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Working Futures 2010-2020

Sectoral Report
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Working Futures 2010-2020: Sectoral Report

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Preface and Acknowledgements

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The present *Sectoral Report* provides details of developments within industries. It complements the *Main Report* which provides a more general overview. A separate *Technical Report* described sources and methods. For further details see the Bibliography.

The projections have been developed at a time of considerable uncertainty about prospects for the economy and the labour market. They should be regarded as indicative of likely developments given a gradual recovery from recession and re-establishment of longer term trends, rather than precise forecasts of what will inevitably happen. Many of these trends are very robust and are not likely to be affected by even the very turbulent conditions currently being experienced. They assume a broad continuation of past patterns of behaviour and performance. The dramatic events in financial markets in the autumn of 2008 had a significant impact on many trends in the short term, although others appear to have continued relatively undisturbed. The continuing uncertainties associated with the sovereign debt crises in Europe continue to cloud the picture. The report analyses changes pre and post these crises. It presents a view of medium to longer term trends (5-10 years ahead), reflecting the likely path of recovery from recession and a gradual reversion towards longer-term trends. These issues are elaborated in more detail in the main body of the report. The results should be regarded as a robust benchmark for debate and used in conjunction with a variety of other sources of Labour Market Information. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the UK Commission.

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Introduction

Background

This *Working Futures* Sectoral Report provides a more detailed analysis for each of the 22 industries based on the new SIC2007, as distinguished in the main report (Wilson and Homenidou (2011). These categories have been used to describe the main sectoral developments occurring across the whole economy. The industries are defined in the following table. Some of the industry groups are quite small in employment terms. Results here should be treated with caution, especially if delving below the national level to examine the more detailed results for the devolved nations and English Regions that underlie them.

Classification of 22 industries for *Working Futures*

Ind22	Ind22 name	SIC2007 Section	SIC 2007 Division	Ind79	WF 3
1	Agriculture	A	01-03	1	1
2	Mining & quarrying	B	05-09	2-4	2 pt
3	Food drink & tobacco	C, part	10-12	5-6	3
4	Engineering	C, part	26-28	20-22	7-9
5	Rest of manufacturing	C, part	13-25, 29-33	7-19, 23-27	4-6,10
6	Electricity & gas	D	35	28	2 pt
7	Water & sewerage	E	36-39	29-31	2 pt
8	Construction	F	41-43	32-34	11
9	Whol. & retail trade	G	45-47	35-37	12-14
10	Transport & storage	H	49-53	38-42	16
11	Accommod. & food	I	55-56	43-44	15
12	Media	J, part	58-60	45-47	17?
13	IT	J, part	61-63	48-50	17, 20
14	Finance & insurance	K	64-66	51-53	18
15	Real estate	L	68	54	19 pt
16	Professional services	M	69-75	55-61	19 pt
17	Support services	N	77-82	62-67	??
18	Public admin. & defence	O	84	68	22
19	Education	P	85	69	23
20	Health & social work	Q	86-88	70-72	24
21	Arts & entertainment	R	90-93	73-76	25?
22	Other services	S	94-96	77-79	21?

The crisis in the financial markets in the Autumn of 2008, and the subsequent worldwide recession, had a major impact on the economy and labour market. The path to full recovery remains uncertain. The results assume that the economy will recover from the recession slowly but steadily, and that most employment patterns will eventually revert to the longer term trends as set out here.

The opinions expressed are those of the authors and do not necessarily reflect the views of the UK Commission for Employment and Skills or its partners. The results should be regarded as indicative of general trends for the industry rather than precise forecasts of what will happen. They should be used in conjunction with a variety of other sources of Labour Market Information (LMI).

The results are reported in a standard format making use of graphics to illustrate key features. In each case there is:

- a brief qualitative and quantitative description of the industry, including definition in terms of the SIC code and selected key economic indicators;
- a summary of key trends in output and productivity, including the implications of these for employment;
- detailed implications for gender and status (full time and part time employees or self-employment);
- a presentation of the likely developments in occupational structure, including replacement demands and total future requirements, as well as a shift-share analysis of changes in occupational employment over time;
- implications for qualifications.

Measurement of Productivity

The profiles of productivity presented here are based on gross output divided by employment. Output per head is a fairly crude but widely used measure. There are alternative possibilities including output per person hour and total factor productivity. The latter attempts to measure all factor inputs, not just labour, but it is not readily available from the present set of results. The measures used here are sensitive to changes in the mix of full-time and part-time employment. This may be quite significant, particularly in some service industries. Part-timers typically work around half the hours of full-time workers.

Implications for Industry Employment

The employment prospects in each industry can be regarded as dependent upon two main factors: demand for the industry's output and projected productivity growth. Prospects for demand for each industry's output in turn depend upon a whole host of factors (as outlined in more detail in the main report (Wilson and Homenidou (2011)).

These include:

- technological change;
- productivity growth;
- international competition;
- globalisation;
- specialisation and sub-contracting;
- economic growth and real incomes;
- shifts in patterns of consumption and international trade.

Productivity growth affects the numbers of people that need to be employed to produce the same level of output. This depends upon factors such as changes in technology and the way work is organised (see the main report for further discussion). The faster output increases relative to productivity, the faster employment will rise (or conversely). In many industries output prospects are quite promising but this is offset (in terms of the implications for jobs) by rapid productivity growth.

Patterns of employment by gender and status

The results show the historical patterns of change and expected future developments in employment by gender and status in each industry. These changes are the consequence of a complex mix of supply and demand side factors. The latter are often specific to particular industries and sectors, while the former are of a more generic nature.

The decline of employment requiring great physical strength in industries such as the primary and manufacturing sector, coupled with the expansion of services, has opened up many more jobs for women, especially of a part-time nature. In contrast, the number of opportunities for full-time work for men has declined. These developments have been reinforced by supply side changes, reflecting the greater propensity of women to want to take part in the formal economy, often in a part-time capacity.

Regulatory changes regarding the tax treatment of self-employment have reinforced other factors such as the falling number of small businesses in sectors such as agriculture and distribution, resulting in a declining self-employment share. However, in some other parts of the economy there is, by contrast, a rapid increase in such activity, often linked to IT and the setting up of small businesses.

The general trends identified above can be observed within most individual industries although certain parts of the primary, manufacturing and construction sectors have managed to resist the trend towards greater part-time working.

Occupational change

Many trends in occupational employment structure are also common across most industries, although there are some dramatic differences in the occupational structures across industries. Observed historical and projected future changes reflect ongoing technological and organisational change.

Key drivers of changing skill requirements include:

- *general technological change* - especially information and communications technology (ICT), which affects both the range of products and services available and how they are produced;
- *skill biased technical change* which has tended to favour higher level skills;
- *competition and changing patterns of consumer demand* - which have increased the emphasis on customer handling skills and the need for part-time and shift working;
- *structural changes* - including globalisation, sub-contracting and extension of supply chains, emphasising the need for high quality managerial skills (across a greater range and at a greater depth than previously) at various levels;
- *working practices* - such as the introduction of team or cell-based production in engineering, and call centres in financial services, resulting in increased demand for team working and communication skills and more demand for part-timers; and
- *regulatory changes* (as well as increased concern about environmental issues), which have made important skill demands upon staff in some key sectors, including the public sector, construction, and finance, raising the demand for higher level skills.

Implications for qualifications

Changing patterns of demand for different qualifications levels are driven in part by changes in occupational employment structure.

The analysis focuses on how these patterns are changing at a detailed level by industry and occupation.

However these patterns are also influenced by what is happening on the supply side. Increasing participation in higher and further education has resulted in a big increase in the highest qualifications held by the population, especially for younger people.

Even if there was no increase in demand this would tend to raise the average qualification profiles within each occupational category. This is also taken in to account in the results presented here.

The rising average qualification levels of those in employment in the different industries can therefore be seen as the result of a combination of demand and supply factors.

For many occupations qualification profiles are already heavily focused on graduate level and above (e.g. most professional and many associate level professional jobs).

Many other occupations are also becoming better qualified (e.g. managers, some sales and customer service occupations, etc). Often it is niche areas within such broad occupational groups that are being taken over by graduates.

Qualifications are defined here with reference to the Qualifications and Credit Framework (QCF). This is the national credit transfer system for qualifications in England, Wales and Northern Ireland.[1] This framework defines formal qualifications by their level (i.e. level of difficulty) and credit value (how much time the average learner would take to complete the qualification). Level is the dimension of interest here. The framework has 8 main levels plus no formal qualifications. These are condensed here into 6:

- QCF 0 (Entry and none);
- QCF 1 (Foundation);
- QCF 2 (Intermediate);
- QCF 3 (Advanced);
- QCF 4,5&6 (Degree level or equivalent);
- QCF 7&8 (Postgraduate level).

General caveats on the employment estimates

Some caveats on the employment estimates are in order. When using data based on raw Labour Force Survey (LFS) data the Office for National Statistics (ONS) recommend using minimum cell sizes of 10,000 (grossed up), in presenting employment estimates. Given that

[1] QCF is the framework currently used for vocational qualifications. Scotland has its own qualification framework, the Scottish Credit and Qualifications Framework (SCQF), and its own system of levels. Correspondences between the levels used in QCF / NQF and the SCQF are mapped in *Qualifications can cross boundaries* (SCQF, 2011).

there are 25 occupations to be distinguished in each industry below, this suggests a minimum size at UK level of at least 250,000. In a few cases the data reported below fall below this threshold. The following table shows that in a number of industries total employment in 2010 is well below 250,000. This is a particular problem in the Primary sector and utilities group. The results for individual occupations or other categories within these industries therefore fall well below the 10,000 guideline figure. They are included here in the absence of any better estimates. For further discussion on these issues see the *Technical Report*, especially Sections 10-14.

The above discussion highlights that there are real problems in developing reliable data at the levels of detail that analysts and policy makers would ideally like to have access to. One response to this would be to limit the amount of detail at which the projections work is undertaken. This would be very restrictive and would severely limit the level of detail that could be made. Instead, a less restrictive approach has been adopted. When generating the projections, full details have been maintained, while maintaining a strict control on the release of such data into the public domain to prevent misuse.

A clear distinction needs to be made between statistical reliability and the provision of useful labour market information (LMI) at a detailed level. If strict rules regarding statistical robustness are applied to decide what level of sectoral and occupational disaggregation can be provided, it would not be possible to provide much detailed data at all. The official surveys carried out by ONS are not designed to provide statistically robust estimates at the level of detail required in *Working Futures*, across all dimensions simultaneously. Following the ONS rules as described above would restrict what might be reported to very broad aggregates, which are not very helpful to most users. However, in providing such detailed information it is important that users are aware of its limitations (as well as avoiding any problems arising over confidentiality). This is more useful than suppressing the detail.

The estimates are all based on published official data on employment but they have been adjusted to produce a consistent set of estimates across all the dimensions of interest (sector, occupation, qualification, gender, status [full-time and part-time employee or self-employed]) and region.

Where there are inconsistencies between official sources, the industrial information is given precedence. All the employment data are constrained to match headline figures published by ONS in the Economic and Labour Market Review (ELMR) and similar publications.[2] This is achieved using so called RAS iterative methods, as described in the *Working Futures Technical Report*. Where no official data are published, estimates are generated by assuming common patterns to the next level of aggregation up at which official estimates are available. Occupational estimates, information on qualifications and self-employment estimates are based primarily on information from the LFS.

The sectoral and spatial level data are consistent with ONS estimates available at the time the analysis was conducted (the summer of 2011). Information on occupations and qualifications is based on LFS data available at the same time. The latter are constrained to match the sectoral data, using the RAS process described above. One important point to note here is that the *Working Futures* estimates refer to June and the data for all areas are made consistent with the level above. So our data for regions are consistent with the GB data but also with the ONS released data for the regions for aggregate sectors. All scaling is done by type. Local area data are scaled to the regional data which are for June, not for September.

As a result the *Working Futures* numbers may no longer match the original information, although the general patterns are fully consistent. The numbers by sector, region, occupation and qualification may differ from the latest ONS published estimates for a number of reasons:

- Revisions and changes made by ONS since the analysis was conducted;
- Inconsistencies in the various official estimates from different sources;
- Differences in classification – the published *Working Futures* database is entirely on SIC2007 and SOC 2010;
- Differences in timing (mid-year (June) as opposed to other periods);
- Modifications introduced as a result of the RAS process (this affects only the occupational and qualification patterns).

The estimates from the *Working Futures* database provide a complete and consistent picture across all dimensions of employment that is not available from any other source.

[2] ONS ceased publishing the ELMT as separate document in May 2011, focusing instead on making data available via its main website which delivers statistics and articles online.

Output and employment shares in the 22 industries

	Employment thousands	Employment % of total	Output % of total
Primary sector & utilities	*767*	*2.5*	*3.4*
Agriculture	453	1.5	0.6
Mining & quarrying	57	0.2	0.4
Electricity & gas	99	0.3	1.5
Water & sewerage	158	0.5	0.9
Manufacturing	*2,518*	*8.3*	*11.9*
Food drink & tobacco	401	1.3	2.1
Engineering	397	1.3	2.3
Rest of manufacturing	1,719	5.6	7.5
Construction	2,092	6.9	6.8
Trade, accomod. & transport	*7,977*	*26.2*	*20.5*
Whol. & retail trade	4,661	15.3	12.5
Transport & storage	1,424	4.7	4.9
Accommod. & food	1,892	6.2	3.2
Business & other services	*8,909*	*29.2*	*37.0*
Media	323	1.1	1.8
IT	773	2.5	5.6
Finance & insurance	1,092	3.6	8.9
Real estate	436	1.4	2.2
Professional services	2,280	7.5	9.2
Support services	2,353	7.7	5.4
Arts & entertainment	856	2.8	2.1
Other services	796	2.6	1.9
Non-marketed services	*8,195*	*26.9*	*20.5*
Public admin. & defence	1,544	5.1	5.6
Education	2,703	8.9	6.5
Health & social work	3,948	13.0	8.3
All Sectors	30,458	100.0	100.0

Source: Cambridge Econometrics, MDM revision 7146.

Notes: a) Broad sectors are indicated by italics.

b) Both the sectors and the broad sectors are defined in the Technical Report.

c) Total employment and employment in non-marketed services includes H. M

c) Output excludes unallocated and ownership of dwellings.
Shares therefore differ from those in Table 3.1 of the Main Report.

1 Agriculture, etc

1.1 Description of the industry

INDUSTRY 1: AGRICULTURE, ETC:
SIC2007 headings: 01-03

01-03: Agriculture, forestry and fishing

INDUSTRY PROFILE		
		All industries
Share of UK Output (% 2010):	0.6	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	452,797	30,458,094
Share of total employment (% 2010):	1.5	100.0
Gender split (male:female) (% 2010):	76:24	53:47
Part-time share (% 2010):	11.6	27.9
Self-employment share (% 2010):	46.5	14.3

Source: 7922output.xlsm (industry profile) CE/IER estimates based on ONS data.

1.2 Industry Commentary

UK agriculture still produces about half (by value) of all food consumed in the UK but It now accounts for only a small proportion of total employment and national output.

The industry also includes various other activities relating to land use and exploitation of natural resources other than minerals and water.

Many farmers in the UK are slowly converting their production towards more organic methods, as demand for locally-grown, organic produce rises. Shifts to other activities more relating to leisure and tourism have also been a feature in recent years.

1.3 Productivity and Output Trends

Output: The industry accounts for less than 1 per cent of total output.

Output declined significantly in the 2nd half of the last decade.

Only a very slight recovery is expected over the next 10 years, reflecting the long term decline in the industry. Output growth will be sustained by increases in productivity, better farm management and growing demand for domestic produce.

Productivity: Productivity has also taken a large dip over the past decade. This may be a statistical artefact as the output and employment trends appear to be diverging.

Modest growth in productivity is projected for the coming decade, reflecting continued restructuring of the sector and technological change.

Employment: The industry's share of total employment is well below 2 per cent (about 450,000 jobs).

Employment rose over the past decade based on official estimates. This was out of line with previous long term trends.

Ever increasing pressures to improve productivity, and other pressures on the industry to cut costs, are expected to cause a decline in employment over the coming decade.

The prospects are therefore for employment to fall over the coming decade, even though output grows modestly.

Job losses are therefore expected to be a feature of the next decade, as previous trends reassert themselves.

1.4 Employment by status and gender

Employment in this industry is predominantly male, around 3 in 4 jobs being undertaken by men.

Self-employment accounts for half of all jobs.

Males in general, are expected to bear the brunt of projected decline in employment.

Full time employees are projected to be the main casualty of projected job losses.

1.5 Projections of Employment by Occupation

Key aspects of occupational structure: The following occupations dominate employment (see Table 1.3).

- Managers, directors & senior officials (especially proprietors of small businesses);
- Skilled trades (mainly agriculture trades, accounting for almost half of all jobs);
- Elementary occupations (manual jobs), accounting for almost 1 in 5 of all jobs.

Main changes by occupation: recent past & future

These occupations have borne the brunt of long-term job decline.

Elementary occupations are projected to see the biggest job losses over the coming decade.

Job losses in the skilled trades are also expected to continue, although a slowdown in the expected rate of job loss will result in a modest increase in their occupational share.

Reflecting the increasing emphasis on tourism and leisure as opposed to traditional farming activities, smaller rates of job losses are expected for caring, leisure and other service occupations.

1.6 Replacement demands

Table 1.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Despite further expected job losses in the industry, this does not mean there will not be a need to recruit some new workers.

There are significant replacement demands, especially for skilled trades occupations and elementary occupations. As a consequence, there are important implications for training requirements, especially in the first of these groups.

Replacement demand is almost 40 per cent of the current workforce over the decade, creating job openings for over 170,000 new workers in the sector as a whole.

The largest net requirement projected is for skilled trades.

Smaller net requirements are projected for managers, directors & senior officials, elementary occupations and for caring, leisure and other service occupations. The latter will see positive expansion demand owing to the new focus on tourism and leisure activities, as opposed to more traditional ones.

1.7 Shift share analysis

Table 1.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect has generally played a major part in declining employment for most occupations.

However, the industry effect turned positive over the past decade (although this may be a statistical anomaly).

Over the projection period, the industry effect is projected to return to its negative value.

The occupational effects are broadly in line with those across most other industries over the projection period.

1.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case. This is done using categories based on the Qualifications and Credit Framework (QCF).

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

This industry's occupational structure favours those qualified at intermediate/ low level.

Almost 40 per cent of those employed in 2010 had low or no formal qualifications, (QCF 0-1). A similar proportion had qualifications at QCF levels 2 and 3.

However, the shares of those qualified at higher levels are rising significantly. They are projected to account for well over 25 per cent of total employment by 2020.

In contrast, the shares of those with low or no qualifications (QCF 0-1) are both projected to fall, and in combination to account for under a third of all jobs by 2020.

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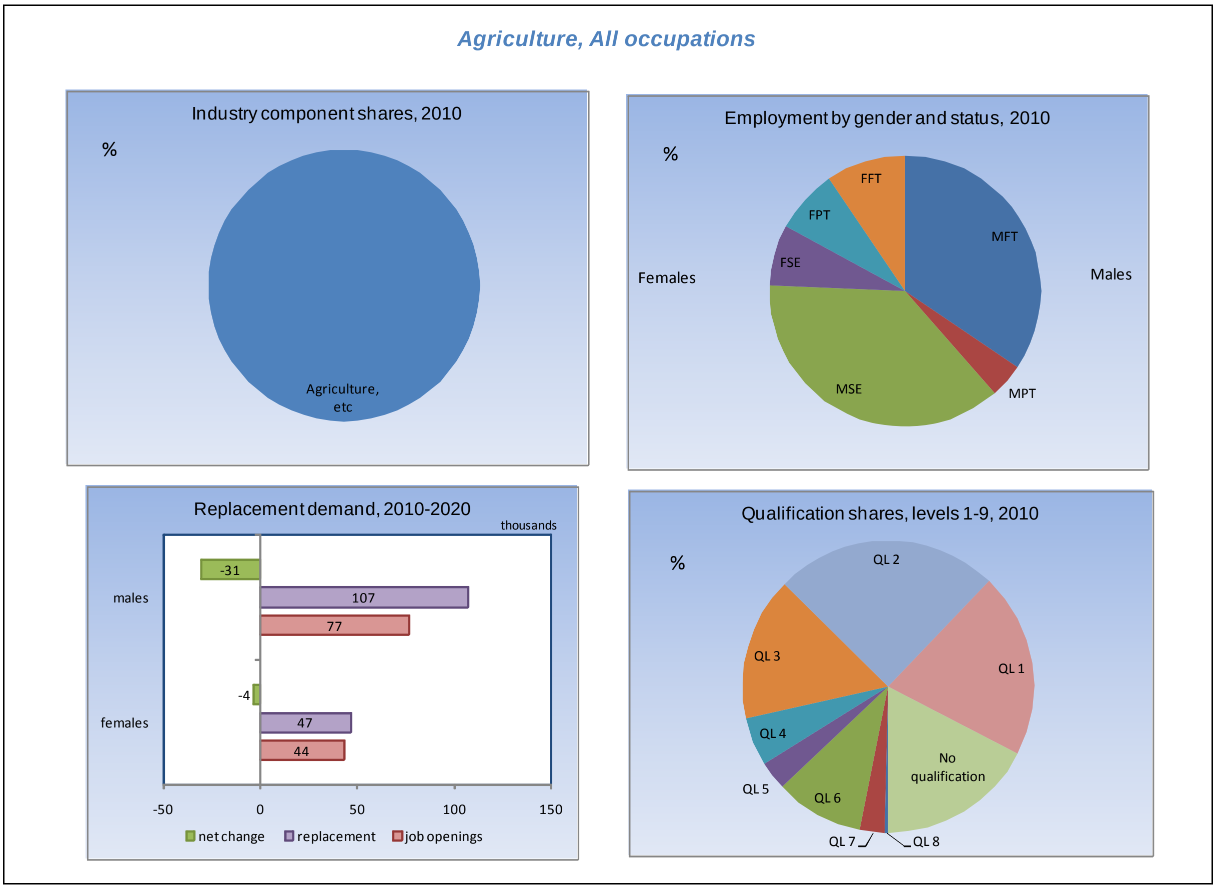
Figure 1.1: Agriculture - employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 1.1: Trends in output, productivity and employment

Average change in the period

Agriculture Indicator	 2000-2005	 2005-2010	 2010-2015	UK 2015-2020
Output (% pa)	1.5	-2.2	0.2	0.9
Employment (% pa)	-0.6	2.6	-0.6	-1.0
(000s)	-13	54	-13	-21
Productivity (% pa)	2.1	-4.7	0.8	1.9

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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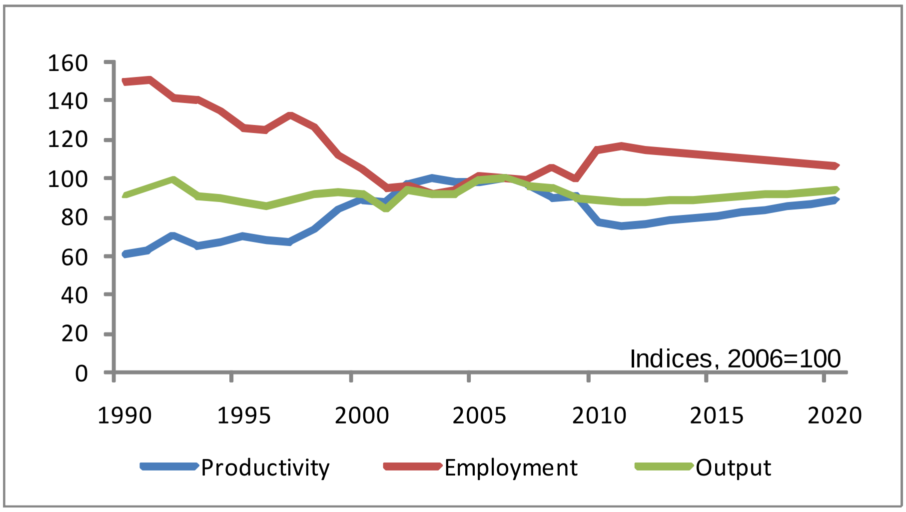
Figure 1.2: Output, productivity and employment in Agriculture, etc



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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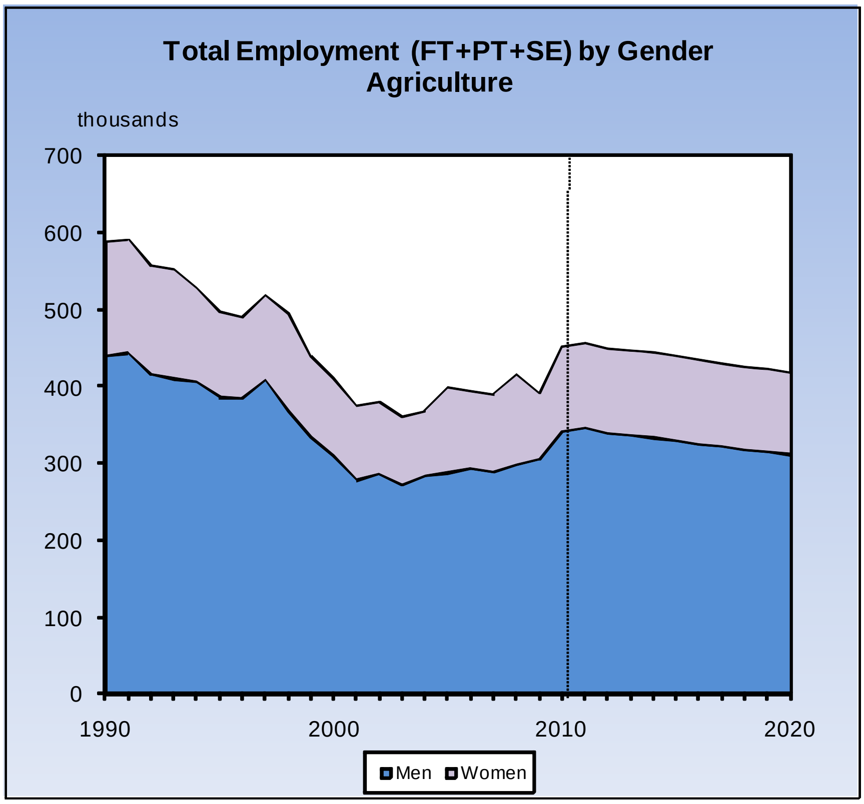
Figure 1.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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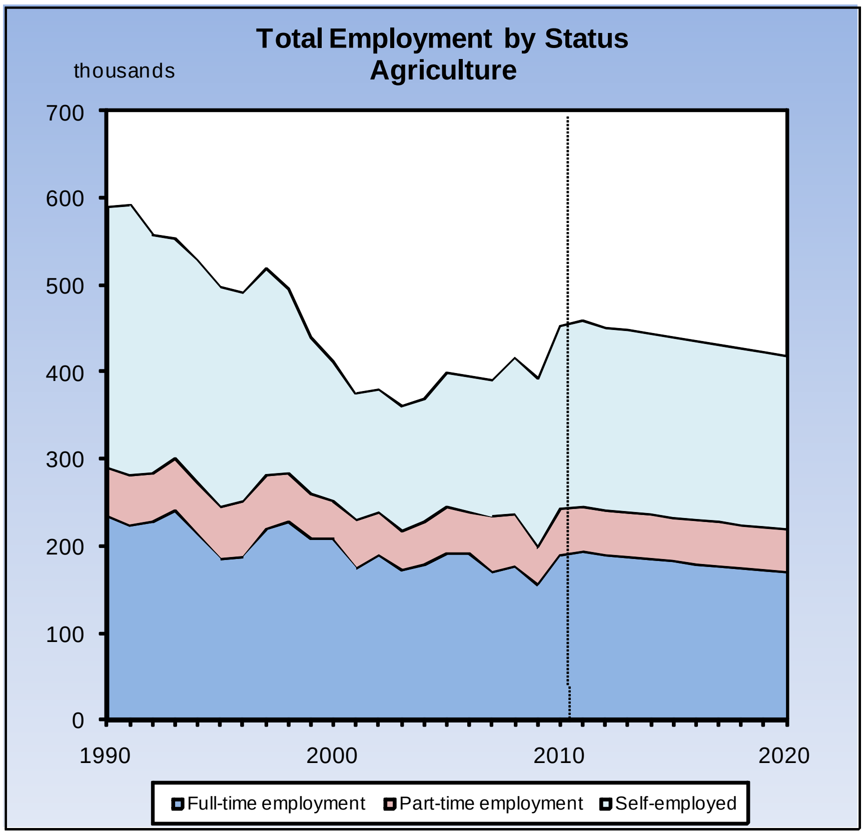
Figure 1.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 1.2: Employment by gender and status

