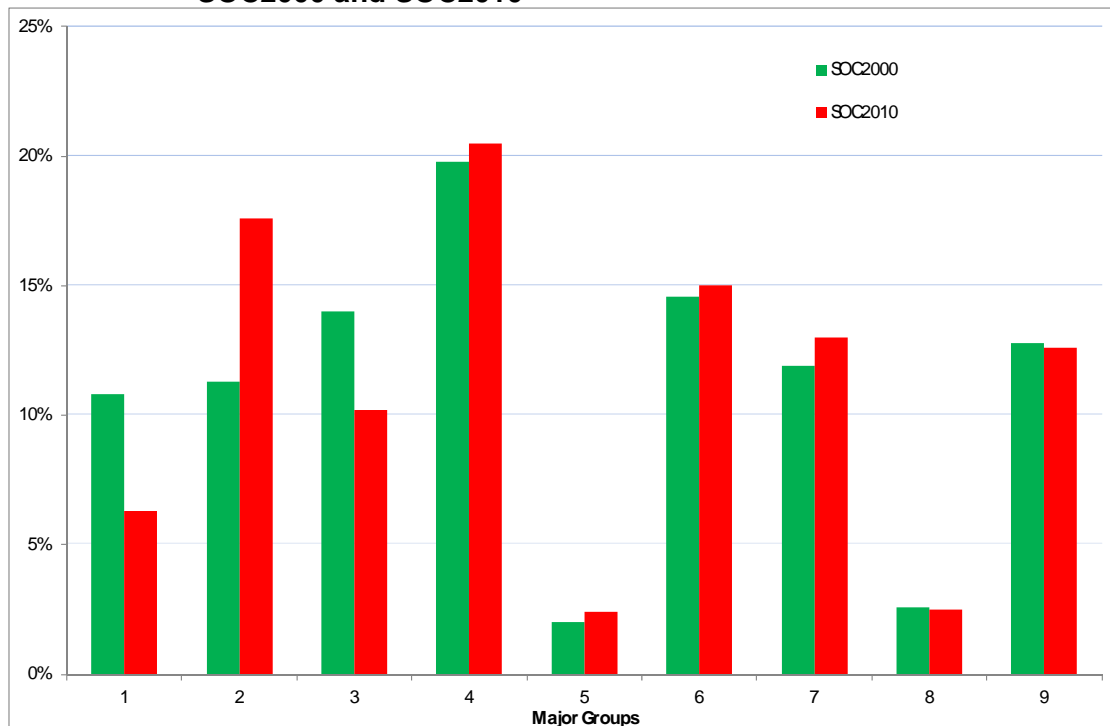
Source: *Labour Force Survey* (unweighted data).

The impact of the reallocation of nursing occupations is also apparent in Figures 10 (a and b), showing the reduction in the proportion of females employed in Major Group 3 in the first quarter of 2007 from 14.0 per cent to 9.7 per cent.

At the level of sub major groups, of which there are 25 in SOC2000 and SOC2010, there is a high degree of correspondence between these groups s defined in both classifications for 9 out of 25 groups (>95 per cent correspondence) and a reasonable degree of correspondence (85-95 per cent) for 11 out of 25 sub major groups. In five sub major groups the correspondence between the classification drops below 85 per cent. More detailed analysis of the correspondence between the classifications at the sub major group level is shown in Table 6.

Table 6:   Correspondence between SOC2010 and SOC2000 at level of sub major groups

	SOC2010 sub major group	Correspondence with SOC2000 sub major group (%)		
		Same	Other* (*SOC2000 sub major group*)	
11	Corporate managers and directors	99		
12	Other managers and proprietors	90	10 (*11*)	
21	Science, research, engineering and technology professionals	67	21 *(11)*	5 *(23)*
22	Health professionals	27	71 *(32)*	
23	Teaching and educational professionals	98		
24	Business, media and public service professionals	64	19 *(11)*	7 *(34)*
31	Science, engineering and technology associate professionals	91	3 *(21)*	4 (*81*)
32	Health and social care associate professionals	91	4 *(24)*	
33	Protective service occupations	93	5 *(11)*	
34	Culture, media and sports occupations	97		
35	Business and public service associate professionals	68	24 *(11)*	5 *(41)*
41	Administrative occupations	88	9 *(11)*	
42	Secretarial and related occupations	92	5 *(41)*	
51	Skilled agricultural and related trades	99		
52	Skilled metal, electrical and electronic trades	94		
53	Skilled construction and building trades	94	4 *(81)*	
54	Textiles, printing and other skilled trades	85	10 *(12)*	
61	Caring personal service occupations	97		
62	Leisure, travel and related personal service occupations	90	3 *(12)*	6 *(92)*
71	Sales occupations	96	2 *(11)*	
72	Customer service occupations	67	19 *(41)*	14 *(11)*
81	Process, plant and machine operatives	91	8 *(91)*	
82	Transport and mobile machine drivers and operatives	98		
91	Elementary trades and related occupations	96		
92	Elementary administration and service occupations	87	13 *(91)*	