	Employment Status				Agriculture							
									Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**		**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	156	(34.5)	19	(4.1)	168	(37)	342	(75.6)	-6	-2	-5	-13
Female employment	33	(7.3)	34	(7.6)	43	(9.5)	110	(24.4)	-1	0	1	-1
Total employment	189	(41.8)	53	(11.6)	211	(46.5)	453	(100)	-8	-2	-4	-13
2015									**2015-2020**			
Male employment	150	(34.1)	16	(3.7)	163	(37.1)	329	(75)	-11	0	-7	-18
Female employment	32	(7.3)	34	(7.8)	44	(9.9)	110	(25)	-2	0	0	-3
Total employment	182	(41.4)	51	(11.6)	207	(47)	439	(100)	-13	0	-7	-21
2020									**2010-2020**			
Male employment	139	(33.2)	16	(3.9)	156	(37.3)	312	(74.5)	-17	-2	-11	-31
Female employment	29	(7)	34	(8.2)	43	(10.3)	107	(25.5)	-4	0	0	-4
Total employment	169	(40.3)	51	(12.1)	199	(47.6)	419	(100)	-21	-2	-11	-34

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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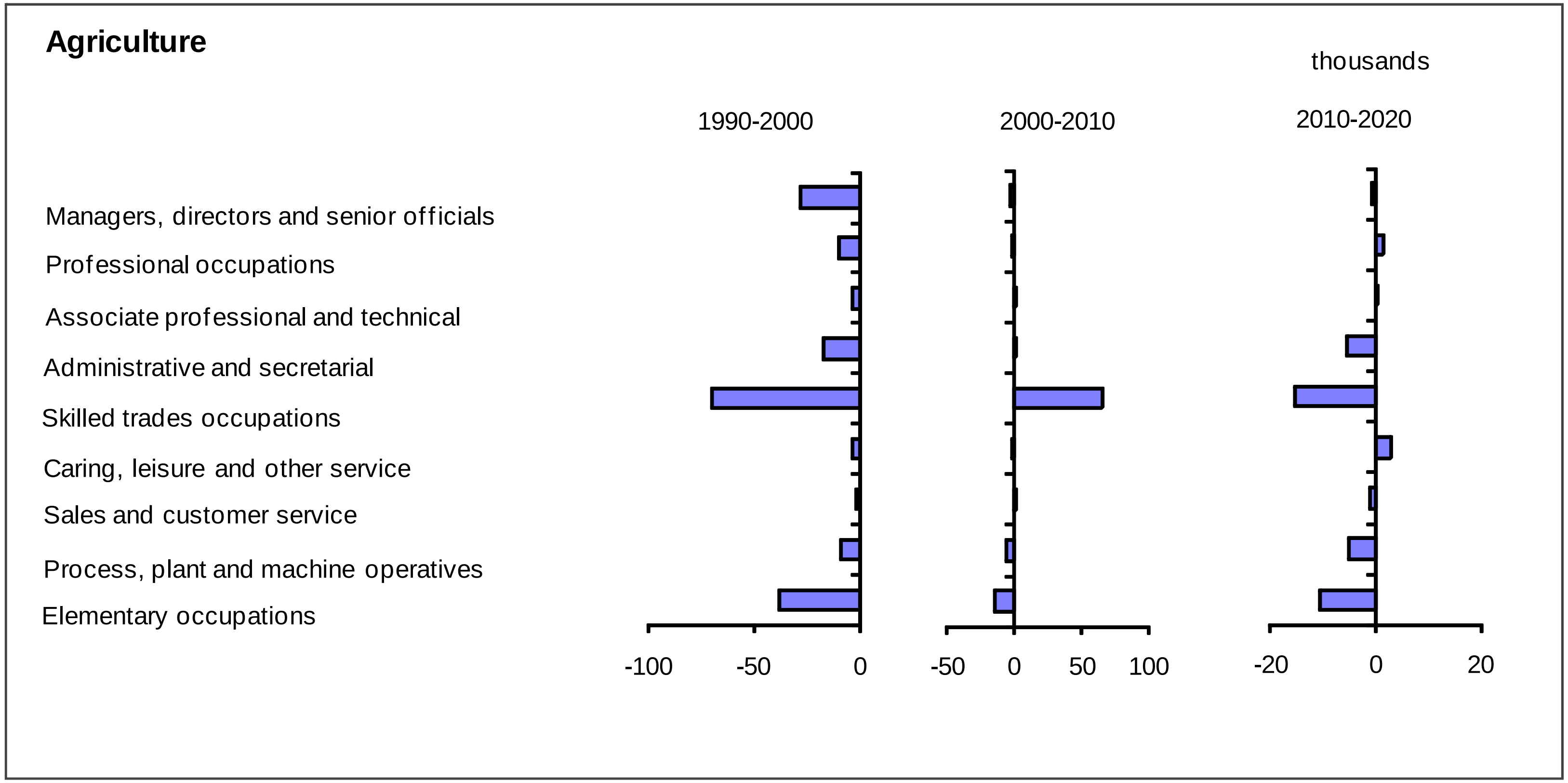
Table 1.3: Employment by occupation

Changing Composition of Employment by Occupation								
United Kingdom : Agriculture						2010-2020 Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	65	37	34	34	33	-1	15	14
2. Professional occupations	28	19	18	18	19	1	7	8
3. Associate professional and technical	15	12	13	13	13	0	5	5
4. Administrative and secretarial	37	20	21	18	15	-6	10	4
5. Skilled trades occupations	261	191	256	251	241	-15	130	115
6. Caring, leisure and other service	21	18	16	18	19	3	6	9
7. Sales and customer service	7	5	5	5	4	-1	2	1
8. Process, plant and machine operatives	35	26	21	18	16	-5	9	4
9. Elementary occupations	120	83	68	64	57	-11	24	14
Total	589	411	453	439	419	-34	208	174
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	11.0	9.0	7.6	7.8	8.0	-2.7	44.5	41.8
2. Professional occupations	4.8	4.6	4.0	4.2	4.6	7.1	38.3	45.4
3. Associate professional and technical	2.6	2.9	2.9	3.0	3.2	1.9	36.7	38.5
4. Administrative and secretarial	6.3	4.9	4.6	4.1	3.7	-26.5	46.2	19.8
5. Skilled trades occupations	44.3	46.5	56.6	57.1	57.6	-6.0	50.6	44.7
6. Caring, leisure and other service	3.5	4.3	3.6	4.2	4.6	18.3	39.3	57.6
7. Sales and customer service	1.2	1.3	1.2	1.1	1.0	-19.7	32.8	13.1
8. Process, plant and machine operatives	6.0	6.4	4.6	4.1	3.8	-24.3	42.2	17.9
9. Elementary occupations	20.4	20.1	15.0	14.6	13.7	-15.9	35.9	20.1
Total	100.0	100.0	100.0	100.0	100.0	-7.5	46.0	38.3

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 1.5: Changing composition of employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 1.4: Shift-share analysis of changes in occupational employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	-28	1	-21	-8	-3	2	2	-7	-1	2	-4	2
2. Professional occupations	-9	0	-9	-1	-1	1	1	-3	1	1	-2	3
3. Associate professional and technical	-4	0	-5	1	1	1	1	0	0	1	-2	1
4. Administrative and secretarial	-17	1	-12	-6	1	1	1	-1	-6	1	-3	-4
5. Skilled trades occupations	-70	4	-83	9	65	8	11	46	-15	13	-32	4
6. Caring, leisure and other service	-3	0	-7	3	-2	1	1	-3	3	1	-2	4
7. Sales and customer service	-2	0	-2	0	0	0	0	0	-1	0	-1	-1
8. Process, plant and machine operatives	-9	1	-11	2	-6	1	2	-8	-5	1	-3	-3
9. Elementary occupations	-37	2	-38	-1	-15	4	5	-23	-11	3	-9	-6
Total	-178	9	-187	0	42	18	24	0	-34	23	-57	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	-42.7	1.5	-31.7	-12.4	-7.3	4.3	5.8	-17.5	-2.7	5.1	-12.6	4.8
2. Professional occupations	-32.7	1.5	-31.7	-2.5	-5.1	4.3	5.8	-15.3	7.1	5.1	-12.6	14.6
3. Associate professional and technical	-23.5	1.5	-31.7	6.8	11.4	4.3	5.8	1.2	1.9	5.1	-12.6	9.4
4. Administrative and secretarial	-46.0	1.5	-31.7	-15.7	4.3	4.3	5.8	-5.8	-26.5	5.1	-12.6	-18.9
5. Skilled trades occupations	-26.7	1.5	-31.7	3.6	34.0	4.3	5.8	23.9	-6.0	5.1	-12.6	1.6
6. Caring, leisure and other service	-14.9	1.5	-31.7	15.3	-8.8	4.3	5.8	-18.9	18.3	5.1	-12.6	25.8
7. Sales and customer service	-24.8	1.5	-31.7	5.5	1.1	4.3	5.8	-9.1	-19.7	5.1	-12.6	-12.2
8. Process, plant and machine operatives	-25.3	1.5	-31.7	5.0	-21.5	4.3	5.8	-31.7	-24.3	5.1	-12.6	-16.7
9. Elementary occupations	-31.2	1.5	-31.7	-1.0	-17.7	4.3	5.8	-27.9	-15.9	5.1	-12.6	-8.3
Total	-30.3	1.5	-31.7	0.0	10.2	4.3	5.8	0.0	-7.5	5.1	-12.6	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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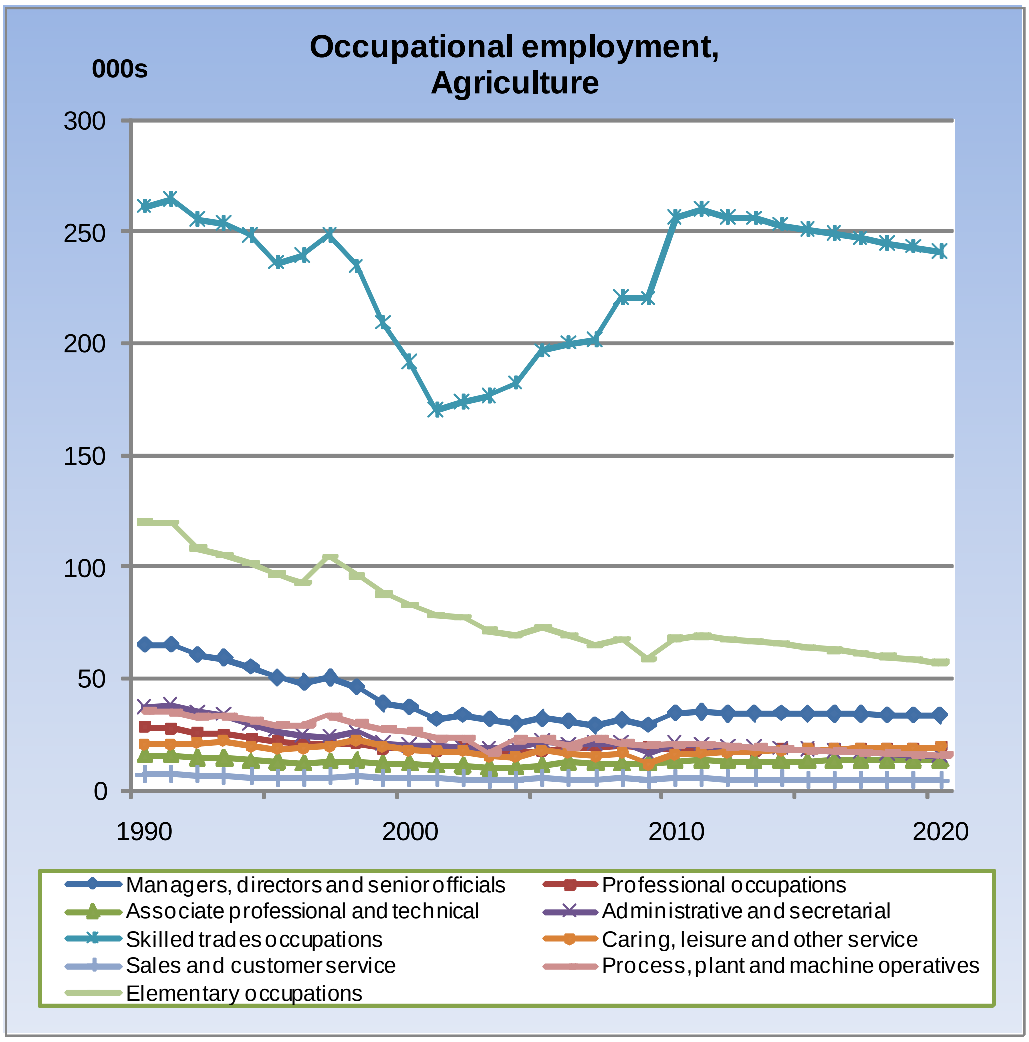
Figure 1.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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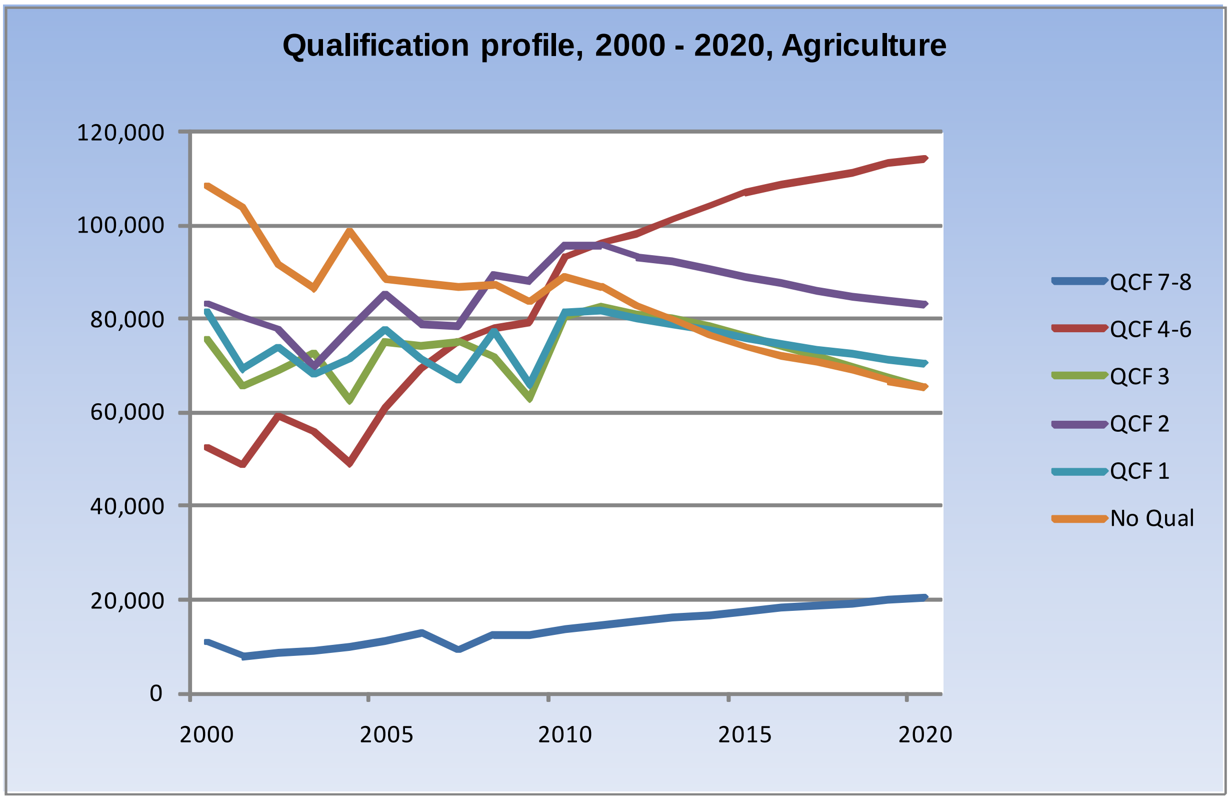
Figure 1.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 1.5: Implications for employment by qualification

United Kingdom : Agriculture			000s		
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	14	7	20	6	13
QCF 4-6	93	21	114	43	64
QCF 3	80	-15	65	37	22
QCF 2	96	-12	83	44	32
QCF 1	81	-11	70	37	26
No Qual	89	-23	65	41	17
Total	453	-34	419	208	174
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	3.0	48.7	4.9	3.0	94.7
QCF 4-6	20.5	22.7	27.3	20.5	68.7
QCF 3	17.7	-18.9	15.6	17.7	27.1
QCF 2	21.1	-12.9	19.9	21.1	33.1
QCF 1	18.0	-13.5	16.8	18.0	32.5
No Qual	19.6	-26.5	15.6	19.6	19.5
Total	100.0	-7.5	100.0	100.0	38.4

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

2 Mining and quarrying

2.1 Description of the industry

INDUSTRY 2: MINING AND QUARRYING
SIC2007 headings: 05-09

05-06: Coal, oil & gas

07-08: Other mining and quarrying

09: Mining support service activities

INDUSTRY PROFILE		
		All industries
Share of UK Output (% 2010):	0.4	100.0
Exposure to International Trade:	high	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	57,494	30,458,094
Share of total employment (% 2010):	0.2	100.0
Gender split (male:female) (% 2010):	86:14	53:47
Part-time share (% 2010):	2.4	27.9
Self-employment share (% 2010):	14.9	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

2.2 Industry Commentary

Background

The most significant part of this industry group, both in terms of output and employment is still the Oil & Gas industry, but this is rapidly shrinking. Oil and gas production in the North Sea will fall as reserves become depleted, but high oil prices will bolster short-term investment and output. In the following table output excludes North Sea oil which is treated as an *ex regio addendum* item in the national accounts.

The remainder of the industry covers a range of activities of which coal mining remains one of the most significant. However, in employment terms these are small activities nowadays.

2.3 Productivity and Output Trends

Output: The industry accounts for less than ½ per cent of total output.

The long-term trends reflect a number of offsetting trends, including the demise of the coal mining industry.

Looking forward, further declines in output are expected over the next decade

Productivity: Productivity has taken a large dip over the past decade reflecting the trends in output. This is distorted by the fact that employment in North Sea oil and gas is still included in the denominator.

Over the next decade further falls in productivity are projected.

Employment: The industry's share of total employment is tiny (below ¼ per cent, about 58,000 jobs).

Employment is expected to continue to fall over the coming decade, albeit not as rapidly as in the past.

2.4 Employment by Status and Gender

Jobs in these industries are still primarily held by males. They take almost 9 in 10 jobs.

Around 15 per cent of jobs are accounted for by self-employment

Part-time workers are insignificant in terms of job numbers.

Males in general, are expected to bear the brunt of the projected decline in employment.

Full time employees are projected to be the main casualty of projected job losses.

2.5 Projections of Employment by Occupation

Key aspects of occupational structure

The following occupations dominate employment (see Table 2.3).

- Process, plant & machine operatives is currently the most important occupational group (over 1 in 5) but its share is declining.
- Professional occupations and skilled trades are the other important occupations in the industry numerically, each accounting for around 1 in 5.

Managers and associate professionals, each account for over 1 in 10 of all jobs.

Main changes by occupation: recent past & future

Those occupations listed above have borne the brunt of recent job losses.

The next decade is expected to see much less dramatic change after a period of rapid job loss (see Figure 2.6).

The main burden of jobs losses falls upon skilled trades and, process plant & machine operatives, but employment is projected to decline for almost all occupations.

Occupations such as, managerial, professional and associate professionals are projected to see an increase in their shares of a declining total number of jobs.

This pattern is expected to continue over the coming decade.

The occupational effects are broadly in line with those across most other industries over the projection period.

2.6 Replacement demands

Table 2.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Despite further expected job losses in the industry, this does not mean there will not be a need to recruit some new workers.

The pattern of replacement demands is very different from that for expansion demand. A projected decline becomes a significant positive net requirement.

There are small but significant replacement demands for each of the occupational groups highlighted above.

As a consequence, there are important implications for training requirements to keep the operations in this industry going.

2.7 Shift share analysis

Table 2.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure *within* the industry.

The industry effect has played a major part in declining employment for all occupations over the past decade.

2.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

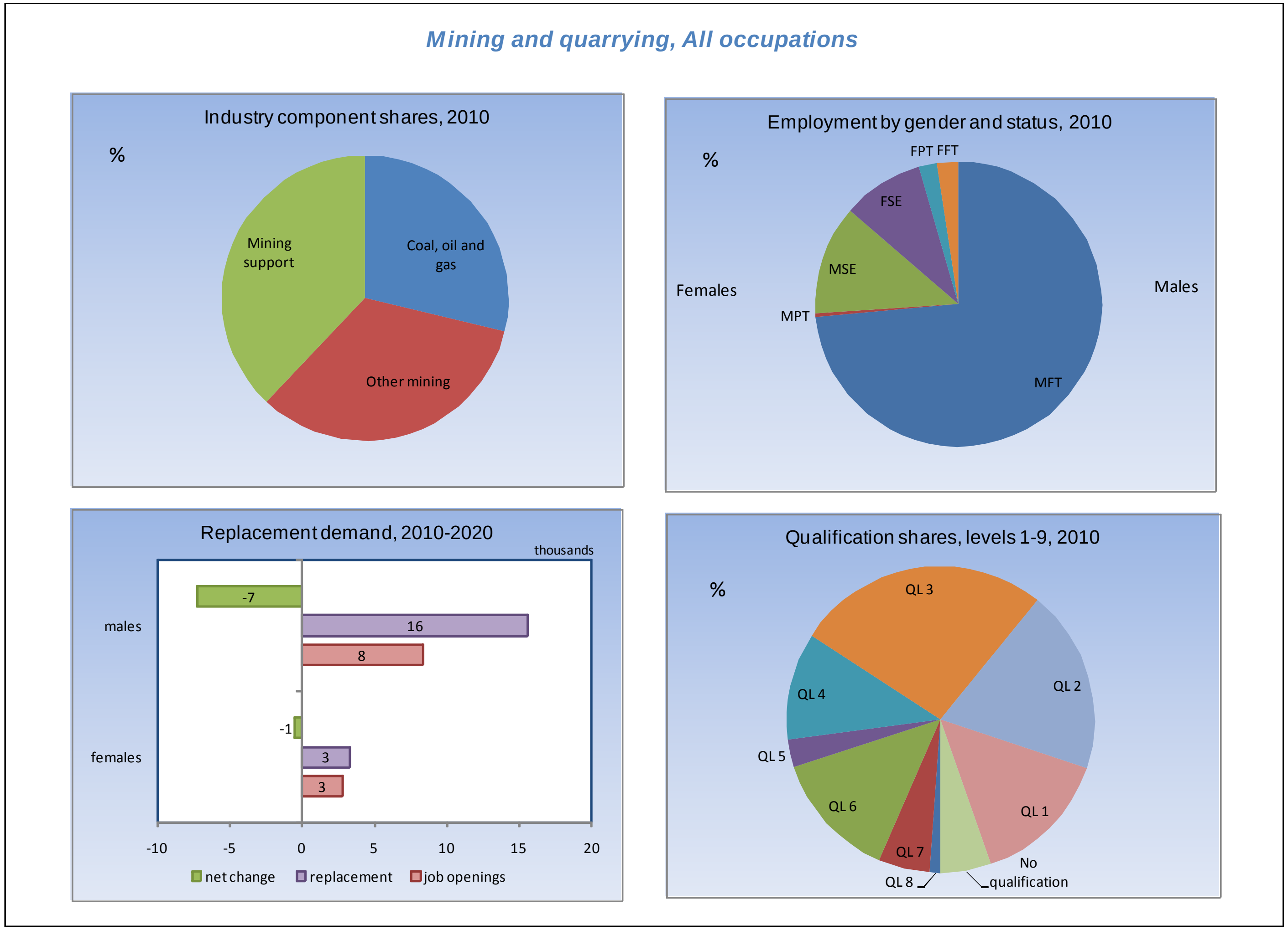
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Mining and quarrying favours those qualified at intermediate levels.

Whereas around 20 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1), 45 per cent had qualifications at QCF levels 2 and 3. The latter are projected to account for around 40 per cent of total employment by 2020.

The share of those qualified at each level is projected to remain fairly static.

Figure 2.1: Mining and quarrying – employment profiles



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], forecast C111

Table 2.1: Trends in Output, Productivity and Employment

Average change in the period

Mining & quarrying				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	-1.4	-3.8	-2.9	-2.9
Employment (% pa)	-5.3	-0.6	-1.0	-1.9
(000s)	-19	-2	-3	-5
Productivity (% pa)	4.1	-3.3	-2.0	-1.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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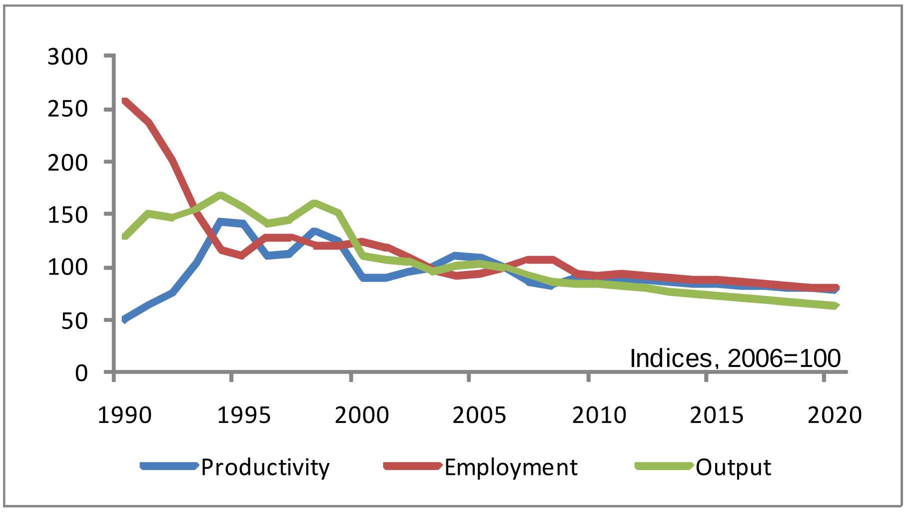
Figure 2.2: Output, productivity and employment in Mining and quarrying, etc



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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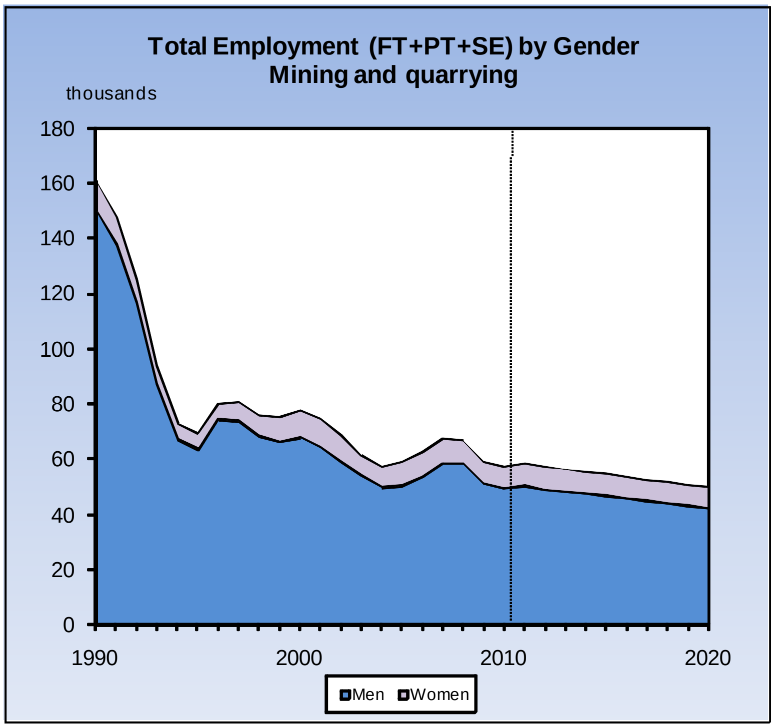
Figure 2.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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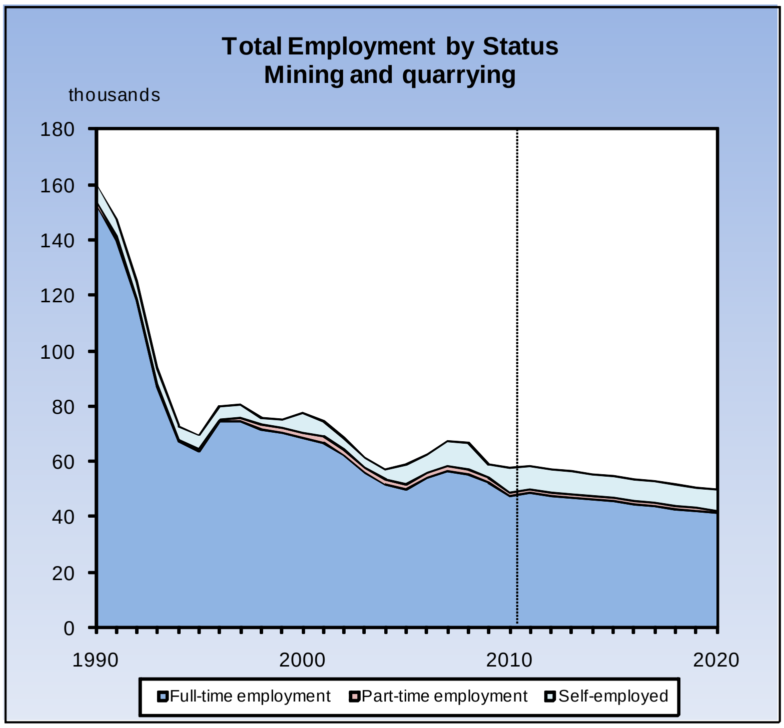
Figure 2.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 2.2: Employment by gender and status

	Employment Status				Mining and quarrying							
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	42	(73.5)	0	(0.4)	7	(12.5)	50	(86.4)	-2	0	0	-3
Female employment	5	(9.1)	1	(2)	1	(2.4)	8	(13.6)	0	0	0	0
Total employment	48	(82.7)	1	(2.4)	9	(14.9)	57	(100)	-2	0	-1	-3
2015									**2015-2020**			
Male employment	40	(73.1)	0	(0.4)	7	(12.3)	47	(85.8)	-4	0	-1	-4
Female employment	5	(9.7)	1	(2.2)	1	(2.4)	8	(14.2)	0	0	0	0
Total employment	45	(82.7)	1	(2.5)	8	(14.7)	55	(100)	-4	0	-1	-5
2020									**2010-2020**			
Male employment	36	(72.4)	0	(0.4)	6	(12.4)	42	(85.3)	-6	0	-1	-7
Female employment	5	(10)	1	(2.3)	1	(2.4)	7	(14.7)	0	0	0	-1
Total employment	41	(82.4)	1	(2.7)	7	(14.9)	50	(100)	-7	0	-1	-8

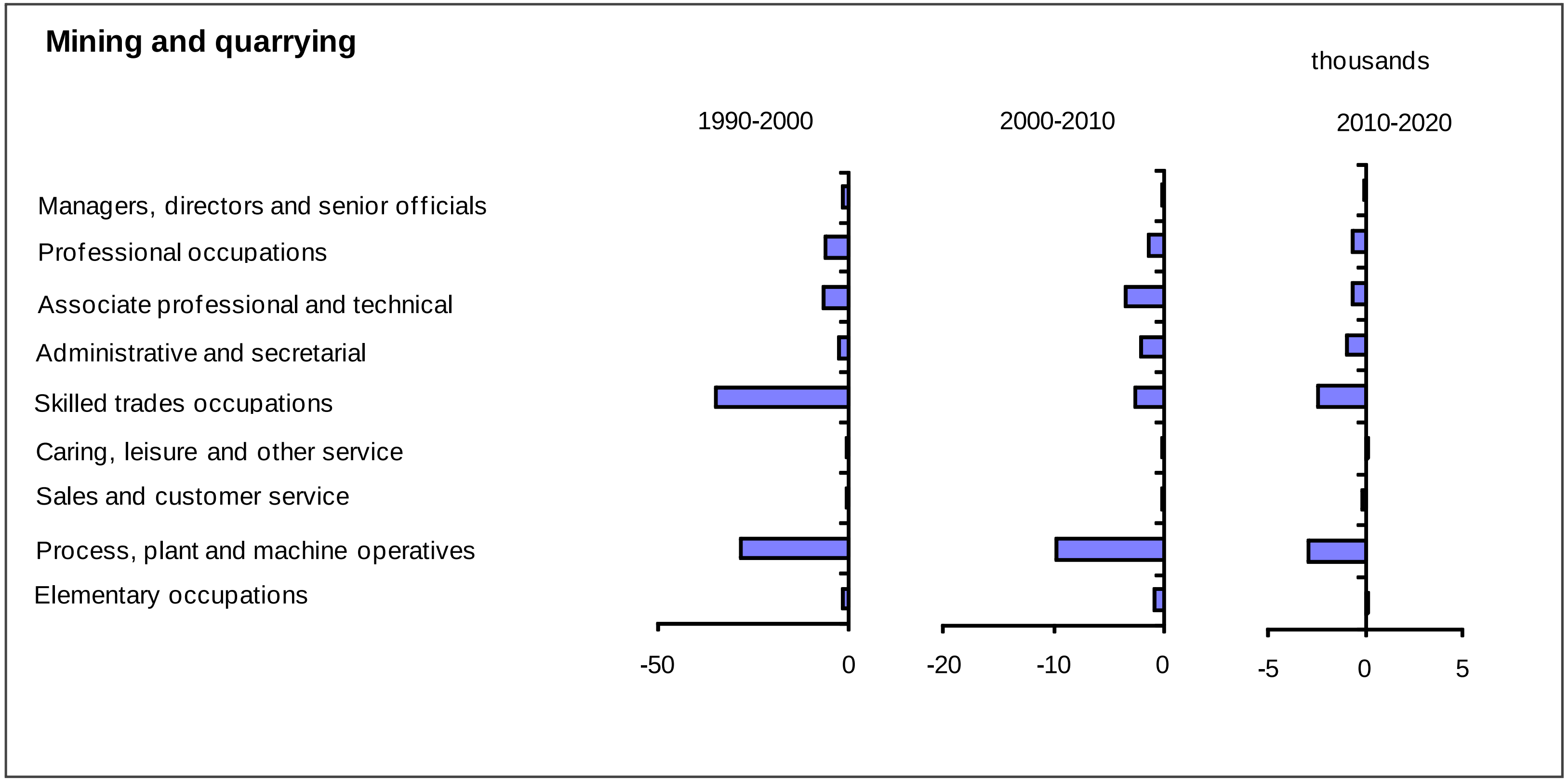
Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.2, forecast C111

Table 2.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Mining and quarrying						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	8	6	6	6	6	0	3	3
2. Professional occupations	19	13	11	11	11	-1	4	3
3. Associate professional and technical	18	11	8	7	7	-1	3	2
4. Administrative and secretarial	9	6	4	4	4	-1	2	1
5. Skilled trades occupations	48	14	11	10	8	-2	4	2
6. Caring, leisure and other service	1	1	1	1	1	0	0	0
7. Sales and customer service	2	1	1	1	1	0	0	0
8. Process, plant and machine operatives	51	22	13	11	10	-3	5	2
9. Elementary occupations	4	3	2	2	2	0	1	1
Total	161	78	57	55	50	-8	22	14
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	5.0	8.3	11.0	11.8	12.7	-0.2	40.9	40.7
2. Professional occupations	12.0	16.6	20.0	20.6	21.7	-6.1	35.5	29.4
3. Associate professional and technical	11.2	14.2	13.4	13.5	14.1	-8.5	35.3	26.8
4. Administrative and secretarial	5.8	8.3	7.8	7.4	7.1	-21.6	43.2	21.6
5. Skilled trades occupations	30.1	17.4	18.9	18.1	17.0	-22.2	37.8	15.5
6. Caring, leisure and other service	0.7	1.2	1.4	1.5	1.7	6.6	42.9	49.5
7. Sales and customer service	1.0	1.8	2.2	2.2	2.2	-13.3	30.3	17.0
8. Process, plant and machine operatives	31.5	28.6	21.8	20.4	19.2	-23.8	39.3	15.5
9. Elementary occupations	2.8	3.6	3.5	4.3	4.3	6.1	35.6	41.6
Total	100.0	100.0	100.0	100.0	100.0	-13.5	37.9	24.5

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 2.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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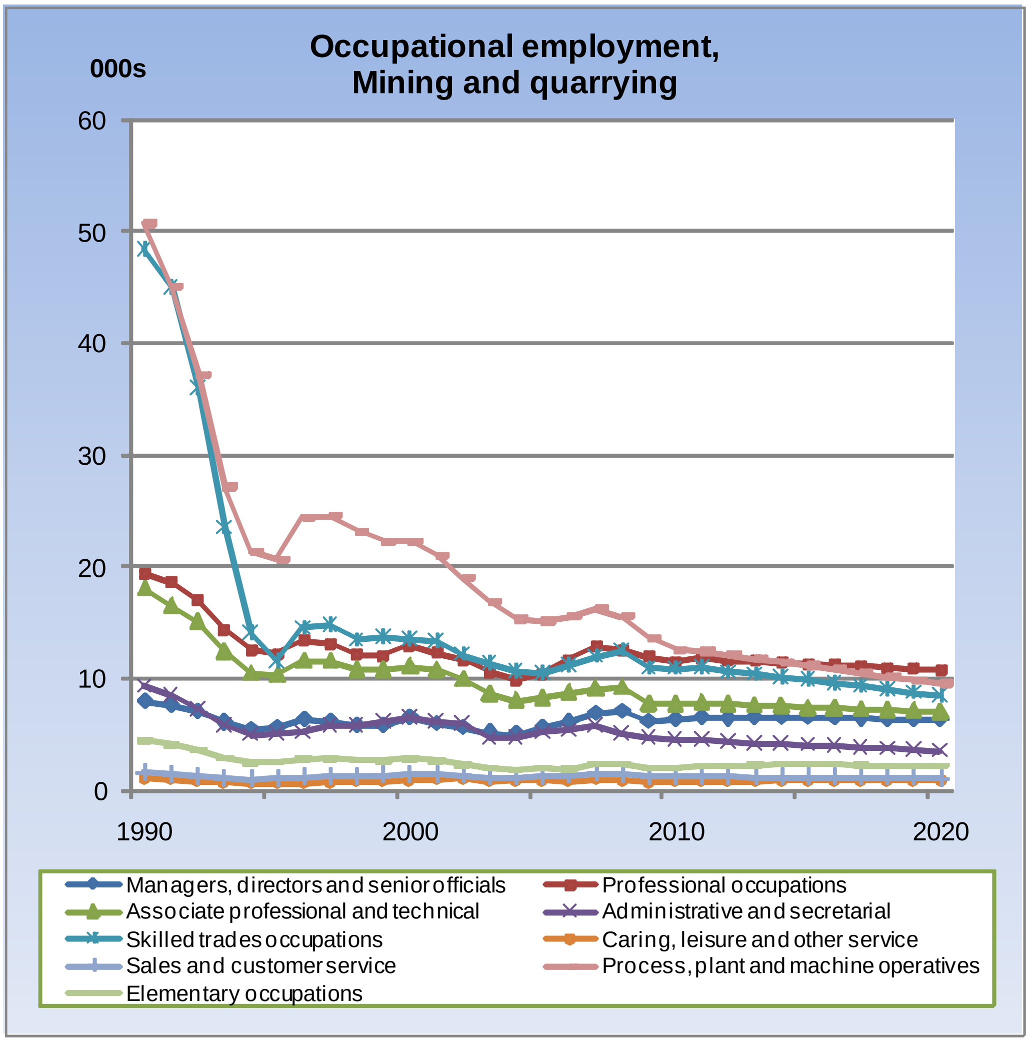
Table 2.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	-2	0	-4	3	0	0	-2	2	0	0	-1	1
2. Professional occupations	-6	0	-10	4	-1	1	-4	2	-1	1	-2	1
3. Associate professional and technical	-7	0	-10	2	-3	0	-3	0	-1	0	-1	0
4. Administrative and secretarial	-3	0	-5	2	-2	0	-2	0	-1	0	-1	0
5. Skilled trades occupations	-35	1	-26	-10	-3	1	-4	1	-2	1	-2	-1
6. Caring, leisure and other service	0	0	-1	0	0	0	0	0	0	0	0	0
7. Sales and customer service	0	0	-1	1	0	0	0	0	0	0	0	0
8. Process, plant and machine operatives	-28	1	-27	-2	-10	1	-7	-4	-3	1	-2	-1
9. Elementary occupations	-2	0	-2	1	-1	0	-1	0	0	0	0	0
Total	-83	2	-85	0	-20	3	-24	0	-8	3	-11	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	-19.6	1.5	-53.1	32.0	-2.0	4.3	-30.4	24.1	-0.2	5.1	-18.5	13.3
2. Professional occupations	-33.3	1.5	-53.1	18.3	-11.0	4.3	-30.4	15.1	-6.1	5.1	-18.5	7.4
3. Associate professional and technical	-38.6	1.5	-53.1	13.0	-30.4	4.3	-30.4	-4.3	-8.5	5.1	-18.5	5.0
4. Administrative and secretarial	-30.2	1.5	-53.1	21.4	-30.8	4.3	-30.4	-4.7	-21.6	5.1	-18.5	-8.1
5. Skilled trades occupations	-72.1	1.5	-53.1	-20.4	-19.3	4.3	-30.4	6.7	-22.2	5.1	-18.5	-8.8
6. Caring, leisure and other service	-18.2	1.5	-53.1	33.4	-12.5	4.3	-30.4	13.6	6.6	5.1	-18.5	20.1
7. Sales and customer service	-10.5	1.5	-53.1	41.1	-10.2	4.3	-30.4	15.9	-13.3	5.1	-18.5	0.2
8. Process, plant and machine operatives	-56.1	1.5	-53.1	-4.4	-43.7	4.3	-30.4	-17.6	-23.8	5.1	-18.5	-10.3
9. Elementary occupations	-36.7	1.5	-53.1	15.0	-28.7	4.3	-30.4	-2.6	6.1	5.1	-18.5	19.5
Total	-51.6	1.5	-53.1	0.0	-26.1	4.3	-30.4	0.0	-13.5	5.1	-18.5	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 2.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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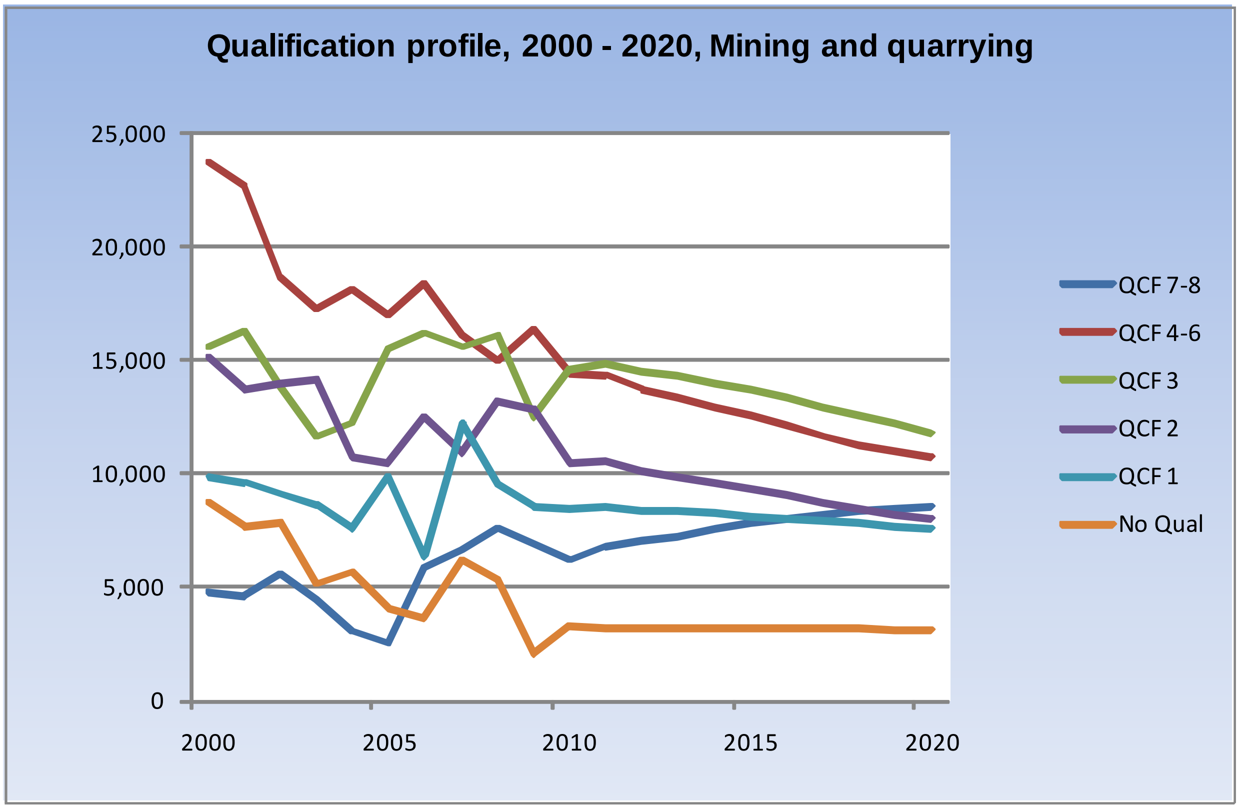
Figure 2.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Figure 7.2, forecast C111

Table 2.5: Implications for employment by qualification

United Kingdom : Mining and quarrying				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	6	2	9	2	5
QCF 4-6	14	-4	11	5	2
QCF 3	15	-3	12	6	3
QCF 2	10	-2	8	4	2
QCF 1	8	-1	8	3	2
No Qual	3	0	3	1	1
Total	57	-8	50	22	14
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	10.8	37.3	17.2	10.8	75.2
QCF 4-6	25.1	-25.8	21.5	25.1	12.2
QCF 3	25.4	-19.0	23.7	25.4	18.9
QCF 2	18.2	-23.6	16.1	18.2	14.3
QCF 1	14.8	-10.4	15.3	14.8	27.5
No Qual	5.7	-6.2	6.2	5.7	31.7
Total	100.0	-13.5	100.0	100.0	24.5

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

3 Sectoral Report: Food drink and tobacco

3.1 Description of the industry

INDUSTRY 3: FOOD DRINK AND TOBACCO
SIC2007 headings: 10-12

10. Food products

11: Beverages and tobacco products

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	2.1	100.0
Exposure to International Trade:	high	average
Concentration (market share of largest employers):	medium	average
Total employment (2010):	401,393	30,458,094
Share of total employment (% 2010):	1.3	100.0
Gender split (male:female) (% 2010):	64:36	53:47
Part-time share (% 2010):	12.2	27.9
Self-employment share (% 2010):	3.2	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

3.2 Industry Commentary

Background

The UK food, drink & tobacco industry has seen major merger and consolidation activity in recent years, which increased efficiency and realised economies of scale.

Food is not a discretionary item, and so households will, on the whole, increase their spending on essential food when times are hard and prices rise. On the other hand, choice of types of food is discretionary. During a slowdown in consumer spending, people turn away from premium foods towards less expensive brands, although this may be compensated by a move away from more expensive restaurant meals towards foods to be prepared at home.

The difficult conditions faced by the food & drink industry in recent years are not expected to get any easier over the coming decade. The factors that have driven up the cost of raw materials seem likely to continue. These conditions will encourage further cost-cutting and rationalisation.

3.3 Productivity and Output Trends

Output: The industry accounts for only around 2 per cent of total output.

Over the long term trends in output have been positive, but growth has stalled over the past decade. Some modest recovery is expected over the next decade.

Productivity: Productivity growth slowed over the past decade, but remained well above average.

With further rationalisation and implementation of technological improvements, productivity growth is expected to be maintained. The pressures on costs and margins and the consequences of further mergers and rationalisation/ consolidation are expected to keep productivity on a strong upward path, cancelling out any benefits from higher output levels

Employment: The industry's share of total employment is only around 2per cent (about 400,000 jobs).

Job losses over the coming are expected to be minimal.

3.4 Employment by Status and Gender

A significant number of females are employed by the food, drink and tobacco industry. They account for around a third of all jobs, although this share is falling.

Part-time employment currently accounts for just over 1 in 10 jobs, being more important for women.

Self-employment is relatively insignificant.

Females in general, are expected to bear the brunt of projected decline in employment.

Part time employees are projected to be the main casualty of projected job losses.

3.5 Projections of Employment by Occupation

Key aspects of occupational structure

The process, plant & machine operatives category is the most important occupational group, accounting for 1 in 3 of all jobs.

Elementary occupations is also a significant area of employment, accounting for about 1 in 5 jobs, and with a rising share of the total.

Skilled trades have also been important in the past but have seen their employment shares fall.

Groups such as managers and associate professionals have seen increases in their shares of total employment.

Main changes by occupation: recent past & future

Projected job losses in the next decade are expected to be concentrated in manual occupations such as skilled trades, and especially amongst process, plant & machine operatives.

Increases are projected for managers, professionals and associate professionals.

3.6 Replacement demands

Table 3.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Overall employment levels are not projected to change much for the industry as a whole over the next decade, but replacement demands will be significantly positive.

The total net requirement is around 162,000 jobs, most of which is replacement needs.

Managers, directors & senior officials, associate professionals, process plant & machine operators and elementary occupations are the main areas where new recruits will be needed.

3.7 Shift share analysis

Table 3.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

For this group of industries the industry effect has played a major part in declining employment for many occupations over the past decade.

The industry effect is projected to fall over the projection period.

Managers and professionals are projected to benefit particularly from positive occupational effects over the projection period. Skilled trades and process, plant & machine operative occupations are expected to experience negative effects. These patterns broadly follow those for the previous two decades.

3.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

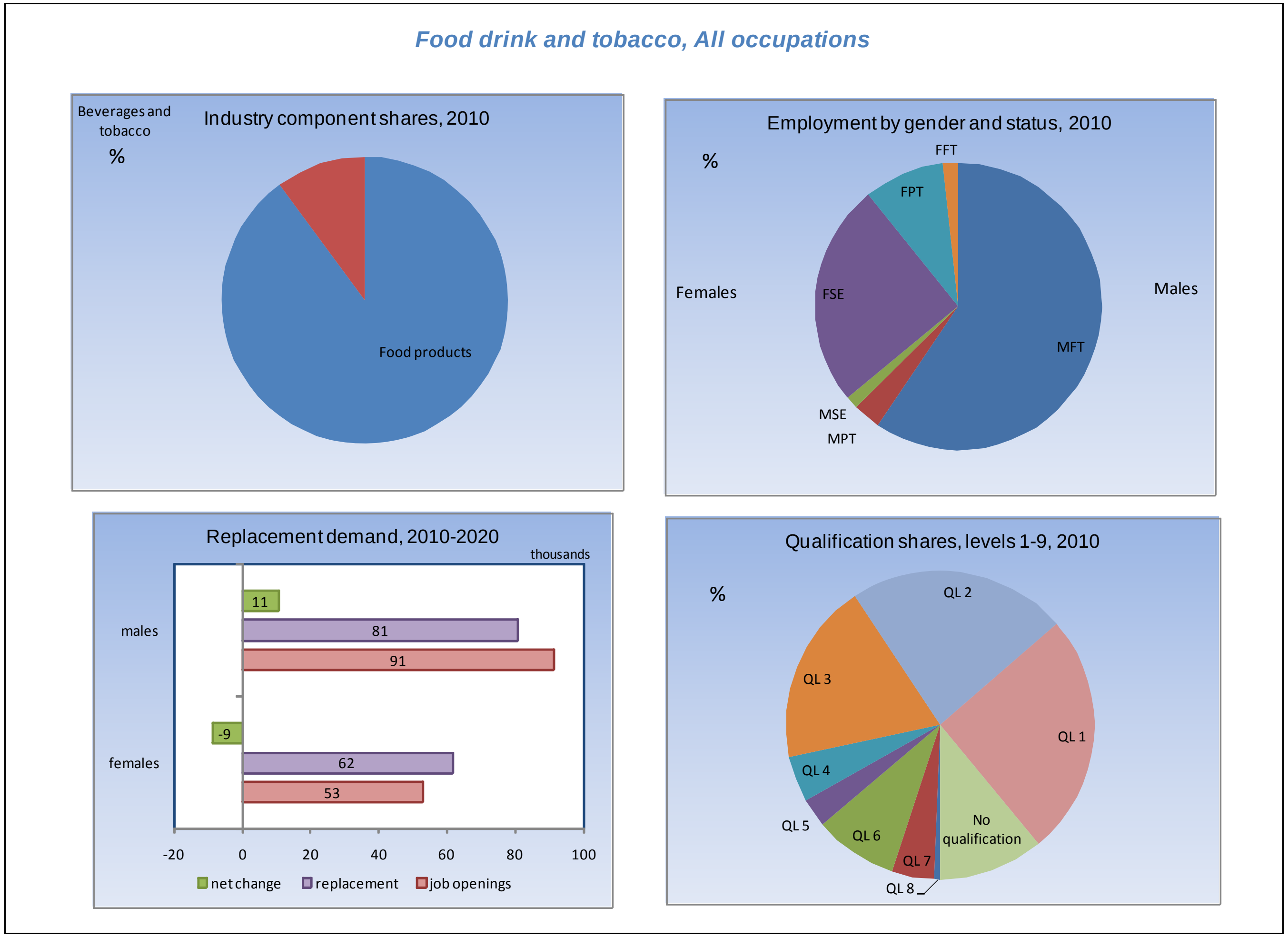
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Food, drink and tobacco favours those qualified at intermediate and low level.

Almost 40 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1). A similar proportion had qualifications at QCF levels 2 and 3.

However, the shares of those qualified at higher levels are rising steadily. They are projected to account for over 25 per cent of total employment by 2020. Those with intermediate qualifications remain at around 40 per cent, while those with low or no qualifications (QCF 0-1) are projected to fall from a combined 40 per cent to around 35 per cent.