Note * only reported if > 2%
Source: Labour Force Survey, Jan-Mar 2007

7.   Managing change and continuity

There is a tension between the need for continuity in the application and use of an occupational classification, thereby providing a stable framework for analysis of trends, and the need for revision of the classification, ensuring the classification is sufficiently up-to-date in terms of its definition, interpretation and use. With each successive revision of the Standard Occupational Classification, in 2000 and now for 2010, the broad structure of the classification at the major (single digit) and sub-major (two digit) group levels has remained virtually unchanged. However, for SOC2010 this masks a major change that has been implemented to achieve comparability with managerial occupations at this broad level in other countries. Also, the upgrading of nursing occupations from major group 3 to 2 creates another significant discontinuity at the major group level.

This section considers various methods which could lessen the impact of these discontinuities at all levels of aggregation as those who produce statistical information on occupations move from SOC2000 to SOC2010. These are:

- historical dual-coding of specific data sets;
- continuous dual-coding of specific data sets;
- 'index' coding.

Examples of each of these, together with an evaluation of their costs and benefits, are considered below.

7.1   Historical dual coding of specific data sets

This is the most common approach to the problems posed by the introduction of a new classification. A number of historical data sets are recoded from the old to the new classification. Analysis of the dual-coded data reveals the impact of reclassification on the size and structure of the occupationally classified data.

In the process of developing SOC2010, three data sets were recoded from SOC2000 to SOC2010. These are: the December-February quarter of the Labour Force Survey, 1996/97; the January-March quarter of the Labour Force Survey 2007 and the 1% sample of the 2001 Census of Population for England and Wales. Figures 9 (a and b) and 10 (a and b) showed how such information can be used graphically to

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portray the major effects of reclassification. The same information can also be to generate detailed matrices (*e.g.* cross-classifications of occupational data by the old and new classifications at various levels of aggregation of the classification and by gender) which can be used to transpose a vector of data classified by the old classification to the new classification. Such techniques are only useful if there is a fairly stable relationship between the old and the new classifications at the level of aggregation for which converted information is required. This is not usually a sustainable assumption over a long time period.

7.2   Continuous dual-coding of specific data sets

Modern coding techniques employ coding software which attempts to match a job description (usually a text description of a job title) to a relevant index entry to which an occupational code has been assigned. This software can produce both 'old' and 'new' codes during the coding process. Thus, a single coding process generates information that allows the producer of occupational statistics to supply information tabulated according to either the old or the new classifications. This raises questions about the length of time for which such dual-coded statistical information should be available to users and may inhibit users from switching from the old to the new classification.

7.3   Index coding

Index coding provides a compromise between these two methods. It is continuous, in that a code is generated from the coding process that allows the statistical producer to output both the new and the old classifications. A unique and permanent index code becomes part of the output stream from the coding process and is preserved for future use. A 'look-up' table relates the index code to the current classification. The producer can decide for how long information will be made available via both the old and the new classification. It has the added advantage that, if the classification changes again in the future, a revised look-up table can be used to reprocess earlier data from the index code to the latest version of the classification.

Index coding was attempted in a partial sense with the 'component codes' used for the 1991 Census of Population. However, these codes did not reference the underlying index entry that had yielded a specific occupational code from the job title.

If all job titles have a unique reference code, reclassification of existing data to a new classification becomes a fairly trivial task. This technique has the added advantage that it provides a framework for 'dynamic updating' of the index to the classification. Users can see how new index entries are placed within the classification.

Coder unfamiliarity with the index codes can be minimised by using the first four digits of the latest version of the classification as reference digits, followed by two alphanumeric characters to generate a unique index reference code[9]. However, with each successive revision of the classification, the initial four digits will have less relevance.

7.4 Summary of the advantages and disadvantages of various methods dealing with continuity

Table 7 below outlines the advantages and disadvantages associated with each specific method.

Table 7: **Advantages and disadvantages of various methods for dealing with discontinuities arising from classification change**

Method	Advantages	Disadvantages
Historical dual-coding of specific data sets	• Relatively easy to produce • Gives clear indication of changes arising from introduction of new classification	• If used to convert data for other time periods, or from other sources, it may give rise to misleading and inaccurate estimates
Continuous dual-coding of specific data sets	• Simple to introduce	• May be confusing for coders and statistical users • May discourage users from adopting the new classification
Index coding	• Relatively simple to introduce • Gives structure to index and allows users to see where changes are made • Allows for dynamic index updating • 'Future proofs' the data against further classification changes	• Data need to be reprocessed at micro-data level to produce new classification • Index codes themselves are initially meaningless beyond four digits and become progressively difficult to interpret with successive revisions to the classification

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[9]   Thus allowing over 700 job titles to share the same four digit code.

8. References

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