Figure 3.1 Food, drink and tobacco – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 3.1: Trends in Output, Productivity and Employment
Average change in the period

Food drink & tobacco				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	1.0	0.0	2.1	1.6
Employment (% pa)	-2.7	-1.9	0.1	0.1
(000s)	-64	-41	1	1
Productivity (% pa)	3.8	2.0	2.0	1.5

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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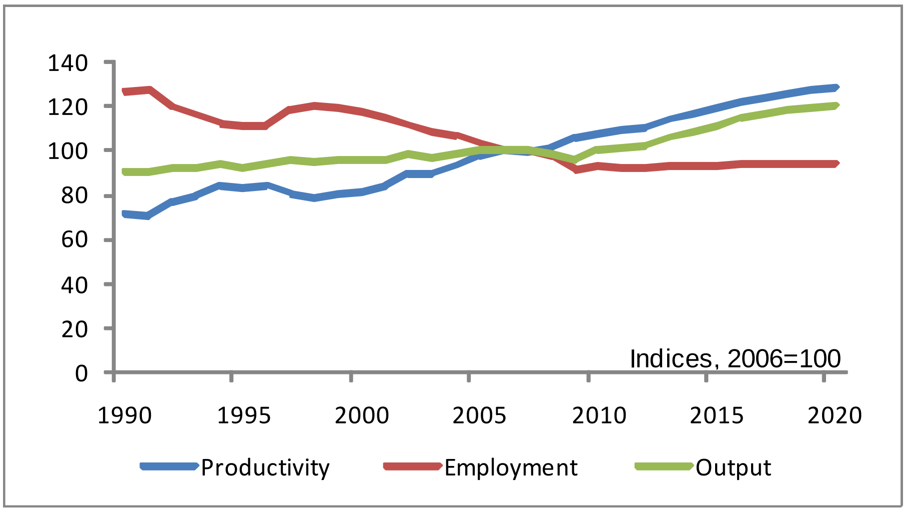
Figure 3.2: Output, productivity and employment in Food, drink and tobacco



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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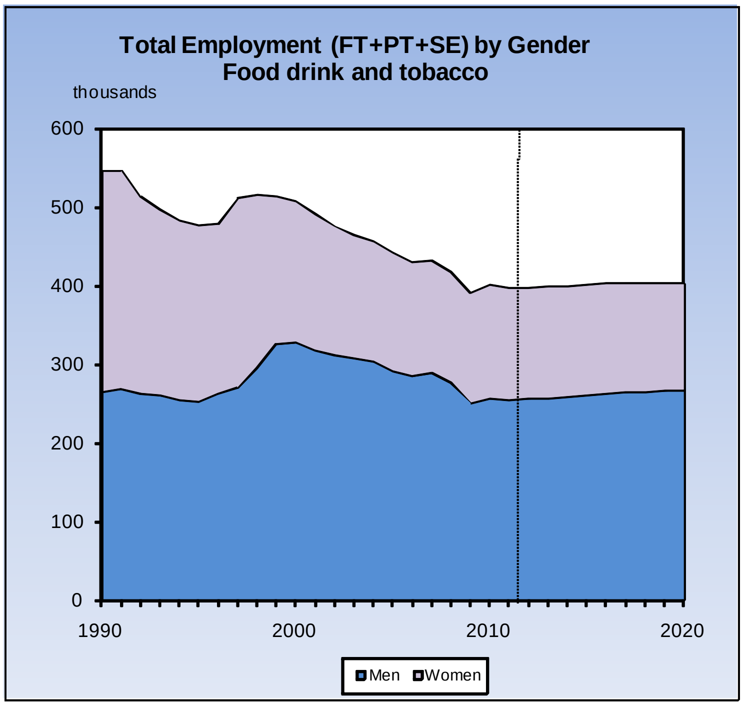
Figure 3.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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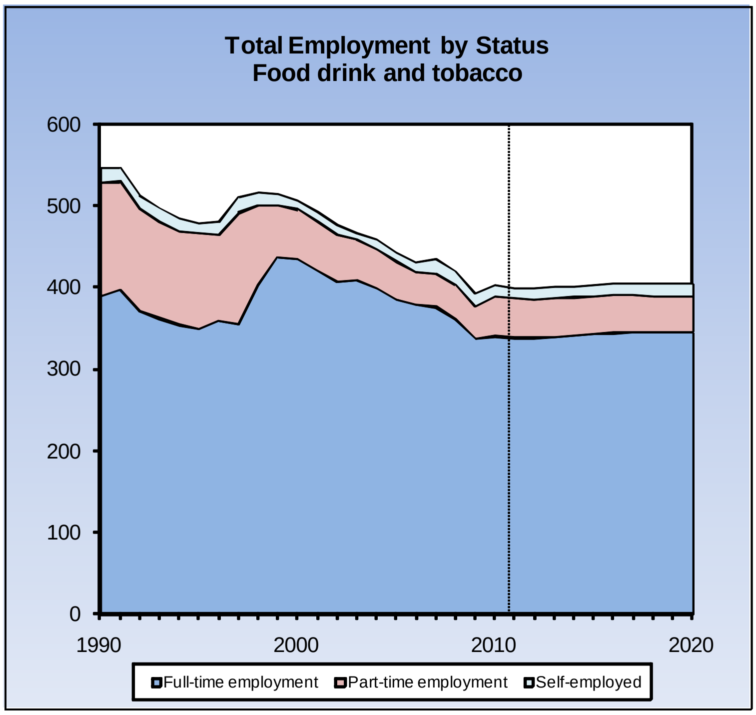
Figure 3.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 3.2: Employment by gender and status

	Employment Status		Food drink and tobacco						Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**		**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	239	(59.5)	12	(3.1)	6	(1.4)	257	(64.1)	3	1	1	5
Female employment	101	(25.1)	37	(9.1)	7	(1.7)	144	(35.9)	-1	-4	1	-4
Total employment	340	(84.6)	49	(12.2)	13	(3.2)	401	(100)	3	-3	1	1
2015									**2015-2020**			
Male employment	242	(60.2)	14	(3.4)	6	(1.6)	262	(65.2)	3	1	1	6
Female employment	100	(24.8)	33	(8.1)	8	(1.9)	140	(34.8)	-1	-4	1	-4
Total employment	342	(85)	46	(11.4)	14	(3.5)	402	(100)	2	-3	2	1
2020									**2010-2020**			
Male employment	246	(60.9)	15	(3.6)	8	(1.9)	268	(66.4)	7	2	2	11
Female employment	99	(24.5)	28	(7)	9	(2.1)	136	(33.6)	-2	-8	2	-9
Total employment	344	(85.3)	43	(10.7)	16	(4)	404	(100)	5	-6	3	2

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 3.3: Employment by occupation

Changing Composition of Employment by Occupation United Kingdom : Food drink and tobacco Employment Levels (000s)	1990	2000	2010	2015	2020	2010-2020 Net Change	Replacement Demands	Total Requirement
1. Managers, directors and senior officials	26	35	31	36	40	10	13	23
2. Professional occupations	25	29	23	26	29	7	8	15
3. Associate professional and technical	39	42	40	44	48	8	15	22
4. Administrative and secretarial	51	40	29	30	29	0	13	13
5. Skilled trades occupations	87	83	59	54	50	-9	23	14
6. Caring, leisure and other service	3	3	3	3	4	1	1	2
7. Sales and customer service	17	17	15	16	16	1	5	6
8. Process, plant and machine operatives	207	186	132	120	110	-22	54	32
9. Elementary occupations	91	72	70	73	76	6	28	34
Total	546	507	401	402	404	2	159	162
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	4.8	6.8	7.7	8.9	10.0	31.0	42.6	73.5
2. Professional occupations	4.6	5.7	5.7	6.4	7.3	29.4	36.5	65.9
3. Associate professional and technical	7.1	8.3	9.9	10.8	11.8	19.9	36.5	56.4
4. Administrative and secretarial	9.3	7.8	7.2	7.5	7.2	1.6	43.9	45.5
5. Skilled trades occupations	16.0	16.4	14.7	13.4	12.4	-15.0	38.8	23.7
6. Caring, leisure and other service	0.5	0.6	0.7	0.8	0.9	33.9	43.7	77.6
7. Sales and customer service	3.1	3.4	3.8	4.1	4.1	6.5	34.1	40.6
8. Process, plant and machine operatives	38.0	36.7	32.9	29.9	27.3	-16.5	40.8	24.4
9. Elementary occupations	16.7	14.2	17.5	18.2	18.9	8.9	39.3	48.2
Total	100.0	100.0	100.0	100.0	100.0	0.6	39.7	40.3

Source: Source: CE/IER estimates based on ONS data(MDM revision 7146).
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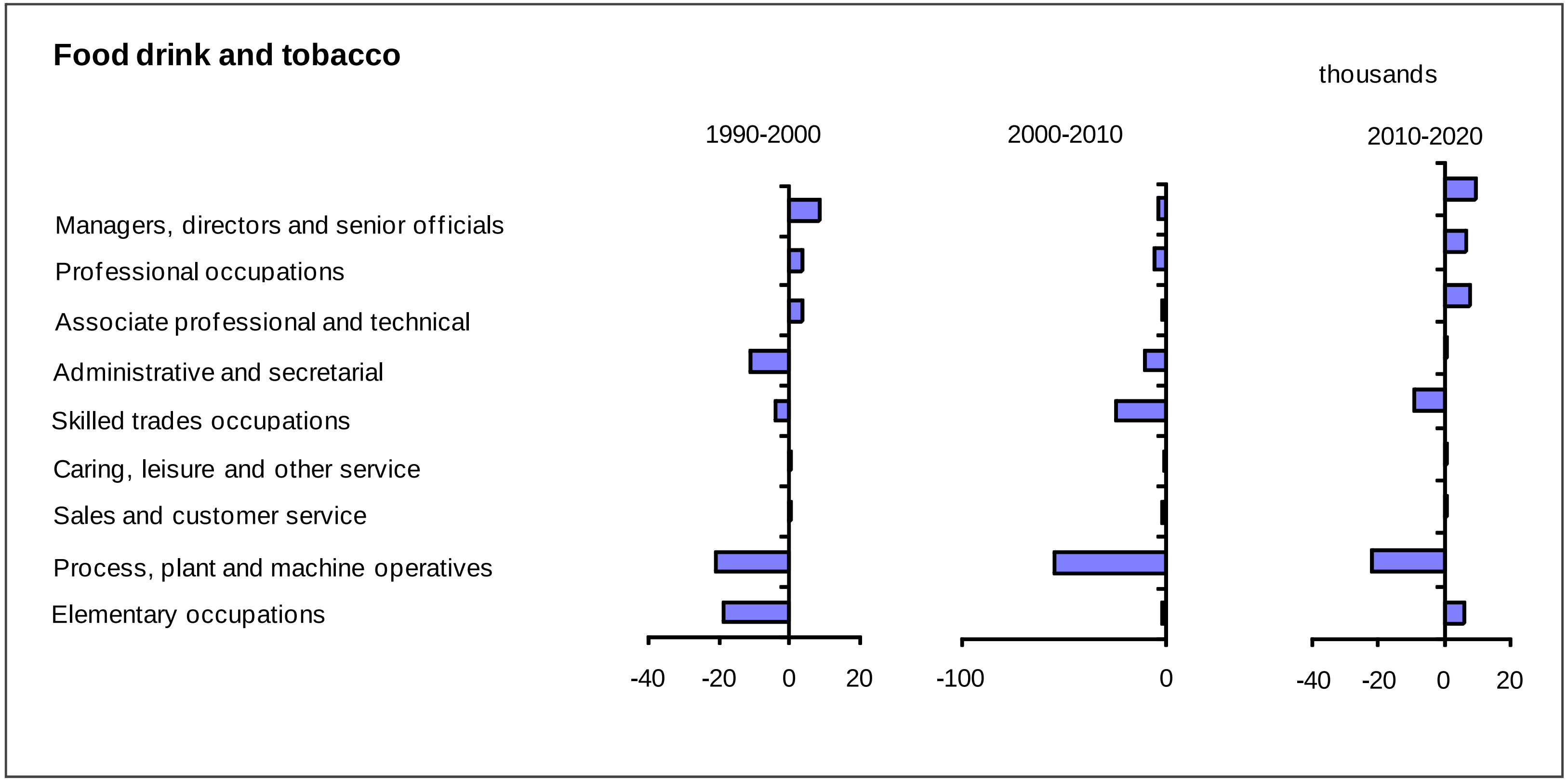
Figure 3.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 3.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	9	0	-2	10	-4	2	-9	3	10	2	-1	9
2. Professional occupations	4	0	-2	5	-6	1	-7	0	7	1	-1	7
3. Associate professional and technical	3	1	-3	6	-2	2	-11	6	8	2	-2	8
4. Administrative and secretarial	-11	1	-4	-8	-11	2	-10	-3	0	1	-1	0
5. Skilled trades occupations	-4	1	-8	2	-24	4	-21	-7	-9	3	-3	-9
6. Caring, leisure and other service	0	0	0	0	0	0	-1	0	1	0	0	1
7. Sales and customer service	1	0	-1	2	-2	1	-4	2	1	1	-1	1
8. Process, plant and machine operatives	-21	3	-18	-6	-54	8	-47	-15	-22	7	-6	-22
9. Elementary occupations	-19	1	-8	-12	-2	3	-18	13	6	4	-3	6
Total	-39	8	-47	0	-106	22	-128	0	2	20	-18	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	32.8	1.5	-8.6	40.0	-11.0	4.3	-25.2	9.8	31.0	5.1	-4.5	30.4
2. Professional occupations	14.6	1.5	-8.6	21.7	-21.2	4.3	-25.2	-0.4	29.4	5.1	-4.5	28.8
3. Associate professional and technical	9.0	1.5	-8.6	16.1	-5.4	4.3	-25.2	15.4	19.9	5.1	-4.5	19.3
4. Administrative and secretarial	-21.9	1.5	-8.6	-14.8	-27.7	4.3	-25.2	-6.9	1.6	5.1	-4.5	1.0
5. Skilled trades occupations	-4.7	1.5	-8.6	2.4	-29.1	4.3	-25.2	-8.3	-15.0	5.1	-4.5	-15.6
6. Caring, leisure and other service	8.6	1.5	-8.6	15.8	-7.9	4.3	-25.2	12.9	33.9	5.1	-4.5	33.3
7. Sales and customer service	3.3	1.5	-8.6	10.4	-11.5	4.3	-25.2	9.3	6.5	5.1	-4.5	6.0
8. Process, plant and machine operatives	-10.2	1.5	-8.6	-3.1	-29.1	4.3	-25.2	-8.3	-16.5	5.1	-4.5	-17.0
9. Elementary occupations	-20.9	1.5	-8.6	-13.8	-2.4	4.3	-25.2	18.4	8.9	5.1	-4.5	8.3
Total	-7.1	1.5	-8.6	0.0	-20.8	4.3	-25.2	0.0	0.6	5.1	-4.5	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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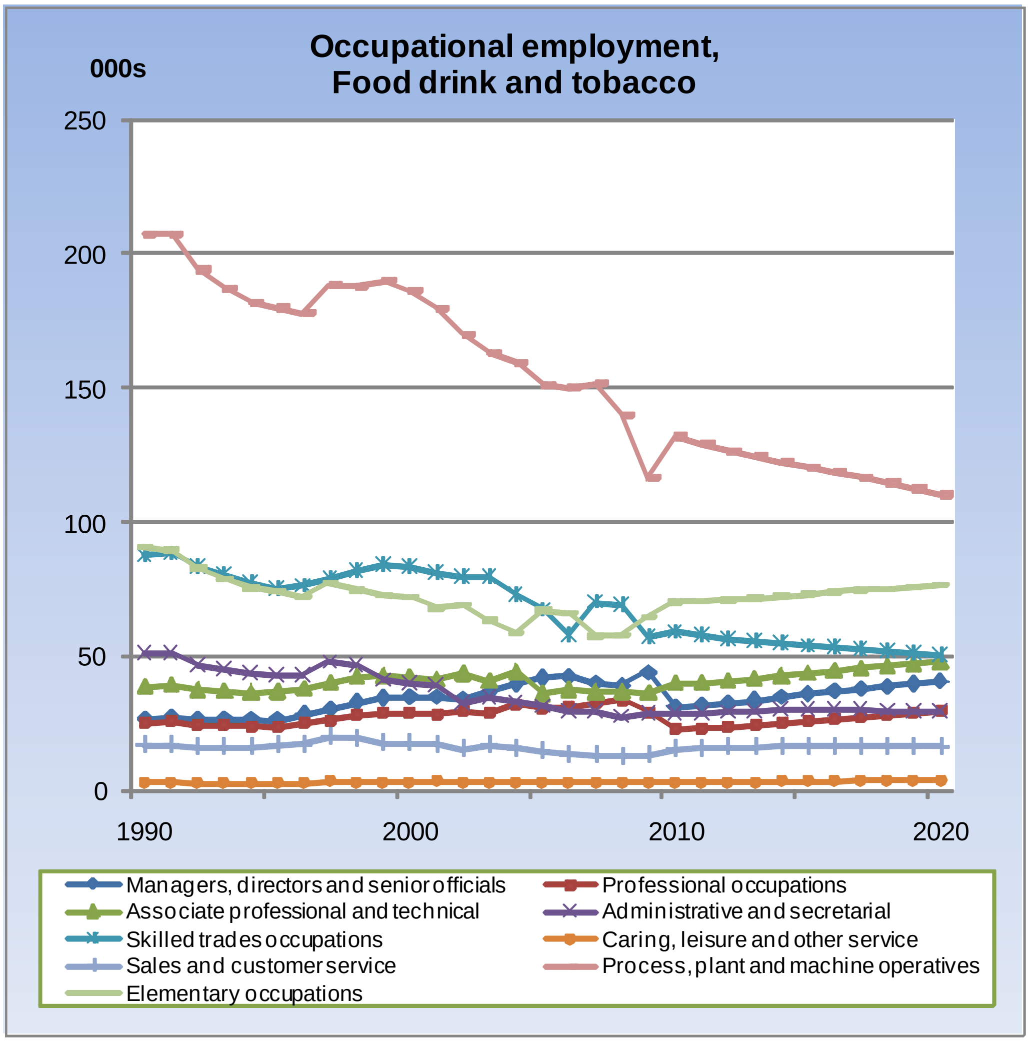
Figure 3.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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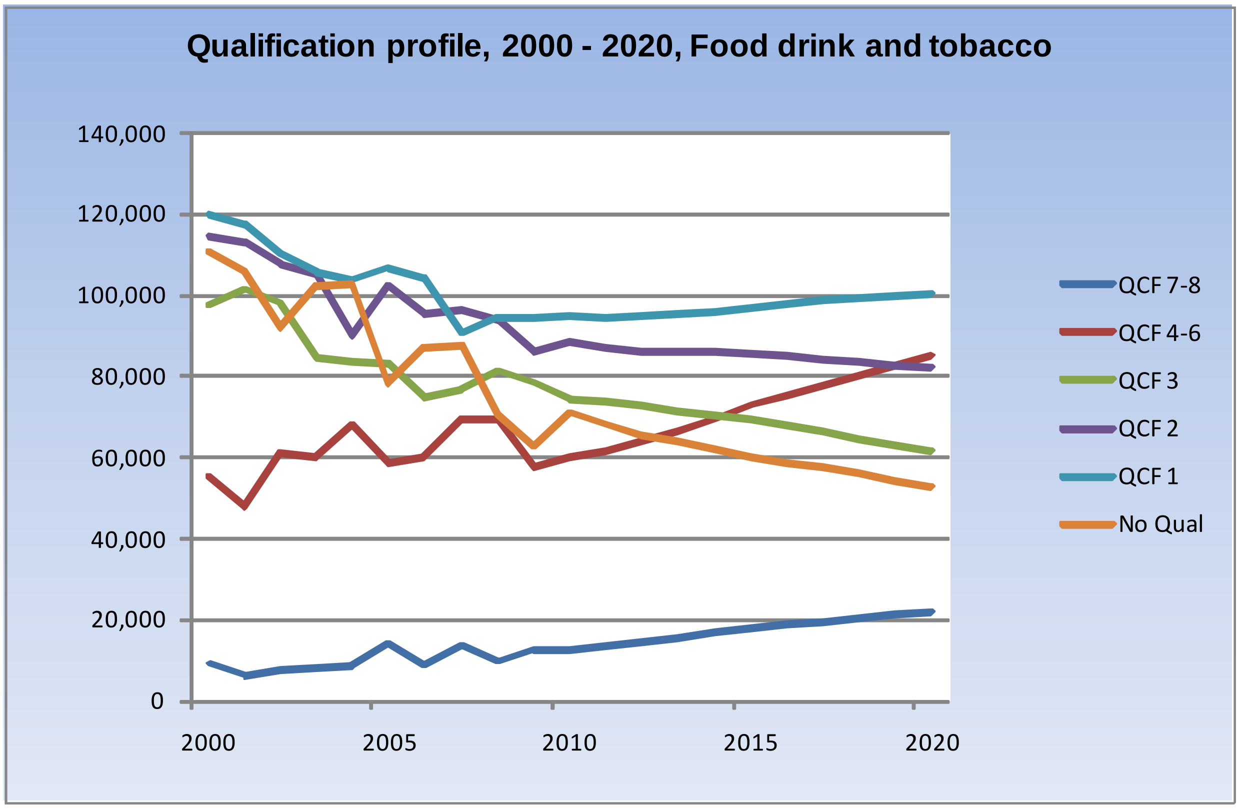
Figure 3.7: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 3.5: Implications for employment by qualification

United Kingdom : Food drink and tobacco				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	13	9	22	5	14
QCF 4-6	60	25	85	24	49
QCF 3	74	-13	61	29	17
QCF 2	89	-6	82	35	29
QCF 1	95	5	100	38	43
No Qual	71	-18	53	28	10
Total	401	2	404	159	162
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	3.2	71.0	5.4	3.2	110.7
QCF 4-6	15.0	41.2	21.1	15.0	80.9
QCF 3	18.5	-17.1	15.2	18.5	22.7
QCF 2	22.1	-7.3	20.3	22.1	32.4
QCF 1	23.7	5.7	24.9	23.7	45.4
No Qual	17.6	-25.4	13.1	17.6	14.3
Total	100.0	0.6	100.0	100.0	40.3

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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4 Engineering

4.1 Description of the industry

INDUSTRY 4: ENGINEERING
SIC2007 headings: 26-28

26: Computer, electronic and optical products

27: Electrical equipment

28: Machinery and equipment n.e.c.

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	2.3	100.0
Exposure to International Trade:	high	average
Concentration (market share of largest employers):	medium	average
Total employment (2010):	397,272	30,458,094
Share of total employment (% 2010):	1.3	100.0
Gender split (male:female) (% 2010):	78:22	53:47
Part-time share (% 2010):	5.9	27.9
Self-employment share (% 2010):	5.3	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

4.2 Industry Commentary

Background

This industry no longer dominates manufacturing employment as it used to. Electrical engineering and mechanical engineering now account for just a small part of the economy, following major structural change and loss of markets to foreign competition.

The sector was hard hit by the initial impact of the recession, but the depreciation in the exchange rate and other factors have helped the recovery. However, cutbacks in public expenditure in areas such as defence (following a period of quite rapid military procurement) will reduce growth rates.

UK engineering is now a much smaller, leaner sector whose products are in demand; but it suffers from a shortage of high-skilled personnel, probably due in no small part to the sectors long term record of decline in terms of overall job numbers.

4.3 Productivity and Output Trends

Output: The industry accounts for around 2¼ per cent of total output.

Output levels in this group of industries have shown only very modest growth over the past decade, but things picked up over the second half of the decade, boosted by the depreciation in the exchange rate.

The recovery from recession is expected to continue over the next few years but then growth slows to just under 2 per cent per annum.

Productivity: As producers continue to innovate and respond to intense international competition, productivity growth, which accelerated in the last 5 years or so, is expected to be maintained, albeit moderating somewhat over the coming decade.

These increases in productivity will lead to falling employment as higher levels of output can be achieved with fewer employees.

Employment: The industry's share of total employment is now only 1¼ per cent (fewer than 400,000 jobs).

In combination, steady output growth coupled with continued productivity gains results in the expected loss of a further 70,000 jobs lost over the coming decade.

4.4 Employment by Status and Gender

Employment in this industry is predominately male, around 3 in 4 jobs being undertaken by men.

Self-employment accounts for only around 1 in 20 jobs.

Males in general, are expected to bear the brunt of projected decline in employment.

Full time employees are projected to be the main casualty of projected job losses but will remain the norm in this industry.

Part-time employment is also relatively small but increasing in importance.

4.5 Projections of Employment by Occupation

Key aspects of occupational structure

The most important occupations in this industry are skilled trades although they have seen a sharp decline in their employment share over the past two decades.

Process, plant & machine operatives were much more significant but have seen significant job losses over the past decade.

Managers, professionals and associate professionals have all increased their employment shares in recent years, in combination reaching almost half the total.

Future change

Future job losses are projected to be concentrated in manual occupations such as skilled trades and process, plant & machine operatives.

Whilst their employment levels will fall slightly, the managerial, professional and associate professional groups are projected to increase their shares of employment.

4.6 Replacement demands

Table 4.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Despite further expected job losses in the industry, this does not mean there will not be a need to recruit some new workers.

Replacement demands are significant for many occupations in this industry. These are sufficient to generate a total industry requirement of over 80,000 new workers, offsetting the negative expansion demand of the same order of magnitude.

The largest elements of replacement demand in absolute terms are for managers, professionals, skilled trades occupations, and process, plant & machine operatives.

4.7 Shift share analysis

Table 4.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect has generally played a major part in declining employment for most occupations.

In the 1990s, the industry effect resulted in a loss of almost 20 per cent of all jobs. This played a major part in declining employment for all occupations in the industry.

Over the next decade, the industry effect was even more significant at almost -50 per cent.

Over the projection period, the industry effect is projected to fall back, but still resulting in the loss of just over 20 per cent of jobs across all occupations, all else equal.

Skilled trades and process, plant & machine operatives are expected to experience negative occupational effects which reinforce these changes.

4.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

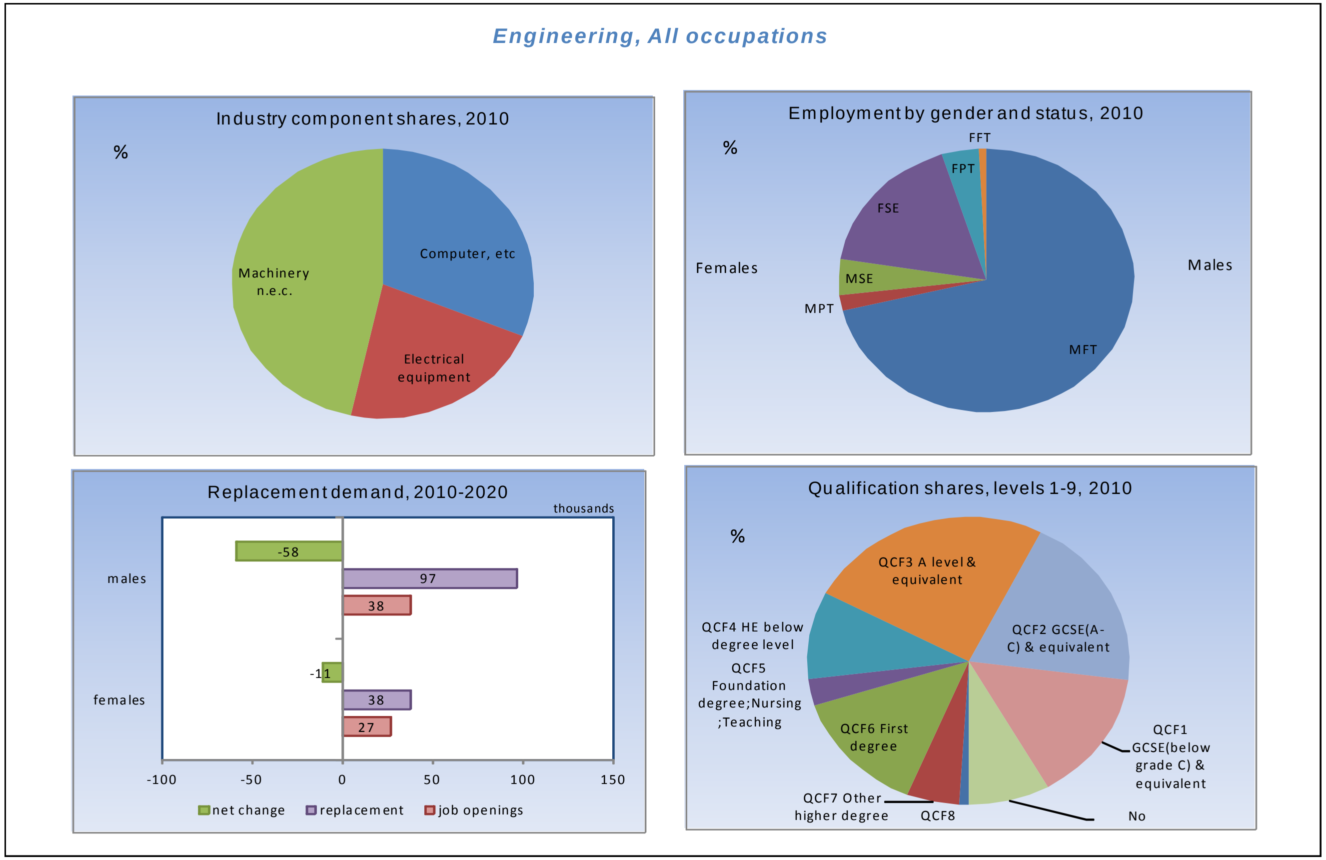
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

This industry's occupational structure favours those qualified at intermediate and higher levels.

Only around 20 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1), while almost 45 per cent had intermediate qualifications and over 30 per cent had higher qualifications.

The shares of those qualified at higher levels are expected to increase to nearly 40 per cent by 2020 while those with low or no qualifications (QCF 0-1) fall to around 20 per cent.

Figure 4.1: Engineering – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 4.1: Trends in Output, Productivity and Employment

Average change in the period

Engineering Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	-2.2	0.9	3.4	1.8
Employment (% pa)	-6.0	-5.3	-2.0	-1.8
(000s)	-190	-124	-38	-31
Productivity (% pa)	4.1	6.6	5.5	3.7

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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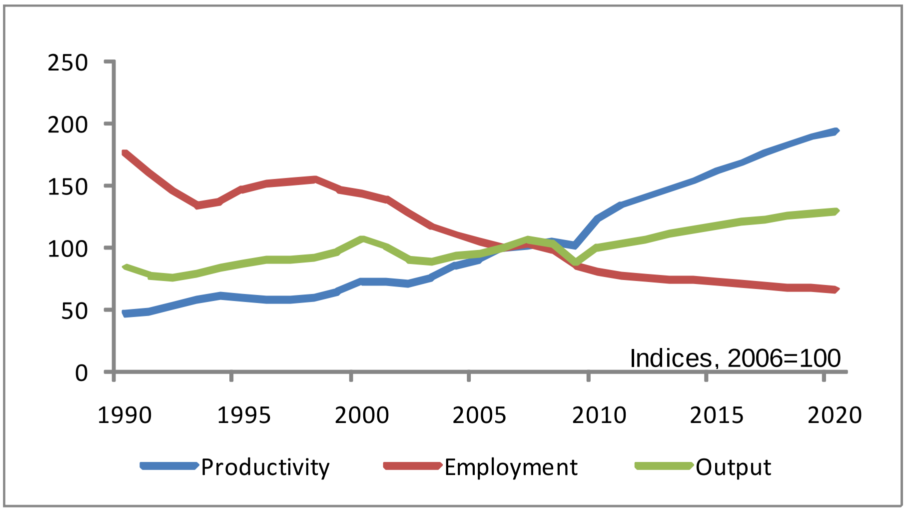
Figure 4.2: Output, productivity and employment in Engineering



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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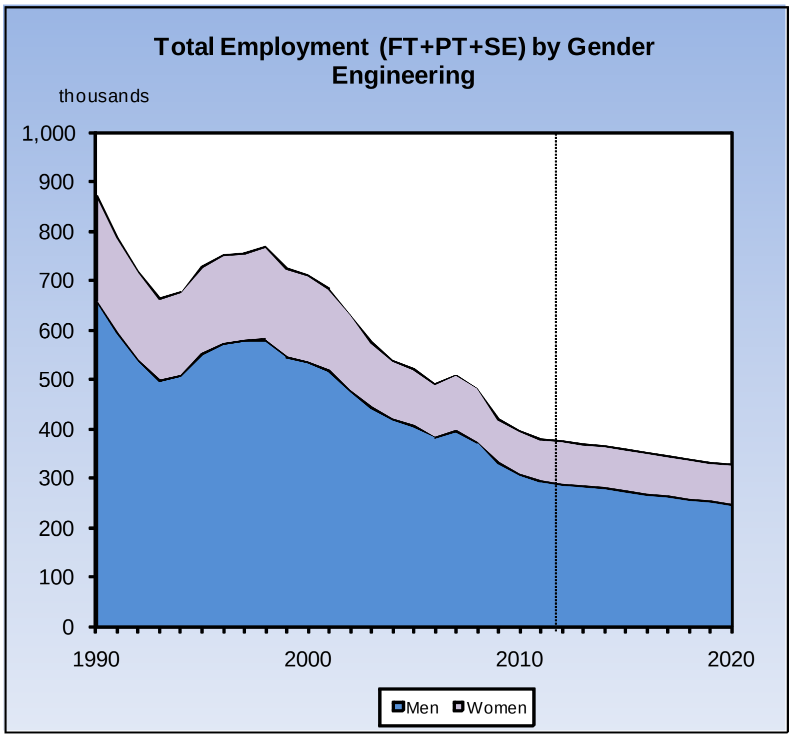
Figure 4.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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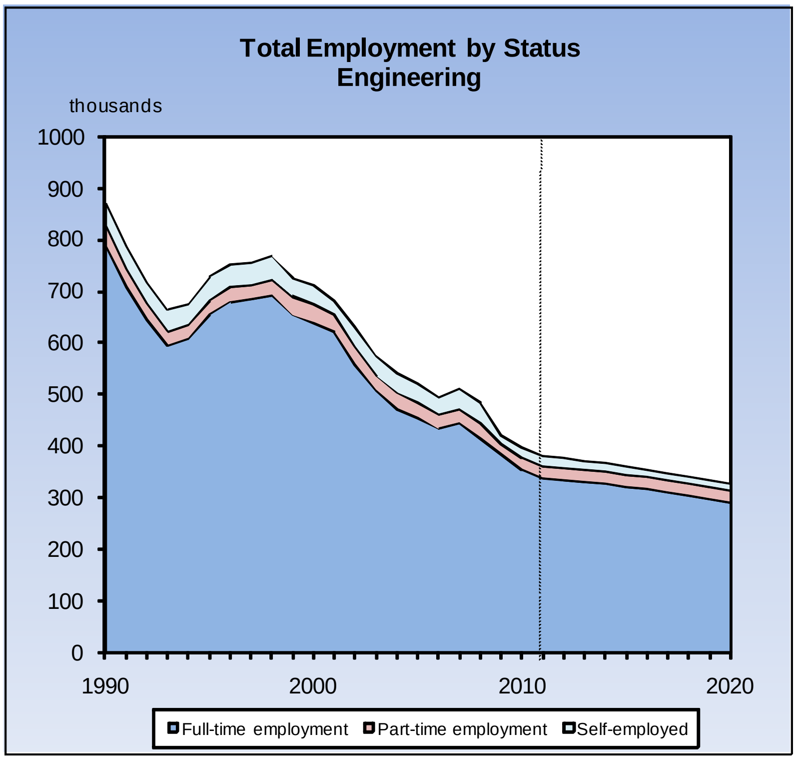
Figure 4.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 4.2: Employment by gender and status

Employment Status	Engineering											
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	283	(71.3)	8	(1.9)	18	(4.4)	308	(77.6)	-27	0	-7	-33
Female employment	70	(17.5)	16	(4)	3	(0.9)	89	(22.4)	-6	0	1	-5
Total employment	353	(88.8)	23	(5.9)	21	(5.3)	397	(100)	-33	0	-6	-38
2015									**2015-2020**			
Male employment	257	(71.5)	8	(2.2)	11	(3)	276	(76.7)	-23	0	-3	-26
Female employment	63	(17.6)	16	(4.4)	4	(1.2)	83	(23.3)	-6	0	1	-6
Total employment	320	(89.1)	24	(6.7)	15	(4.2)	359	(100)	-29	0	-2	-31
2020									**2010-2020**			
Male employment	233	(71.2)	8	(2.5)	8	(2.5)	250	(76.2)	-50	1	-9	-58
Female employment	57	(17.5)	16	(4.7)	5	(1.5)	78	(23.8)	-12	0	2	-11
Total employment	291	(88.7)	24	(7.3)	13	(4)	328	(100)	-62	0	-8	-69

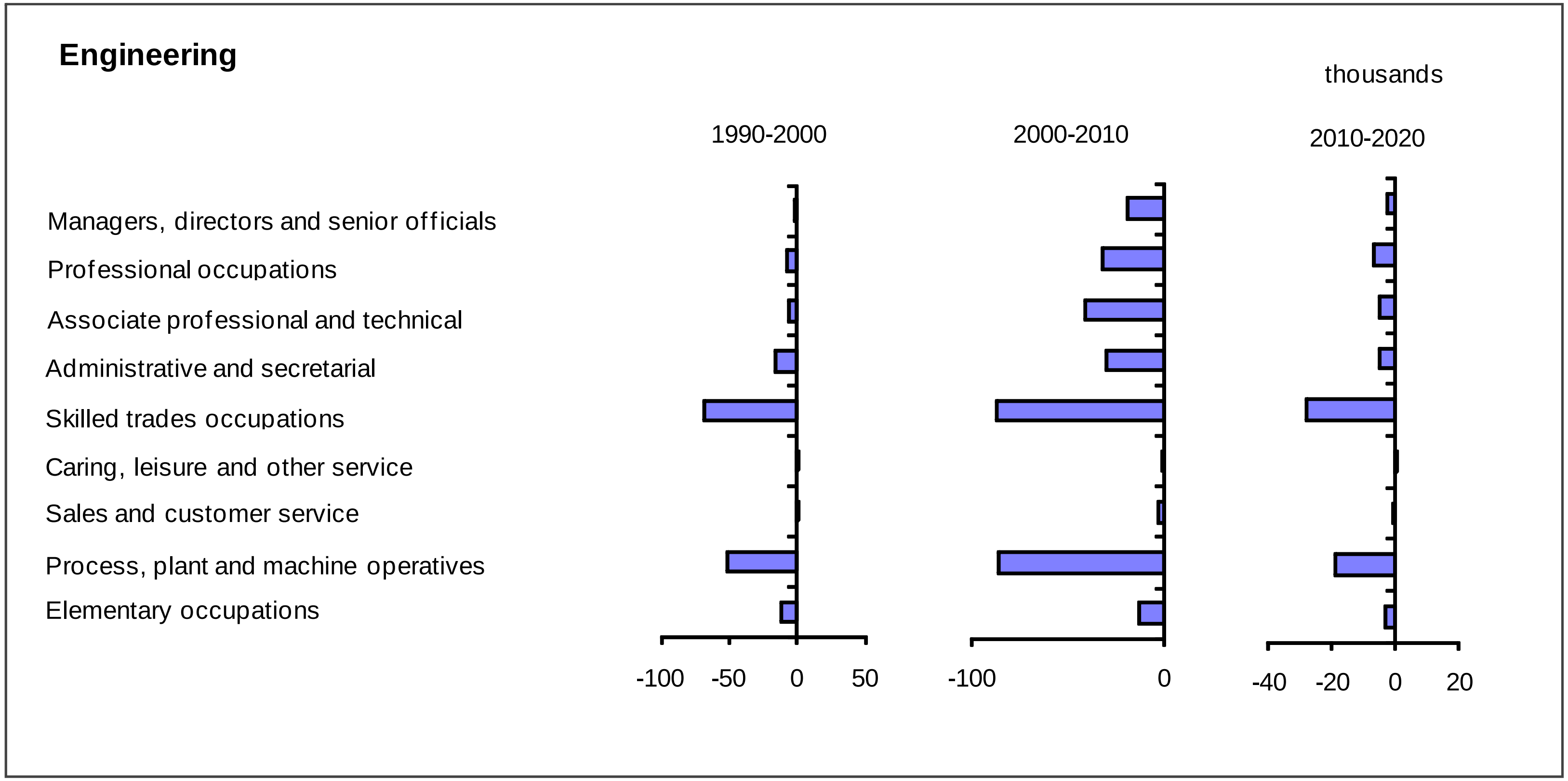
Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.2, forecast C111

Table 4.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Engineering						**Net**	**Replacement**	**Total**
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	72	72	53	52	50	-2	21	19
2. Professional occupations	115	108	75	72	69	-7	26	19
3. Associate professional and technical	100	94	53	51	48	-5	19	14
4. Administrative and secretarial	76	60	29	27	25	-5	13	8
5. Skilled trades occupations	259	190	102	86	74	-28	38	10
6. Caring, leisure and other service	4	5	3	3	3	0	1	1
7. Sales and customer service	13	15	12	11	11	-1	4	3
8. Process, plant and machine operatives	188	137	51	41	33	-19	20	2
9. Elementary occupations	43	31	18	16	15	-3	6	3
Total	871	712	397	359	328	-69	149	80
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	8.3	10.1	13.2	14.4	15.3	-4.3	40.7	36.4
2. Professional occupations	13.2	15.2	19.0	20.1	21.0	-8.8	34.5	25.7
3. Associate professional and technical	11.5	13.3	13.4	14.2	14.8	-9.2	35.5	26.4
4. Administrative and secretarial	8.7	8.4	7.4	7.5	7.5	-16.4	44.7	28.4
5. Skilled trades occupations	29.7	26.6	25.8	23.9	22.7	-27.4	37.4	9.9
6. Caring, leisure and other service	0.5	0.7	0.8	0.9	1.0	5.4	40.8	46.2
7. Sales and customer service	1.5	2.0	2.9	3.1	3.3	-7.2	31.2	24.0
8. Process, plant and machine operatives	21.6	19.3	13.0	11.4	10.0	-36.4	39.5	3.1
9. Elementary occupations	5.0	4.4	4.5	4.5	4.5	-18.8	35.8	17.0
Total	100.0	100.0	100.0	100.0	100.0	-17.5	37.6	20.1

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 4.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 4.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	0	1	-14	13	-19	3	-35	12	-2	3	-12	7
2. Professional occupations	-7	2	-23	14	-32	5	-52	15	-7	4	-17	7
3. Associate professional and technical	-5	1	-20	13	-41	4	-46	1	-5	3	-12	4
4. Administrative and secretarial	-16	1	-15	-2	-31	3	-29	-4	-5	1	-7	0
5. Skilled trades occupations	-69	4	-51	-22	-87	8	-92	-3	-28	5	-23	-10
6. Caring, leisure and other service	1	0	-1	2	-2	0	-2	0	0	0	-1	1
7. Sales and customer service	1	0	-3	4	-3	1	-7	4	-1	1	-3	1
8. Process, plant and machine operatives	-51	3	-37	-17	-86	6	-67	-25	-19	3	-12	-10
9. Elementary occupations	-12	1	-9	-4	-14	1	-15	0	-3	1	-4	0
Total	-159	13	-172	0	-315	31	-345	0	-69	20	-90	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	-0.7	1.5	-19.7	17.6	-26.8	4.3	-48.5	17.4	-4.3	5.1	-22.6	13.2
2. Professional occupations	-6.1	1.5	-19.7	12.1	-30.0	4.3	-48.5	14.2	-8.8	5.1	-22.6	8.7
3. Associate professional and technical	-5.5	1.5	-19.7	12.8	-43.5	4.3	-48.5	0.7	-9.2	5.1	-22.6	8.3
4. Administrative and secretarial	-21.1	1.5	-19.7	-2.8	-51.1	4.3	-48.5	-6.9	-16.4	5.1	-22.6	1.1
5. Skilled trades occupations	-26.7	1.5	-19.7	-8.4	-46.0	4.3	-48.5	-1.8	-27.4	5.1	-22.6	-10.0
6. Caring, leisure and other service	17.9	1.5	-19.7	36.2	-36.6	4.3	-48.5	7.6	5.4	5.1	-22.6	22.9
7. Sales and customer service	10.7	1.5	-19.7	28.9	-20.1	4.3	-48.5	24.1	-7.2	5.1	-22.6	10.3
8. Process, plant and machine operatives	-27.2	1.5	-19.7	-9.0	-62.5	4.3	-48.5	-18.3	-36.4	5.1	-22.6	-18.9
9. Elementary occupations	-27.0	1.5	-19.7	-8.8	-42.9	4.3	-48.5	1.3	-18.8	5.1	-22.6	-1.3
Total	-18.3	1.5	-19.7	0.0	-44.2	4.3	-48.5	0.0	-17.5	5.1	-22.6	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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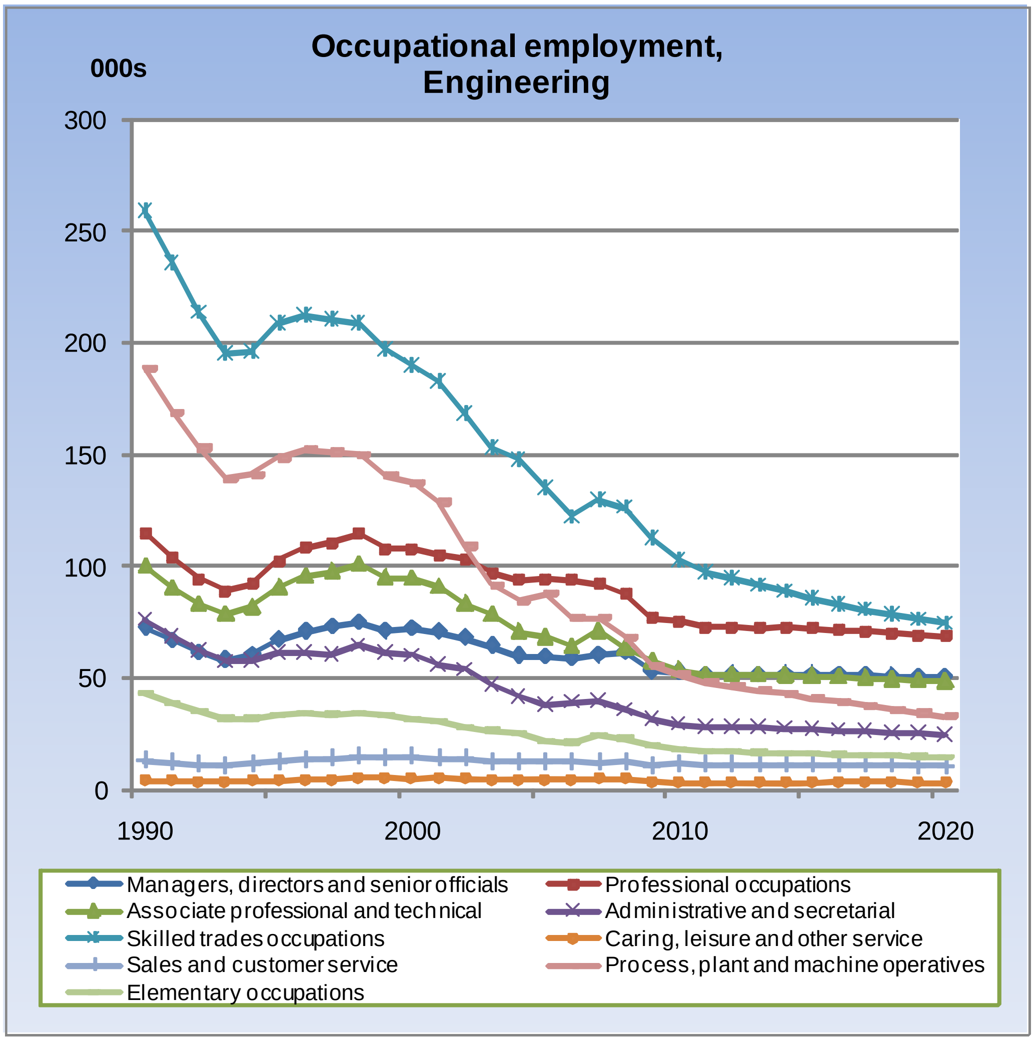
Figure 4.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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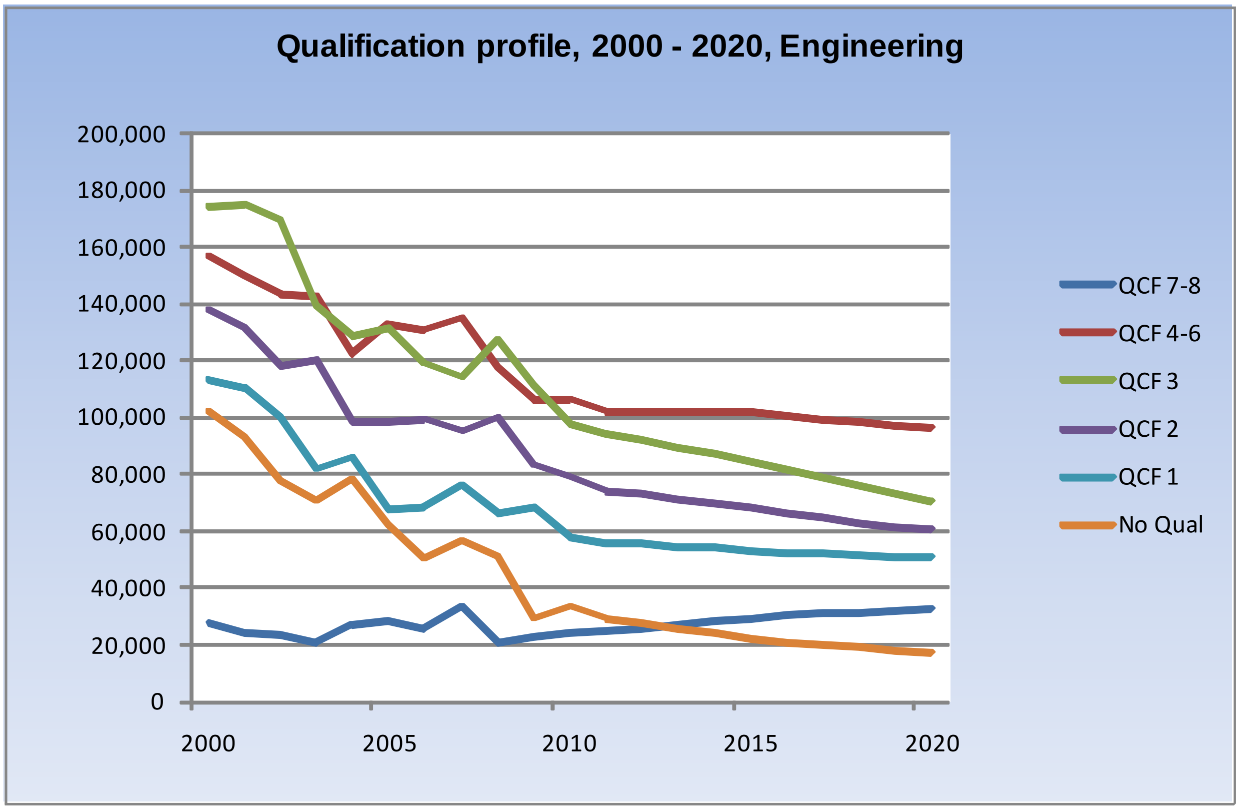
Figure 4.7: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 4.5: Implications for employment by qualification

United Kingdom : Engineering				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	24	9	33	9	18
QCF 4-6	106	-10	96	40	30
QCF 3	97	-27	71	37	10
QCF 2	79	-18	60	30	11
QCF 1	58	-7	51	22	15
No Qual	33	-16	17	13	-4
Total	397	-69	328	150	80
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	6.1	35.6	10.0	6.1	73.3
QCF 4-6	26.7	-9.2	29.3	26.7	28.4
QCF 3	24.5	-27.6	21.5	24.5	10.0
QCF 2	19.8	-23.4	18.4	19.8	14.2
QCF 1	14.5	-11.9	15.5	14.5	25.8
No Qual	8.4	-48.4	5.2	8.4	-10.8
Total	100.0	-17.5	100.0	100.0	20.2

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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5 Rest of manufacturing

5.1 Description of the industry

INDUSTRY 5: REST OF MANUFACTURING
SIC2007 headings: 13-25, 29-33

13: Textiles

14: Wearing apparel

15: Leather and related products

16: Wood and wood and cork products

17: Paper and paper products

18: Printing and reproduction of recorded media

19: Coke and refined petroleum products

20: Chemicals and chemical products

21: Pharmaceutical products

22: Rubber and plastic products

23: Other non-metallic mineral products

24: Basic metals

25: Metal products, except machinery and equipment

29: Motor vehicles, trailers and semi-trailers

30: Other transport equipment

31: Furniture

32: Other manufacturing

33: Repair and installation of machinery and equipment

INDUSTRY PROFILE		
		All industries
Share of UK Output (% 2010):	7.5	100.0
Exposure to International Trade:	high	average
Concentration (market share of largest employers):	medium	average
Total employment (2010):	1,719,097	30,458,094
Share of total employment (% 2010):	5.6	100.0
Gender split (male:female) (% 2010):	79:21	53:47
Part-time share (% 2010):	6.4	27.9
Self-employment share (% 2010):	9.3	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

5.2 Industry Commentary

Background

This industry group comprises a wide variety of activities, ranging from chemicals, textiles & clothing, manufacture of vehicles of various kinds, through to recycling activities.

In some high-value markets, UK producers still have a competitive advantage, but in many other parts employment has been in decline for many years.

Further trade liberalisation poses a further threat to this type of activity in the UK economy. Some firms are succeeding by exploiting low-volume, high-value niche markets. Innovation continues to drive parts of the industry forward.

5.3 Productivity and Output Trends

Output: The industry accounts for around 7½ per cent of total output.

Output levels in this group of industries fell significantly over the past decade.

Some recovery from recession is expected over the next few years but growth slows over the second half of the decade to 2 per cent per annum, in the face of stiff international competition.

Productivity: As producers continue to innovate and respond to intense international competition, productivity growth is projected to accelerate over the coming decade.

Employment: The industry's share of total employment is about 5½ per cent (around 1.7 million jobs).

In combination, steady output growth, coupled with continued, even more rapid productivity gains, results in the expected loss of a further 100,000 jobs lost over the coming decade.

5.4 Employment by Status and Gender

Females account for just over 1 in 5 of all jobs in this industry.

About 10 per cent of jobs are accounted for by self-employment.

Part-time employment accounts for a much smaller share of the total.

These patterns are not expected to change much over the coming decade.

5.5 Projections of Employment by Occupation

Key aspects of occupational structure

In 2010 skilled trades and plant & machine operatives in combination still account for almost half the jobs in this industry, with the former being the most important.

Managers, professional and associate professionals have seen some of the fastest growth in recent years.

Together these 3 occupations accounted for around a third of all jobs.

Future changes

Projected declines in employment are expected for skilled trades and process, plant & machine operatives and elementary occupations

The white collar groups, apart from administration & secretarial occupations, are projected to see rising employment levels and shares.

5.6 Replacement demands

Table 5.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Despite expected job losses in the industry, this does not mean there will not be a need to recruit some new workers.

Replacement demands are significant for many occupations in this industry. These are sufficient to generate a total industry requirement of almost half a million job openings.

The largest elements of replacement demand in absolute terms are for skilled trades and process, plant & machine operatives

Managers, professionals, associate professional administrative & secretarial occupations are also projected to see significant replacement demands.

5.7 Shift share analysis

Table 5.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect has generally played a major part in declining employment for most occupations.

In the 1990s, the industry effect resulted in a loss of over 20 per cent of all jobs. This played a major part in declining employment for all occupations in the industry.

Over the next decade, the industry effect was even more significant resulting in a rate of decline of more than 40 per cent.

Over the projection period, the negative industry effect is projected to fall back to slightly more than 10 per cent.

Skilled trades and process, plant & machine operatives are expected to experience especially significant negative occupational effects which reinforce these changes.

Otherwise the occupational effects are similar to those for all industries and services, over the projection period.

- Strong positive effects are projected for managerial, professional and associate professional occupations;
- there are significant negative effects for administrative & secretarial and elementary occupations

5.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

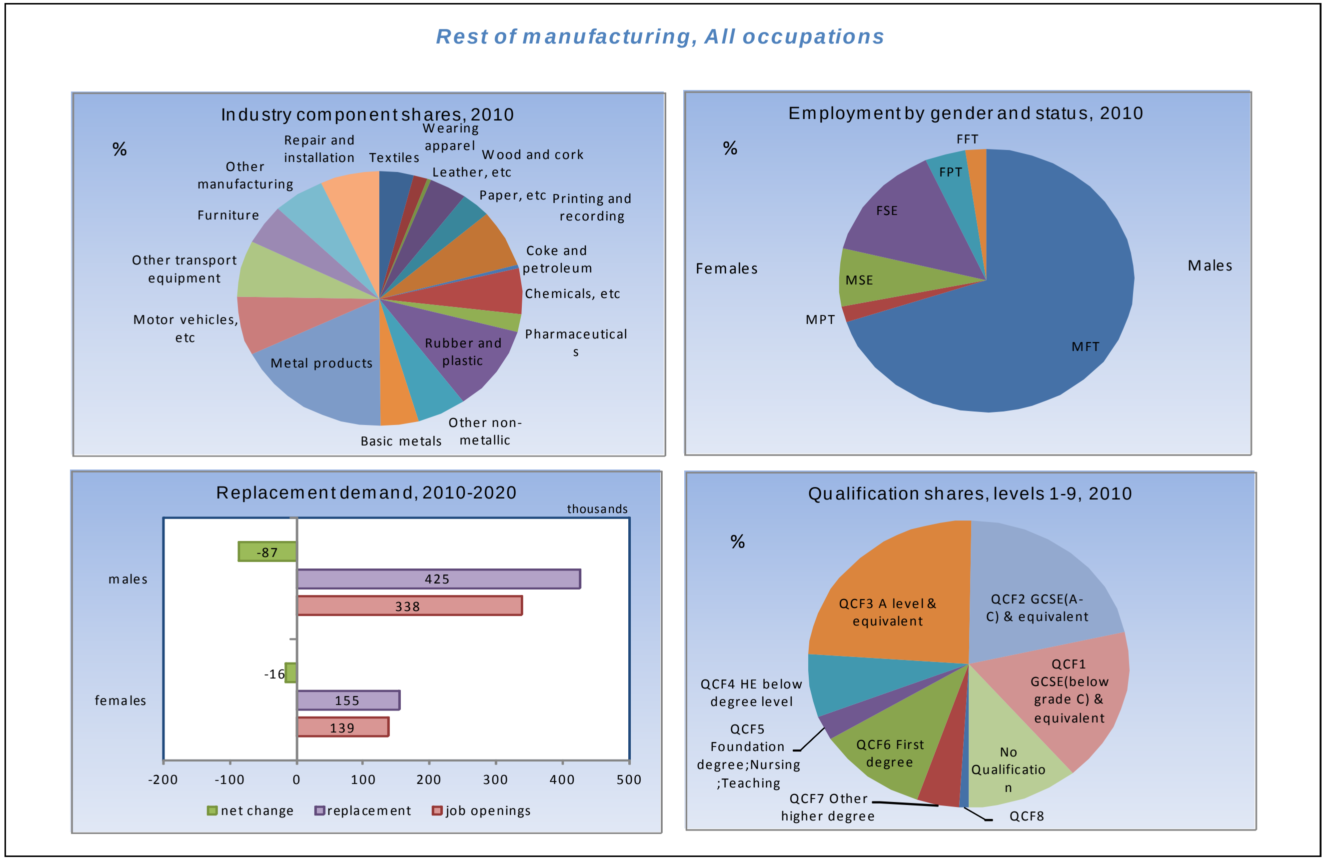
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure for the Rest of manufacturing favours those qualified at intermediate and higher levels.

Below 30 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1) while almost 45 per cent had intermediate qualifications and around 25 per cent had higher qualifications (QCF 4-8).

The shares of those qualified at higher levels are expected to increase to nearly 35 per cent by 2020 while those with intermediate qualifications remain reasonably stable. Those with low or no qualifications (QCF 0-1) are projected to fall below 25 per cent by 2020.

Figure 5.1: Rest of manufacturing – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], forecast C111

Table 5.1: Trends in Output, Productivity and Employment

Average change in the period

Rest of manufacturing Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	-0.7	-3.0	3.1	1.9
Employment (% pa)	-4.9	-4.3	-0.4	-0.9
(000s)	-613	-427	-32	-71
Productivity (% pa)	4.4	1.4	3.5	2.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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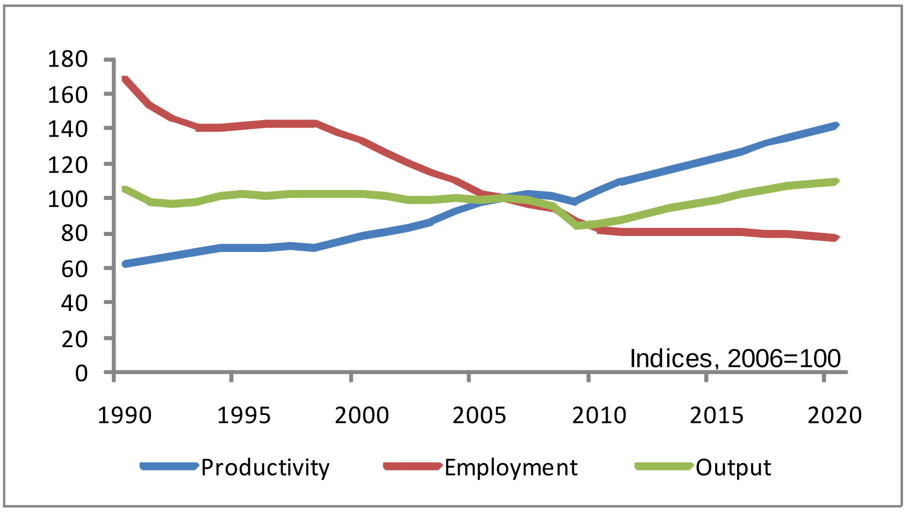
Figure 5.2: Output, productivity and employment in Rest of manufacturing



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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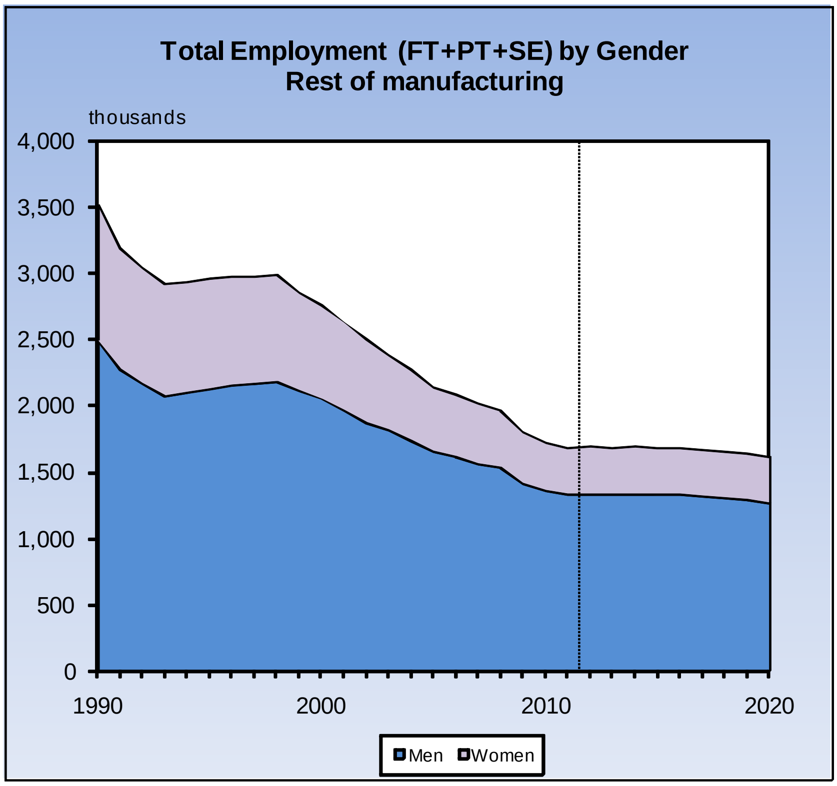
Figure 5.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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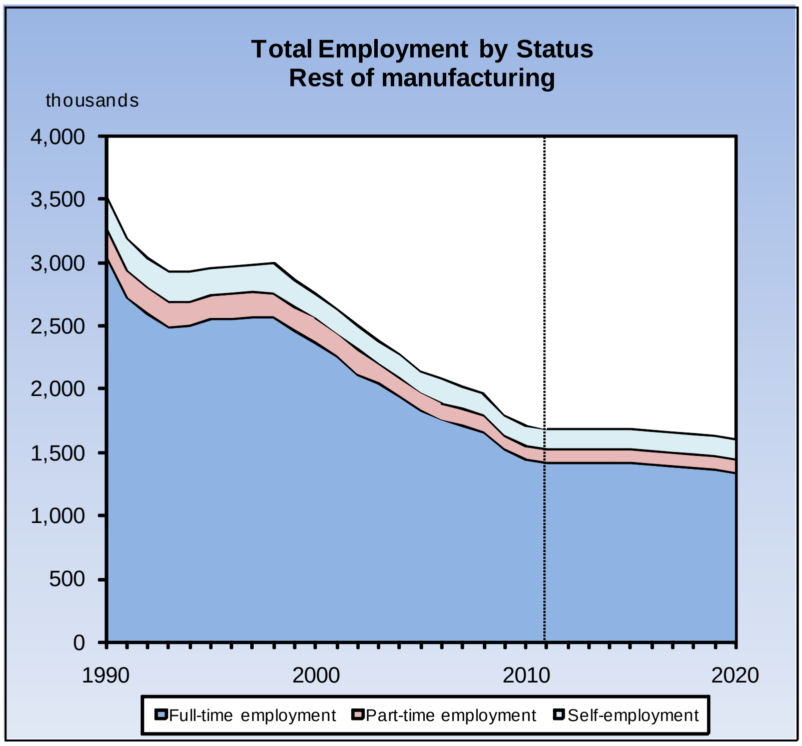
Figure 5.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 5.2: Employment by gender and status

	Employment Status				Rest of manufacturing							
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	000s	(% share)	000s	(% share)	000s	(% share)	000s	(% share)	2010-2015			
Male employment	1,202	(69.9)	32	(1.9)	122	(7.1)	1,356	(78.9)	-30	4	-1	-27
Female employment	247	(14.3)	78	(4.5)	38	(2.2)	363	(21.1)	-4	-2	1	-5
Total employment	1,449	(84.3)	110	(6.4)	160	(9.3)	1,719	(100)	-34	2	0	-32
2015									2015-2020			
Male employment	1,172	(69.5)	36	(2.2)	121	(7.2)	1,329	(78.8)	-61	3	-3	-60
Female employment	242	(14.4)	75	(4.5)	39	(2.3)	357	(21.2)	-9	-2	1	-10
Total employment	1,415	(83.9)	112	(6.6)	160	(9.5)	1,687	(100)	-70	0	-1	-71
2020									2010-2020			
Male employment	1,111	(68.8)	39	(2.4)	118	(7.3)	1,269	(78.5)	-91	7	-3	-87
Female employment	233	(14.4)	73	(4.5)	41	(2.5)	347	(21.5)	-13	-5	2	-16
Total employment	1,345	(83.2)	112	(6.9)	159	(9.8)	1,616	(100)	-104	2	-1	-103

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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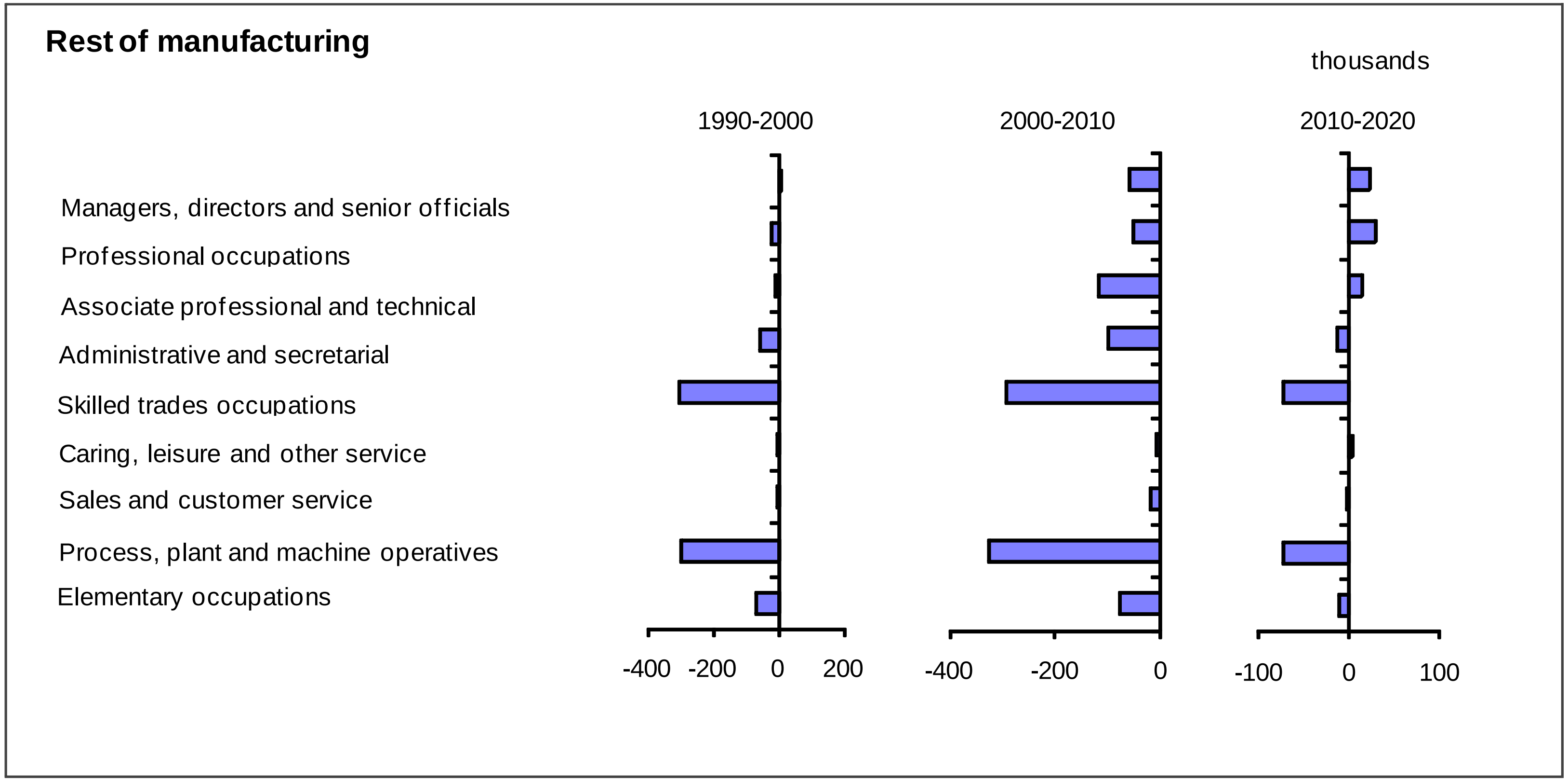
Table 5.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Rest of manufacturing						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	238	241	183	199	206	23	76	99
2. Professional occupations	292	271	221	239	251	30	79	108
3. Associate professional and technical	323	310	195	204	209	14	71	85
4. Administrative and secretarial	290	231	133	127	119	-14	59	45
5. Skilled trades occupations	1,091	783	490	459	418	-72	184	112
6. Caring, leisure and other service	23	22	14	17	18	3	6	9
7. Sales and customer service	70	68	49	48	46	-3	16	13
8. Process, plant and machine operatives	942	645	320	286	246	-73	125	52
9. Elementary occupations	259	188	114	109	102	-11	41	30
Total	3,528	2,759	1,719	1,687	1,616	-103	656	553
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	6.8	8.7	10.7	11.8	12.7	12.4	41.6	54.0
2. Professional occupations	8.3	9.8	12.9	14.2	15.5	13.5	35.6	49.1
3. Associate professional and technical	9.2	11.3	11.3	12.1	12.9	7.3	36.3	43.6
4. Administrative and secretarial	8.2	8.4	7.8	7.5	7.4	-10.6	44.6	34.0
5. Skilled trades occupations	30.9	28.4	28.5	27.2	25.9	-14.6	37.5	22.9
6. Caring, leisure and other service	0.6	0.8	0.8	1.0	1.1	24.0	40.6	64.6
7. Sales and customer service	2.0	2.5	2.9	2.8	2.9	-5.8	32.5	26.8
8. Process, plant and machine operatives	26.7	23.4	18.6	17.0	15.2	-23.0	39.1	16.1
9. Elementary occupations	7.3	6.8	6.6	6.5	6.3	-10.0	36.0	26.0
Total	100.0	100.0	100.0	100.0	100.0	-6.0	38.2	32.2

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 5.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 5.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**
1. Managers, directors and senior officials	3	4	-55	55	-58	10	-101	33	23	9	-20	34
2. Professional occupations	-21	4	-68	43	-50	12	-114	52	30	11	-25	43
3. Associate professional and technical	-13	5	-75	58	-116	13	-130	1	14	10	-22	26
4. Administrative and secretarial	-59	4	-67	4	-97	10	-97	-10	-14	7	-15	-6
5. Skilled trades occupations	-308	16	-254	-70	-293	34	-329	2	-72	25	-54	-42
6. Caring, leisure and other service	-1	0	-5	4	-7	1	-9	1	3	1	-2	4
7. Sales and customer service	-2	1	-16	13	-19	3	-29	7	-3	3	-5	0
8. Process, plant and machine operatives	-297	14	-219	-92	-325	28	-271	-82	-73	16	-35	-54
9. Elementary occupations	-71	4	-60	-14	-75	8	-79	-4	-11	6	-13	-5
Total	-769	52	-821	0	-1,040	120	-1,159	0	-103	87	-191	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	1.2	1.5	-23.3	23.0	-23.9	4.3	-42.0	13.7	12.4	5.1	-11.1	18.4
2. Professional occupations	-7.2	1.5	-23.3	14.6	-18.4	4.3	-42.0	19.3	13.5	5.1	-11.1	19.5
3. Associate professional and technical	-3.9	1.5	-23.3	17.8	-37.3	4.3	-42.0	0.3	7.3	5.1	-11.1	13.3
4. Administrative and secretarial	-20.5	1.5	-23.3	1.3	-42.2	4.3	-42.0	-4.5	-10.6	5.1	-11.1	-4.6
5. Skilled trades occupations	-28.2	1.5	-23.3	-6.4	-37.5	4.3	-42.0	0.2	-14.6	5.1	-11.1	-8.6
6. Caring, leisure and other service	-2.9	1.5	-23.3	18.9	-34.2	4.3	-42.0	3.5	24.0	5.1	-11.1	30.0
7. Sales and customer service	-3.1	1.5	-23.3	18.7	-27.3	4.3	-42.0	10.4	-5.8	5.1	-11.1	0.2
8. Process, plant and machine operatives	-31.5	1.5	-23.3	-9.7	-50.4	4.3	-42.0	-12.7	-23.0	5.1	-11.1	-17.0
9. Elementary occupations	-27.4	1.5	-23.3	-5.6	-39.6	4.3	-42.0	-1.9	-10.0	5.1	-11.1	-4.0
Total	-21.8	1.5	-23.3	0.0	-37.7	4.3	-42.0	0.0	-6.0	5.1	-11.1	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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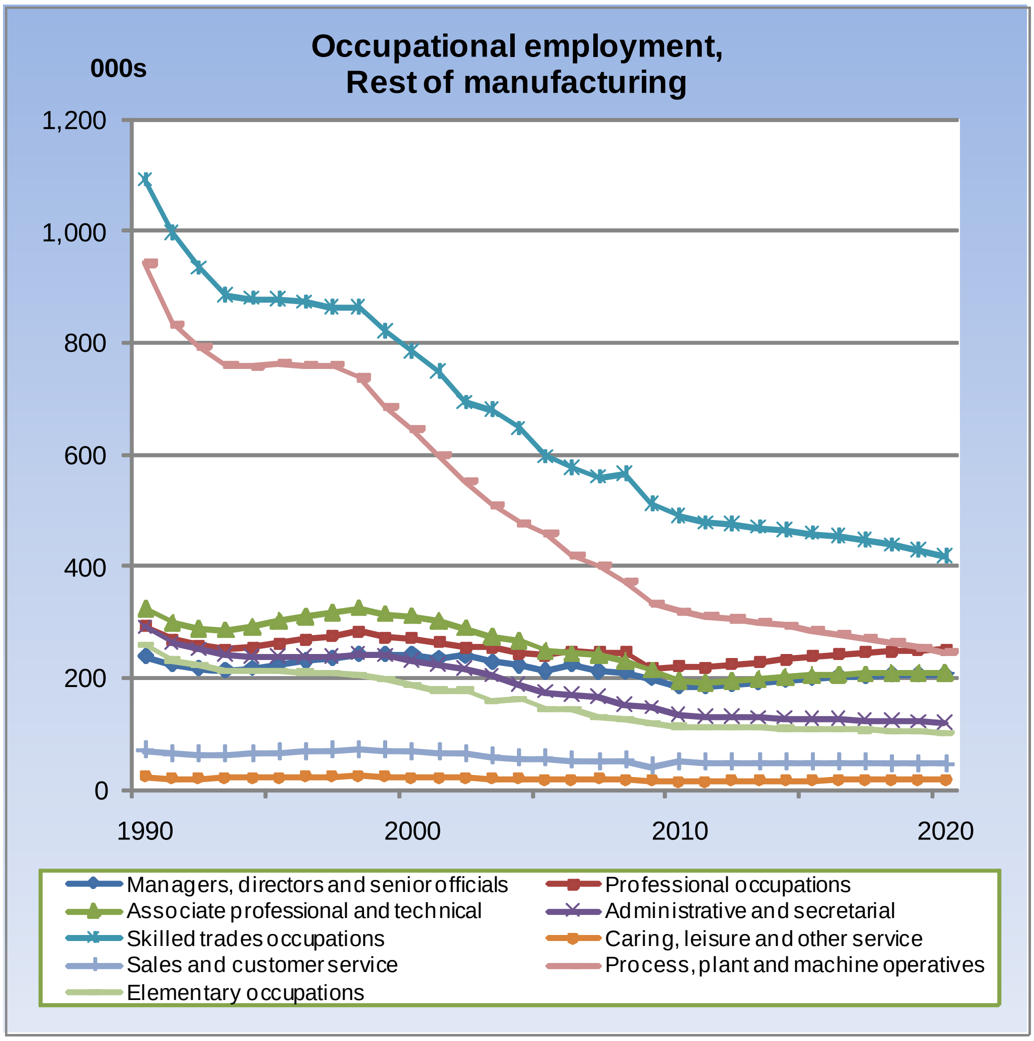
Figure 5.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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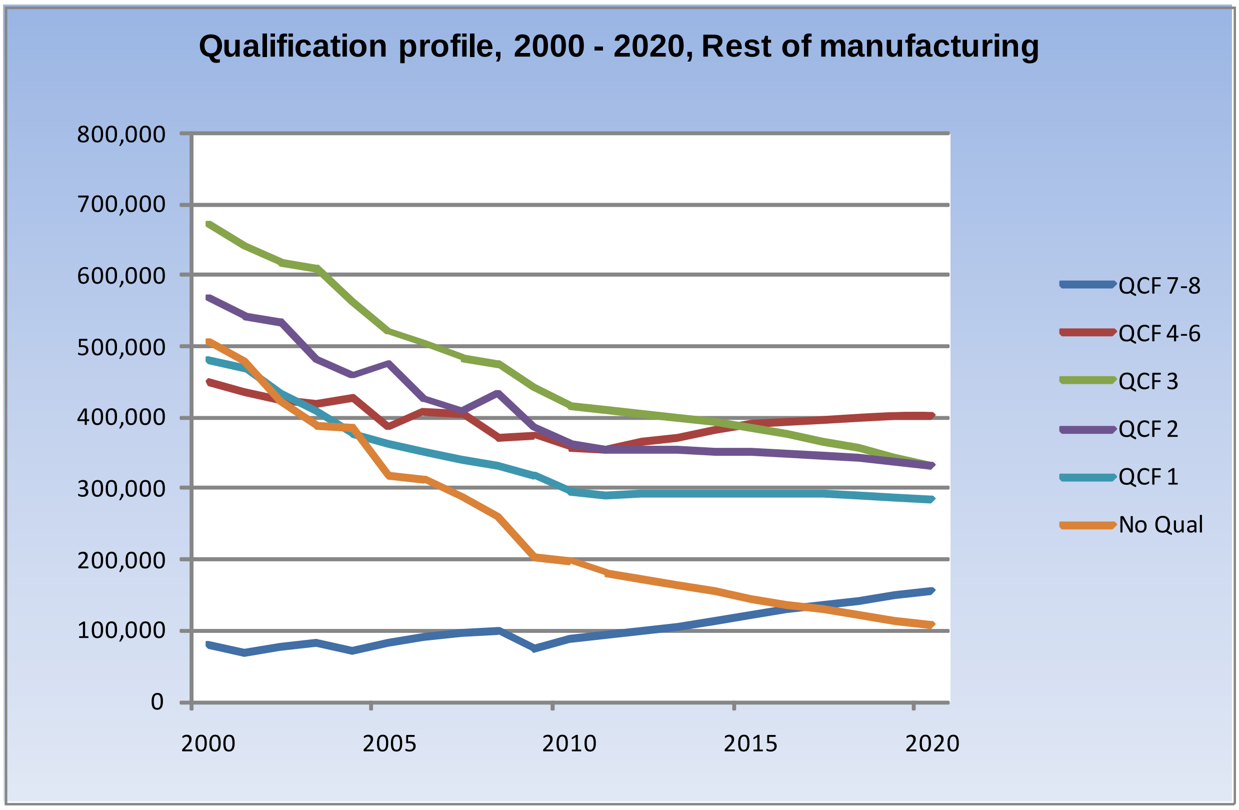
Figure 5.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 5.5: Implications for employment by qualification

United Kingdom : Rest of manufacturing			000s		
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	88	66	155	34	100
QCF 4-6	359	45	403	137	182
QCF 3	416	-84	332	159	75
QCF 2	364	-30	333	139	109
QCF 1	295	-10	285	113	103
No Qual	197	-90	108	75	-14
Total	1,719	-103	1,616	657	553
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	5.1	74.9	9.6	5.1	113.1
QCF 4-6	20.9	12.4	25.0	20.9	50.6
QCF 3	24.2	-20.2	20.5	24.2	18.0
QCF 2	21.2	-8.3	20.6	21.2	29.9
QCF 1	17.2	-3.4	17.6	17.2	34.8
No Qual	11.5	-45.5	6.7	11.5	-7.3
Total	100.0	-6.0	100.0	100.0	32.2

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

6 Electricity and gas

6.1 Description of the industry

INDUSTRY 5: ELECTRICITY AND GAS
SIC2007 headings: 35

35:Electricity, gas, steam and air conditioning supply

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	1.5	100.0
Exposure to International Trade:	high	average
Concentration (market share of largest employers):	medium	average
Total employment (2010):	99,300	30,458,094
Share of total employment (% 2010):	0.3	100.0
Gender split (male:female) (% 2010):	75:25	53:47
Part-time share (% 2010):	8.0	27.9
Self-employment share (% 2010):	10.7	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.
Note: Concentration levels are measured by a ratio is based on 5-firm ratios: very low < 15 per cent; low 15-30 per cent; medium 31-55 per cent; high 56-70 per cent; very high > 70 per cent, using statistics based on 2008 data. The value for electricity is medium that for gas is very high.

6.2 Industry Commentary

Background

The energy supply industries make up just a small part of the economy in employment terms.

Since the privatisation of the industry in the 1990s, the nature of the sector has changed dramatically, and there have been very significant declines in employment levels.

Competitive and regulatory pressures have forced reorganisation and the reduction of workforces along with greater expectations of staff performance.

6.3 Productivity and Output Trends

Output: The industry currently accounts for around 1½ per cent of total output.

Output levels in this group of industries fell fairly significantly over the second part of the decade as the economy turned down.

Some recovery from recession is expected over the next few years, but only modest growth in output is projected of around 1 per cent per annum.

Productivity: Following the restructuring post-after privatisation, employment fell rapidly and productivity ramped up.

Since then productivity growth has been more modest and it actually fell quite significantly over the past 5 years, as output levels collapsed without a similar cut back in employment.

Further growth in productivity is projected as the search for further efficiency gains and cost savings continue.

Employment: The industry's share of total employment is tiny with only around 100,000 jobs in total.

In combination, steady output growth, coupled with continued productivity gains, are projected to see further job losses over the coming decade

6.4 Employment by Status and Gender

These industries are still a predominantly male dominated area. Men account for 3 out of every 4 jobs.

About 10 per cent of jobs are accounted for by self-employment.

Part-time employment accounts for a slightly smaller share.

These patterns are not expected to change very much over the coming decade.

Male jobs have borne the brunt of job losses and this pattern is expected to continue over the coming decade.

Self-employment and part-time shares will remain relatively small.

6.5 Projections of Employment by Occupation

Key aspects of occupational structure

Professional occupations and skilled trades are the most important occupations in the industry numerically, each accounting for about 1 in 5 jobs.

Sales & customer service occupations account for about 3 in 20 jobs.

Future changes

Employment is projected to decline for almost all occupations but the main burden of jobs losses falls upon administrative & secretarial, skilled trades and process, plant & machine operatives.

Occupations such as the managerial, professional and associate professional groups are projected to increase their shares of a declining total number of jobs.

6.6 Replacement demands

Table 6.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Despite expected job losses in the industry, this does not mean there will not be a need to recruit some new workers.

Replacement demands are significant for many occupations in this industry. These are sufficient to generate a total industry requirement of over 30,000 job openings.

The largest elements of replacement demand in absolute terms are for white collar groups such as managers, professionals, associate professional and administrative & secretarial occupations.

6.7 Shift share analysis

Table 6.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The industry effect demonstrates the impact of the overall decline or growth of this particular industry over the various sub-periods covered. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

For this group of industries the industry effect played a major part in declining employment for all occupations in the 1990s but this become a much less significant feature in the last decade.

Over the projection period, the industry effect is projected to result in a general employment decline of just under 20 per cent.

Over the coming decade the occupational effects are broadly in line with those across all industries

Skilled trades and process, plant & machine operatives are projected to experience especially rapid job losses.

6.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

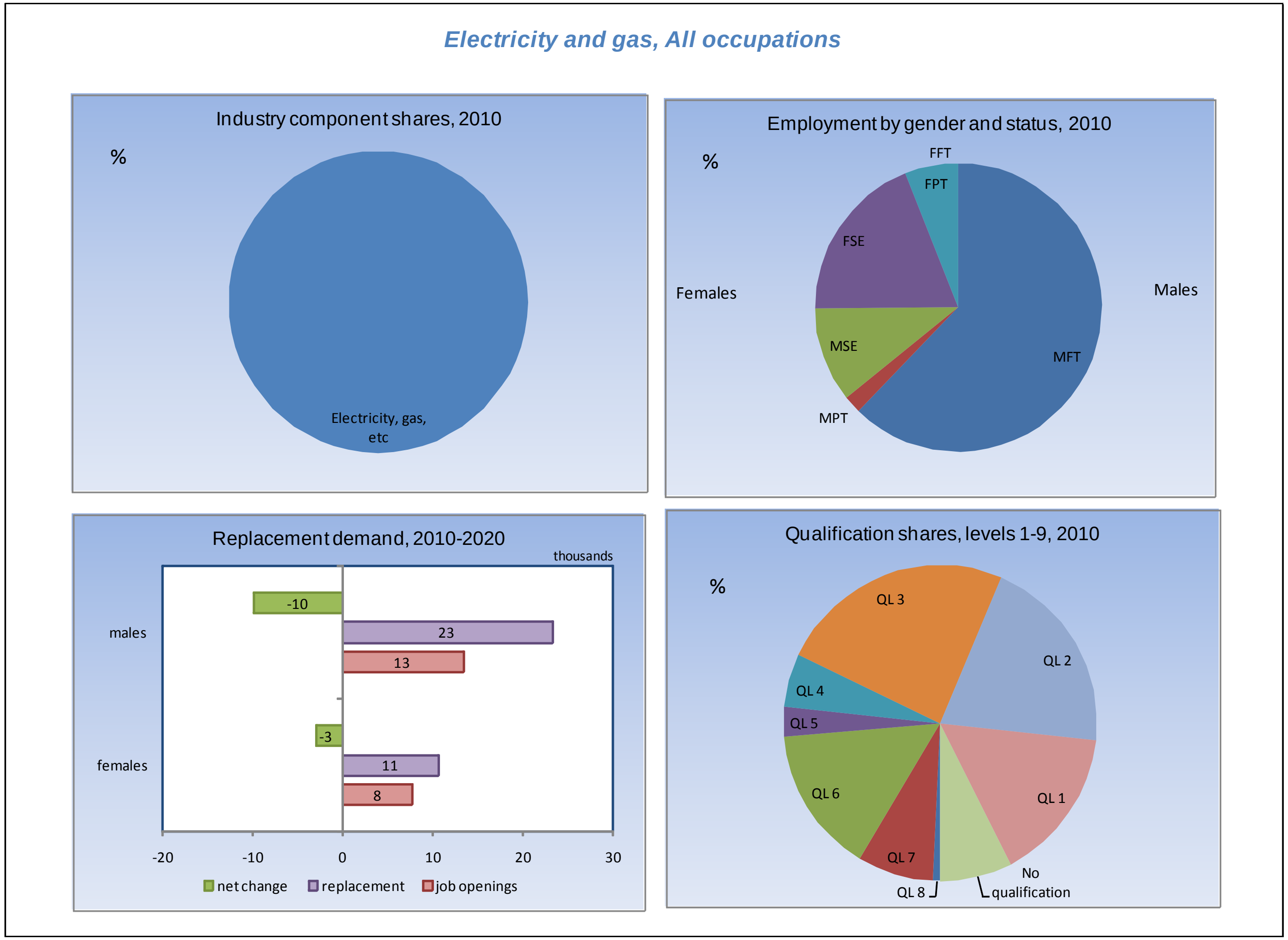
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

This industry's occupational structure favours those qualified at intermediate and higher levels.

Only around 15 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1) while 45 per cent had intermediate qualifications (QCF 2 and 3). Nearly 40 per cent had higher qualifications (QCF 4-8).

The shares of those qualified at higher levels are expected to increase slightly by 2020. Because the largest job losses are expected to take place amongst skilled trades and administrative & secretarial occupations the share of those with intermediate qualifications is likely to fall. Those with low or no qualifications (QCF 0-1) are expected to increase a little, counter to the general trend.

Figure 6.1: Electricity and gas – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 6.1: Trends in Output, Productivity and Employment

Average change in the period

Electricity & gas Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	1.5	-1.3	0.8	1.1
Employment (% pa)	-5.1	6.4	0.8	-3.5
(000s)	-22	26	4	-17
Productivity (% pa)	7.0	-7.2	0.0	4.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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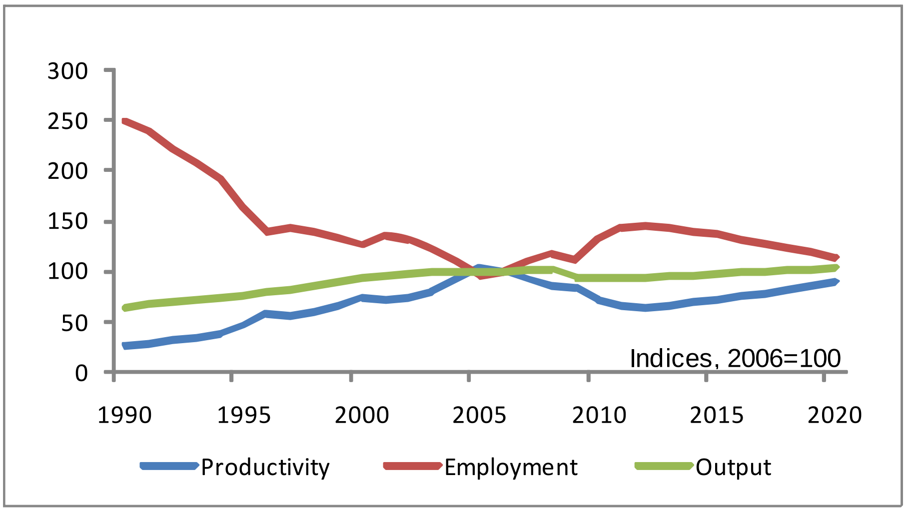
Figure 6.2: Output, productivity and employment in Electricity and gas



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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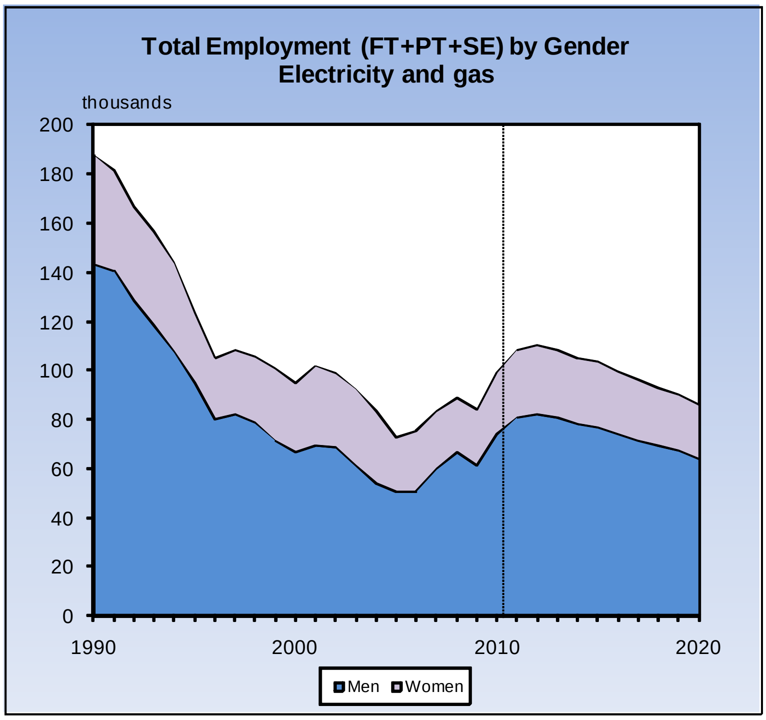
Figure 6.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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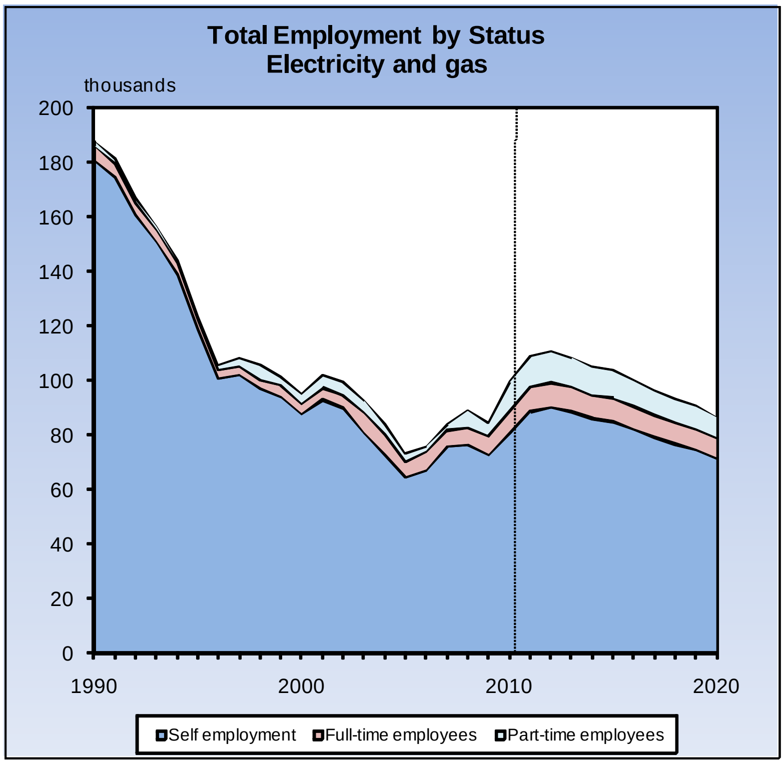
Figure 6.4: Employment by status ....



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], forecast C111

Table 6.2: Employment by gender and status

	Employment Status				Electricity and gas							
									Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**		**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	62	(62.2)	2	(1.9)	11	(10.7)	74	(74.8)	4	0	-1	3
Female employment	19	(19.1)	6	(6)	0	(0)	25	(25.2)	1	1	0	1
Total employment	81	(81.3)	8	(8)	11	(10.7)	99	(100)	4	0	-1	4
2015									**2015-2020**			
Male employment	65	(63.1)	2	(1.7)	10	(9.7)	77	(74.6)	-10	0	-2	-13
Female employment	20	(19)	7	(6.4)	0	(0)	26	(25.4)	-3	-1	0	-4
Total employment	85	(82.1)	8	(8.1)	10	(9.8)	104	(100)	-13	-1	-2	-17
2020									**2010-2020**			
Male employment	55	(63.9)	1	(1.5)	8	(9)	64	(74.4)	-6	-1	-3	-10
Female employment	16	(18.8)	6	(6.7)	0	(0)	22	(25.6)	-3	0	0	-3
Total employment	72	(82.7)	7	(8.2)	8	(9)	87	(100)	-9	-1	-3	-13

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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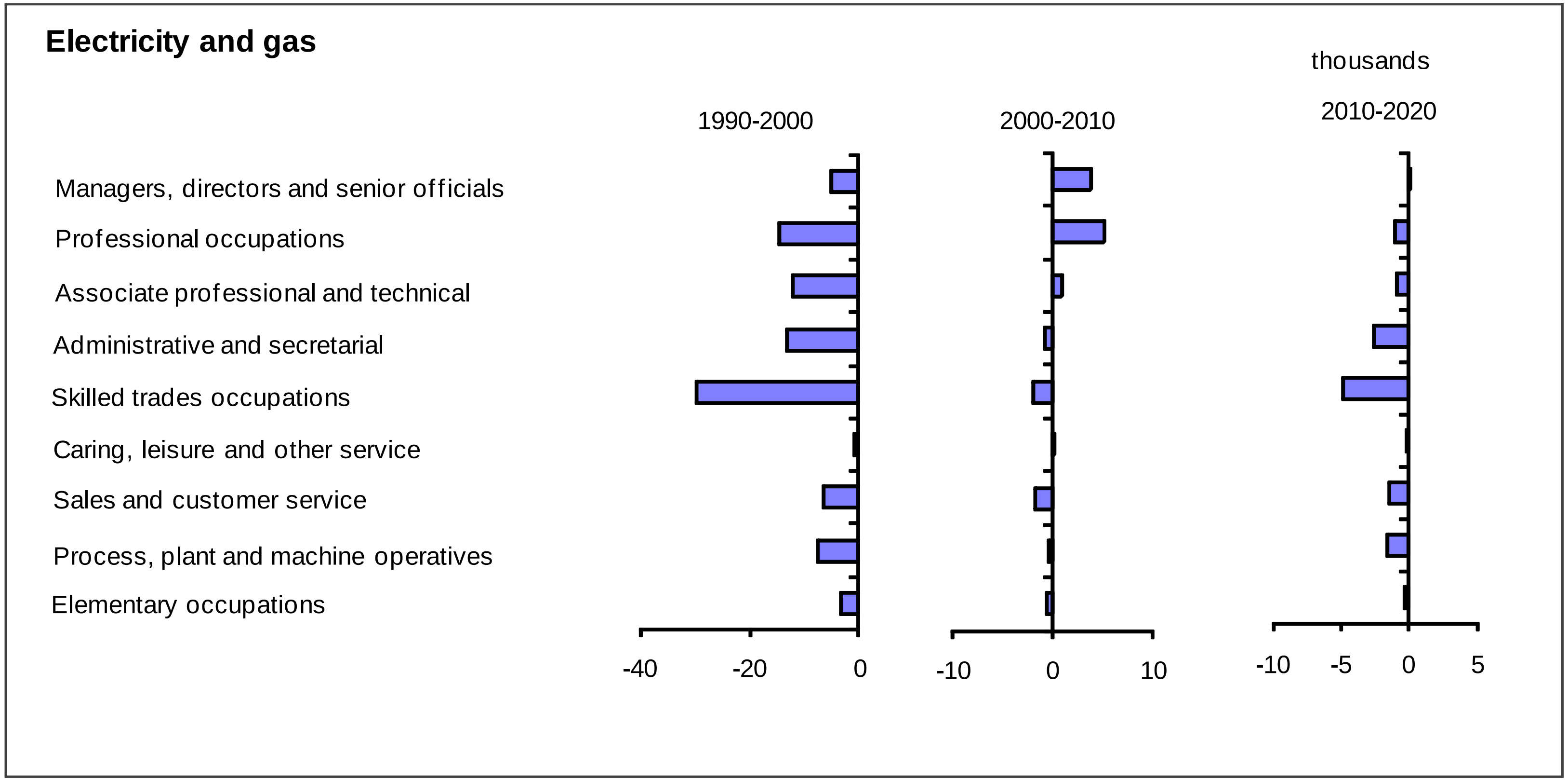
Table 6.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Electricity and gas						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	12	7	10	12	11	0	4	4
2. Professional occupations	30	16	21	23	20	-1	7	6
3. Associate professional and technical	25	13	14	15	13	-1	5	4
4. Administrative and secretarial	25	12	11	11	8	-3	5	2
5. Skilled trades occupations	52	22	20	20	15	-5	8	3
6. Caring, leisure and other service	3	2	2	2	2	0	1	1
7. Sales and customer service	22	15	13	14	12	-2	4	3
8. Process, plant and machine operatives	14	6	6	5	4	-2	2	1
9. Elementary occupations	6	3	2	2	2	0	1	0
Total	188	95	99	104	87	-13	37	24
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	6.2	7.0	10.6	11.4	12.1	0.3	42.0	42.3
2. Professional occupations	16.1	16.6	21.1	22.0	23.1	-4.8	34.9	30.1
3. Associate professional and technical	13.6	13.9	14.2	14.7	15.2	-6.8	35.3	28.6
4. Administrative and secretarial	13.2	12.3	11.0	10.4	9.6	-23.5	44.2	20.7
5. Skilled trades occupations	27.7	23.4	20.4	19.1	17.9	-23.9	37.4	13.5
6. Caring, leisure and other service	1.4	1.8	1.8	1.9	2.0	-1.7	42.1	40.4
7. Sales and customer service	11.5	15.8	13.3	13.4	13.5	-11.4	31.9	20.4
8. Process, plant and machine operatives	7.3	6.3	5.7	5.2	4.7	-27.4	39.1	11.7
9. Elementary occupations	3.0	2.7	1.9	1.9	1.8	-18.0	36.8	18.8
Total	100.0	100.0	100.0	100.0	100.0	-12.8	37.3	24.4

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 6.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 6.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	-5	0	-6	1	4	0	0	3	0	1	-2	1
2. Professional occupations	-15	0	-15	0	5	1	0	4	-1	1	-4	2
3. Associate professional and technical	-12	0	-13	0	1	1	0	0	-1	1	-3	1
4. Administrative and secretarial	-13	0	-13	-1	-1	1	0	-1	-3	1	-2	-1
5. Skilled trades occupations	-30	1	-27	-4	-2	1	0	-3	-5	1	-4	-2
6. Caring, leisure and other service	-1	0	-1	0	0	0	0	0	0	0	0	0
7. Sales and customer service	-7	0	-11	4	-2	1	0	-3	-2	1	-2	0
8. Process, plant and machine operatives	-8	0	-7	-1	0	0	0	-1	-2	0	-1	-1
9. Elementary occupations	-3	0	-3	0	-1	0	0	-1	0	0	0	0
Total	-93	3	-96	0	4	4	0	0	-13	5	-18	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	-42.6	1.5	-51.0	7.0	57.0	4.3	0.4	52.2	0.3	5.1	-17.9	13.1
2. Professional occupations	-47.9	1.5	-51.0	1.6	33.2	4.3	0.4	28.4	-4.8	5.1	-17.9	8.0
3. Associate professional and technical	-48.1	1.5	-51.0	1.4	7.0	4.3	0.4	2.2	-6.8	5.1	-17.9	6.1
4. Administrative and secretarial	-52.9	1.5	-51.0	-3.3	-6.9	4.3	0.4	-11.6	-23.5	5.1	-17.9	-10.6
5. Skilled trades occupations	-57.4	1.5	-51.0	-7.8	-8.6	4.3	0.4	-13.4	-23.9	5.1	-17.9	-11.0
6. Caring, leisure and other service	-34.9	1.5	-51.0	14.7	5.3	4.3	0.4	0.6	-1.7	5.1	-17.9	11.2
7. Sales and customer service	-30.5	1.5	-51.0	19.1	-12.0	4.3	0.4	-16.8	-11.4	5.1	-17.9	1.4
8. Process, plant and machine operatives	-56.3	1.5	-51.0	-6.7	-6.3	4.3	0.4	-11.0	-27.4	5.1	-17.9	-14.5
9. Elementary occupations	-55.5	1.5	-51.0	-5.9	-25.5	4.3	0.4	-30.3	-18.0	5.1	-17.9	-5.2
Total	-49.6	1.5	-51.0	0.0	4.7	4.3	0.4	0.0	-12.8	5.1	-17.9	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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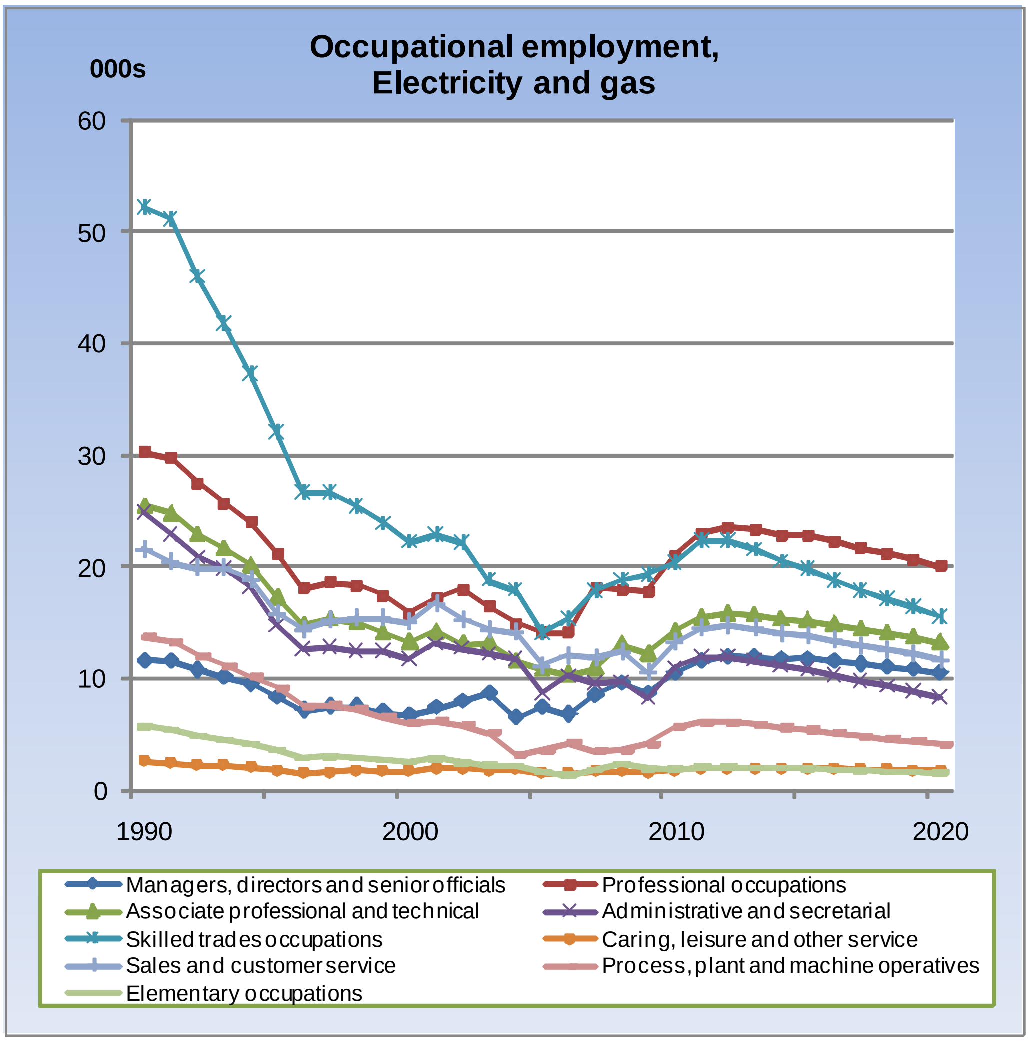
Figure 6.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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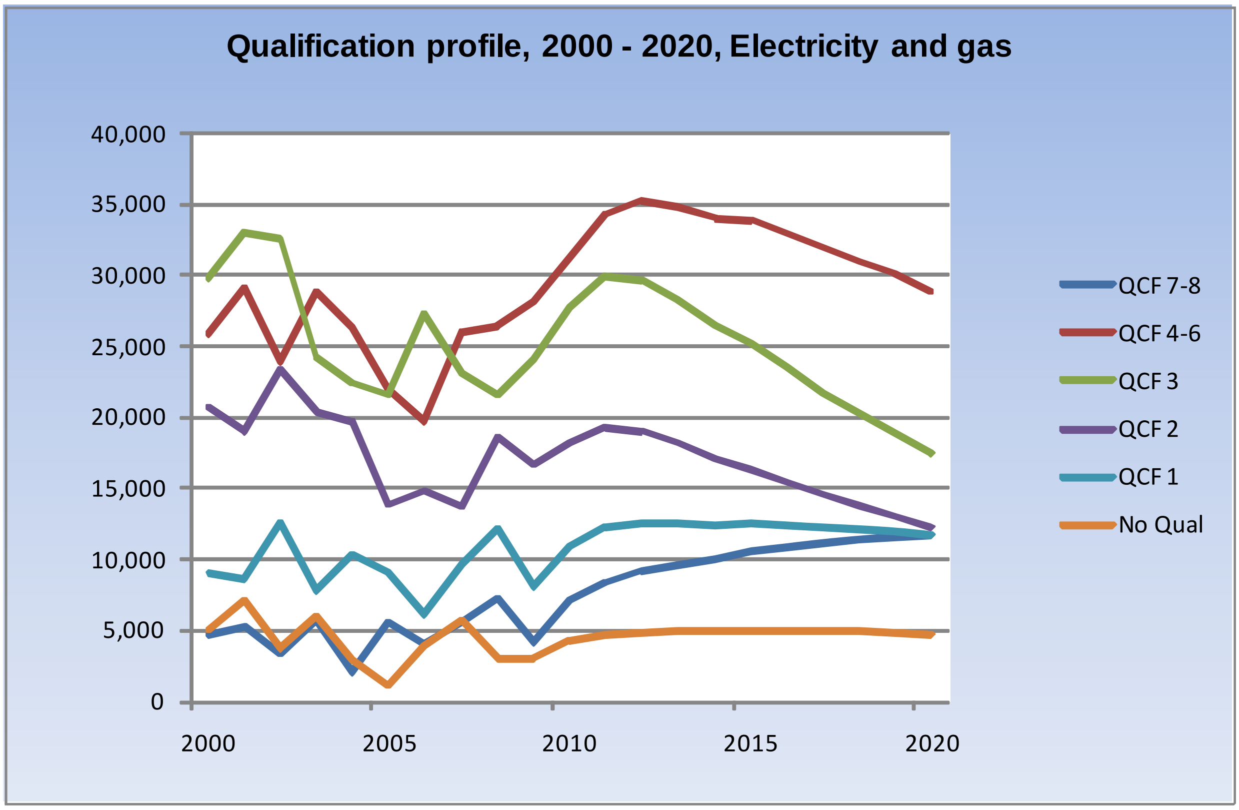
Figure 6.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 6.5: Implications for employment by qualification

United Kingdom : Electricity and gas				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	7	4	12	3	7
QCF 4-6	31	-2	29	12	9
QCF 3	28	-10	17	10	0
QCF 2	18	-6	12	7	1
QCF 1	11	1	12	4	5
No Qual	4	0	5	2	2
Total	99	-13	87	37	24
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	7.2	62.8	13.4	7.2	100.1
QCF 4-6	31.4	-7.4	33.3	31.4	29.8
QCF 3	27.8	-37.0	20.1	27.8	0.3
QCF 2	18.3	-32.5	14.2	18.3	4.8
QCF 1	11.0	7.0	13.5	11.0	44.2
No Qual	4.4	9.9	5.5	4.4	47.2
Total	100.0	-12.8	100.0	100.0	24.4

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

7 Water and sewerage

7.1 Description of the industry

INDUSTRY 7: WATER AND SEWERAGE

SIC2007 headings: 36-39

36: Water collection, treatment and supply

37: Sewerage

38-39: Waste and waste management services

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	0.9	100.0
Exposure to International Trade:	medium	average
Concentration (market share of largest employers):	medium	average
Total employment (2010):	157,732	30,458,094
Share of total employment (% 2010):	0.5	100.0
Gender split (male:female) (% 2010):	76:24	53:47
Part-time share (% 2010):	12.0	27.9
Self-employment share (% 2010):	6.7	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

7.2 Industry Commentary

Background

Water and Sewerage is another industry that has been transformed by privatisation.

In employment terms it is now quite small.

The water industry plays a leading role in sustaining the UK economy, especially the agricultural and domestic sectors. As well as supplying water it also collects and deals with waste disposal.

7.3 Productivity and Output Trends

Output: The industry now accounts for just 0.9 per cent of total output.

Output levels in this group of industries fell very significantly over the second part of the decade, partly as a consequence of natural disasters, such as the 2007 floods, as well as the recession.

Some recovery from recession is expected over the next few years and output is expected to improve in real terms over the second half of the coming decade.

Productivity: Following the restructuring post-privatisation, employment fell rapidly and productivity ramped up. Since then productivity growth has been more modest and it fell quite significantly over the past 5 years, as output levels collapsed without a similar cut back in employment.

Only very modest growth in productivity is projected for the coming decade.

Employment: The industry's share of total employment is tiny (just ½ per cent) with only around 160,000 jobs in total.

A small increase in employment is projected over the coming decade.

7.4 Employment by Status and Gender

Jobs in these industries are predominantly male, although this is changing slowly. Currently males account for 3 out of every 4 jobs.

Fewer than 1 in 10 jobs are accounted for by self-employment.

Part-time employment accounts for a larger and rising share.

7.5 Projections of Employment by Occupation

Key aspects of occupational structure

Process, plant & machine operatives and elementary occupations account for the largest numbers of jobs in the industry numerically, (about 1 in 5 jobs each).

Managers, professionals and associate professionals as well as administrative & secretarial occupations each account for around 1 in 10 jobs.

Future changes

These employment patterns levels are not projected to change very dramatically.

7.6 Replacement demands

Table 7.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Replacement demands are significant for many occupations in this industry. These are sufficient to generate a total industry requirement of over 30,000 job openings.

The largest elements of replacement demand in absolute terms are for white collar groups such as managers, professionals, associate professional and administrative & secretarial occupations and for the two less skilled blue collar groups process, plant & machine operative and elementary occupations.

7.7 Shift share analysis

Table 7.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The industry effect demonstrates the impact of the overall decline or growth of this particular industry over the various sub-periods covered. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

For this group of industries the industry effect played a major part in declining employment for all occupations in the 1990s but this became much less significant in the last decade. Over the projection period, the industry effect is projected to turn positive.

Over the coming decade the occupational effects are broadly in line with those across all industries.

7.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

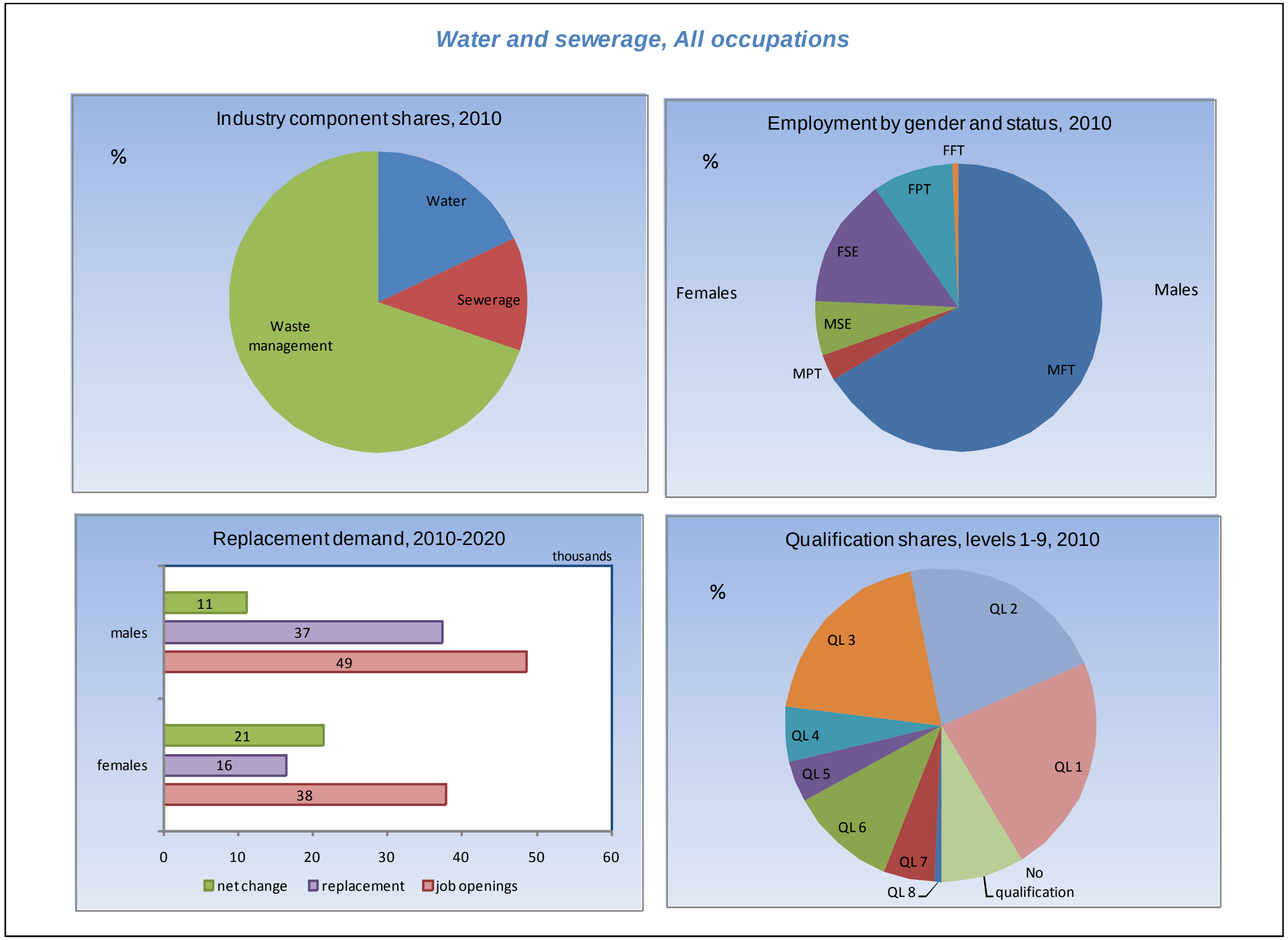
This industry's occupational structure favours those qualified at intermediate and lower levels.

Around 35 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1). A similar proportion had qualifications at QCF levels 2 and 3.

However, the shares of those qualified at higher levels are rising in line with the general trend. They are projected to account for almost 30 per cent of total employment by 2020.

In contrast, the share of those with low or no qualifications (QCF 0-1) are projected to fall, and in combination will account for only a third of all jobs by 2020. The shares of those with intermediate qualifications are expected to remain fairly constant.

Figure 7.1: Water and sewerage – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 7.1: Trends in Output, Productivity and Employment

Average change in the period

Water & sewerage Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	-0.2	-9.5	-1.0	2.7
Employment (% pa)	-0.4	0.4	1.8	2.0
(000s)	-3	3	14	18
Productivity (% pa)	0.2	-9.9	-2.7	0.6

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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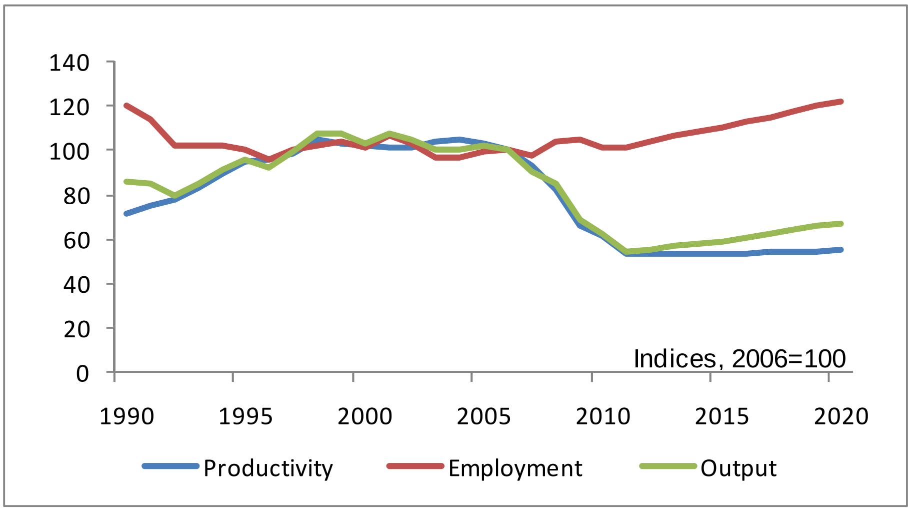
Figure 7.2: Output, productivity and employment in Water and sewerage



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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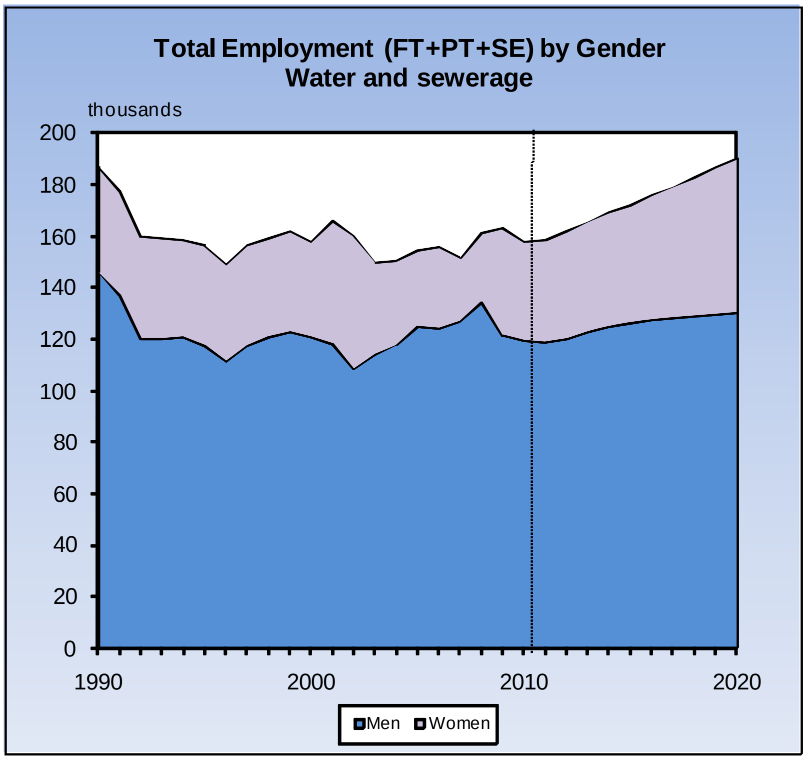
Note: The sharp decline in output (and productivity in this industry over the past decade rteflects the historical data in the Waste management sector.

Figure 7.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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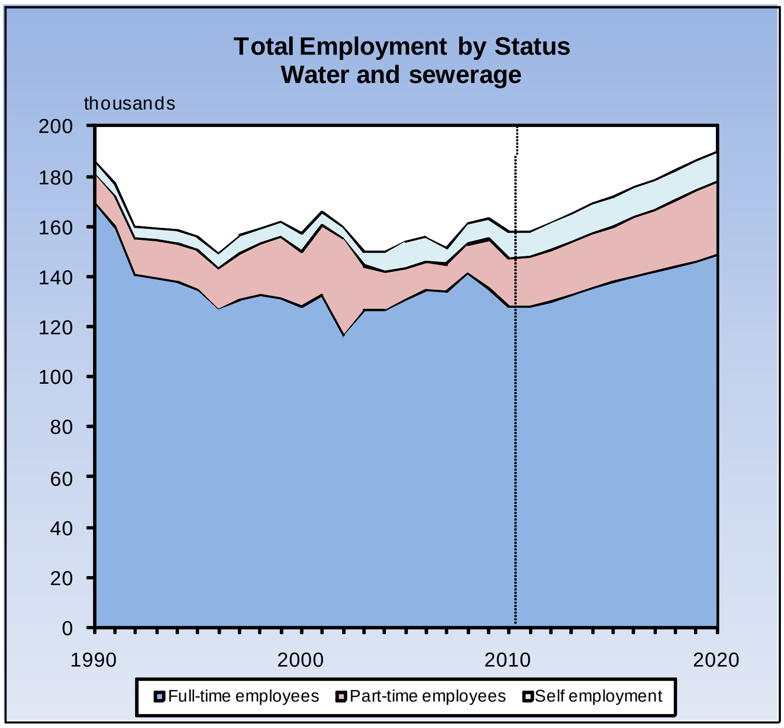
Figure 7.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 7.2: Employment by gender and status

	Employment Status				Water and sewerage							
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	105	(66.7)	5	(2.9)	9	(6)	119	(75.6)	5	1	1	7
Female employment	23	(14.6)	14	(9.1)	1	(0.6)	38	(24.4)	5	3	0	7
Total employment	128	(81.3)	19	(12)	11	(6.7)	158	(100)	10	3	1	14
2015									**2015-2020**			
Male employment	110	(64)	5	(3)	11	(6.4)	126	(73.4)	3	1	0	4
Female employment	28	(16.1)	17	(9.9)	1	(0.6)	46	(26.6)	8	6	0	14
Total employment	138	(80.1)	22	(12.9)	12	(7)	172	(100)	11	7	0	18
2020									**2010-2020**			
Male employment	113	(59.6)	6	(3)	11	(6)	130	(68.6)	8	1	2	11
Female employment	35	(18.6)	23	(12.3)	1	(0.6)	60	(31.4)	12	9	0	21
Total employment	149	(78.3)	29	(15.2)	12	(6.5)	190	(100)	21	10	2	33

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 7.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Water and sewerage						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	13	12	17	21	24	6	8	14
2. Professional occupations	21	17	15	18	21	6	6	12
3. Associate professional and technical	20	19	20	23	28	8	7	15
4. Administrative and secretarial	20	14	15	16	18	3	7	10
5. Skilled trades occupations	17	14	19	20	22	3	7	10
6. Caring, leisure and other service	2	3	3	3	4	2	1	3
7. Sales and customer service	6	6	5	6	7	1	2	3
8. Process, plant and machine operatives	52	40	36	37	37	0	16	16
9. Elementary occupations	35	32	28	29	31	3	10	12
Total	187	158	158	172	190	33	63	96
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	6.9	7.7	10.9	12.0	12.4	36.6	43.7	80.3
2. Professional occupations	11.2	10.5	9.5	10.4	11.1	41.2	37.8	79.0
3. Associate professional and technical	10.8	12.0	12.7	13.6	14.7	40.3	35.8	76.1
4. Administrative and secretarial	10.8	8.9	9.3	9.0	9.3	20.3	45.7	66.0
5. Skilled trades occupations	9.1	9.1	11.8	11.7	11.4	16.1	39.2	55.3
6. Caring, leisure and other service	1.2	1.6	1.7	1.9	2.3	61.3	44.3	105.6
7. Sales and customer service	3.2	4.1	3.2	3.3	3.4	28.3	32.7	61.0
8. Process, plant and machine operatives	27.9	25.5	23.1	21.2	19.3	0.7	44.5	45.2
9. Elementary occupations	18.9	20.6	17.7	16.8	16.1	9.6	34.8	44.4
Total	100.0	100.0	100.0	100.0	100.0	20.7	40.1	60.7

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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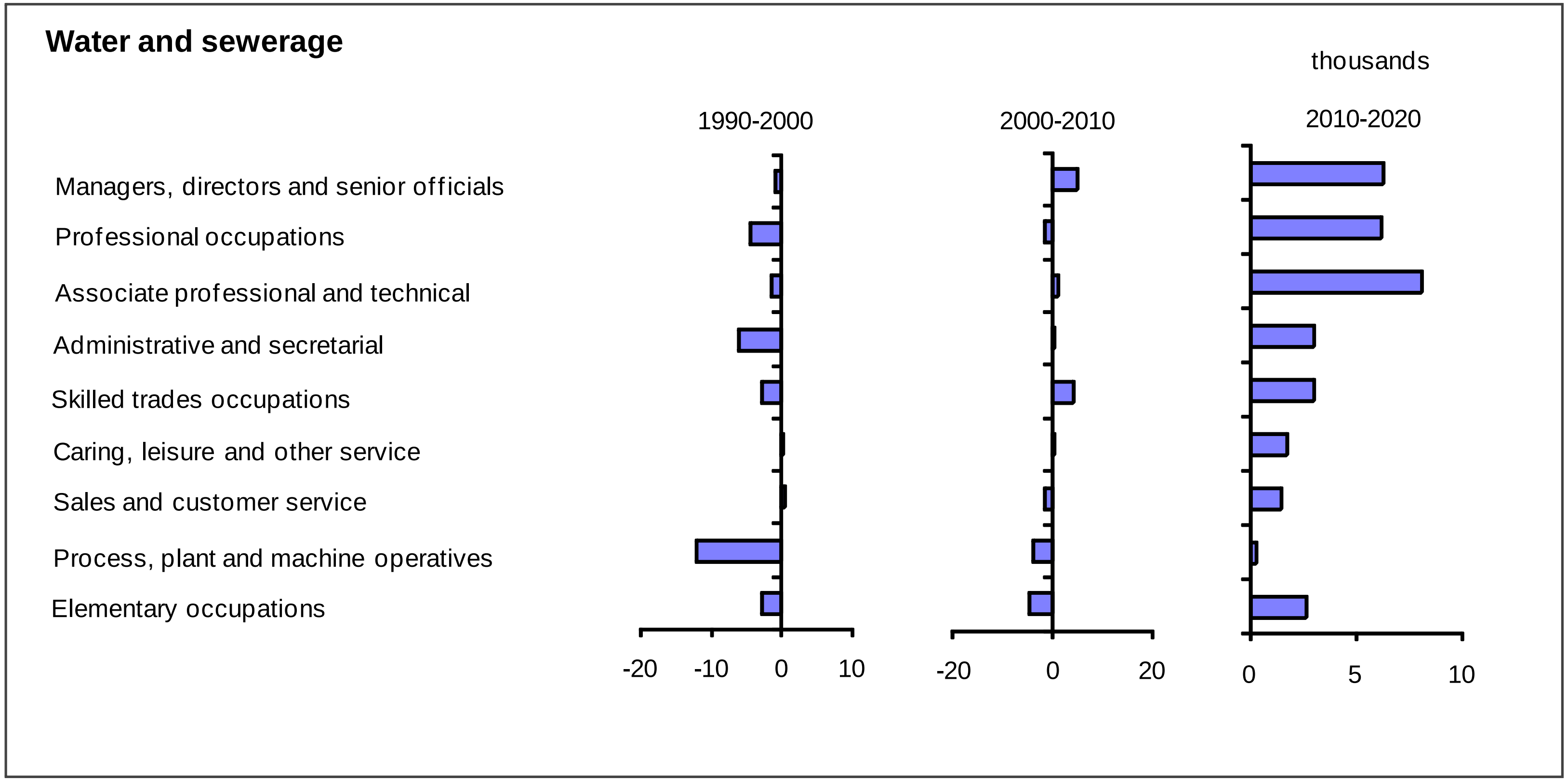
Figure 7.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 7.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	-1	0	-2	1	5	1	-1	5	6	1	3	3
2. Professional occupations	-4	0	-4	-1	-2	1	-1	-2	6	1	2	3
3. Associate professional and technical	-1	0	-3	2	1	1	-1	1	8	1	3	4
4. Administrative and secretarial	-6	0	-3	-3	1	1	-1	1	3	1	2	0
5. Skilled trades occupations	-3	0	-3	0	4	1	-1	4	3	1	3	-1
6. Caring, leisure and other service	0	0	0	1	0	0	0	0	2	0	0	1
7. Sales and customer service	1	0	-1	1	-1	0	0	-1	1	0	1	0
8. Process, plant and machine operatives	-12	1	-9	-4	-4	2	-2	-4	0	2	6	-7
9. Elementary occupations	-3	1	-6	3	-5	1	-1	-5	3	1	4	-3
Total	-29	3	-32	0	0	7	-7	0	33	8	25	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	-6.3	1.5	-17.1	9.3	42.6	4.3	-4.2	42.4	36.6	5.1	15.6	16.0
2. Professional occupations	-21.3	1.5	-17.1	-5.6	-9.3	4.3	-4.2	-9.4	41.2	5.1	15.6	20.6
3. Associate professional and technical	-6.5	1.5	-17.1	9.2	6.0	4.3	-4.2	5.9	40.3	5.1	15.6	19.6
4. Administrative and secretarial	-30.1	1.5	-17.1	-14.5	4.2	4.3	-4.2	4.1	20.3	5.1	15.6	-0.3
5. Skilled trades occupations	-15.6	1.5	-17.1	0.0	29.2	4.3	-4.2	29.1	16.1	5.1	15.6	-4.6
6. Caring, leisure and other service	12.8	1.5	-17.1	28.4	10.0	4.3	-4.2	9.9	61.3	5.1	15.6	40.7
7. Sales and customer service	9.4	1.5	-17.1	25.1	-20.8	4.3	-4.2	-20.9	28.3	5.1	15.6	7.6
8. Process, plant and machine operatives	-23.1	1.5	-17.1	-7.4	-9.1	4.3	-4.2	-9.2	0.7	5.1	15.6	-20.0
9. Elementary occupations	-7.7	1.5	-17.1	7.9	-14.2	4.3	-4.2	-14.3	9.6	5.1	15.6	-11.0
Total	-15.7	1.5	-17.1	0.0	0.1	4.3	-4.2	0.0	20.7	5.1	15.6	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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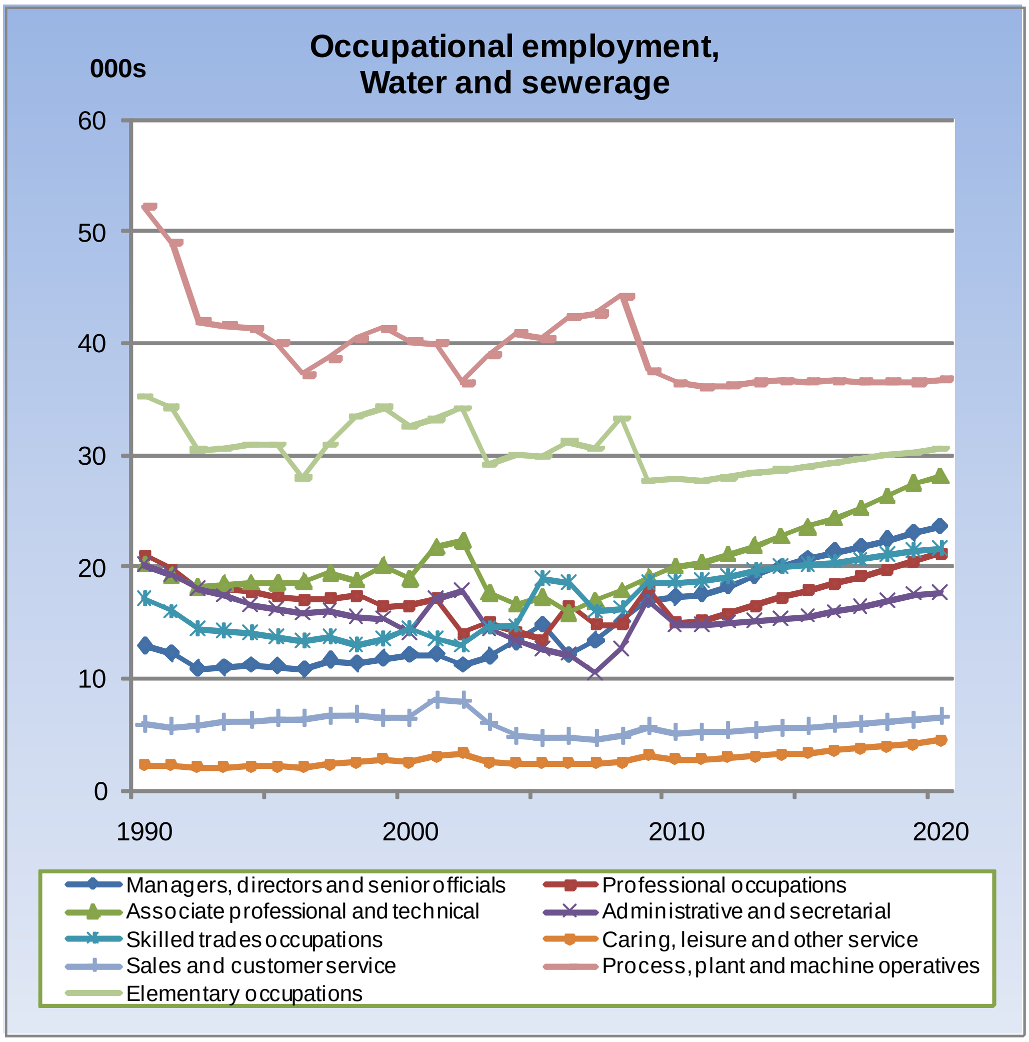
Figure 7.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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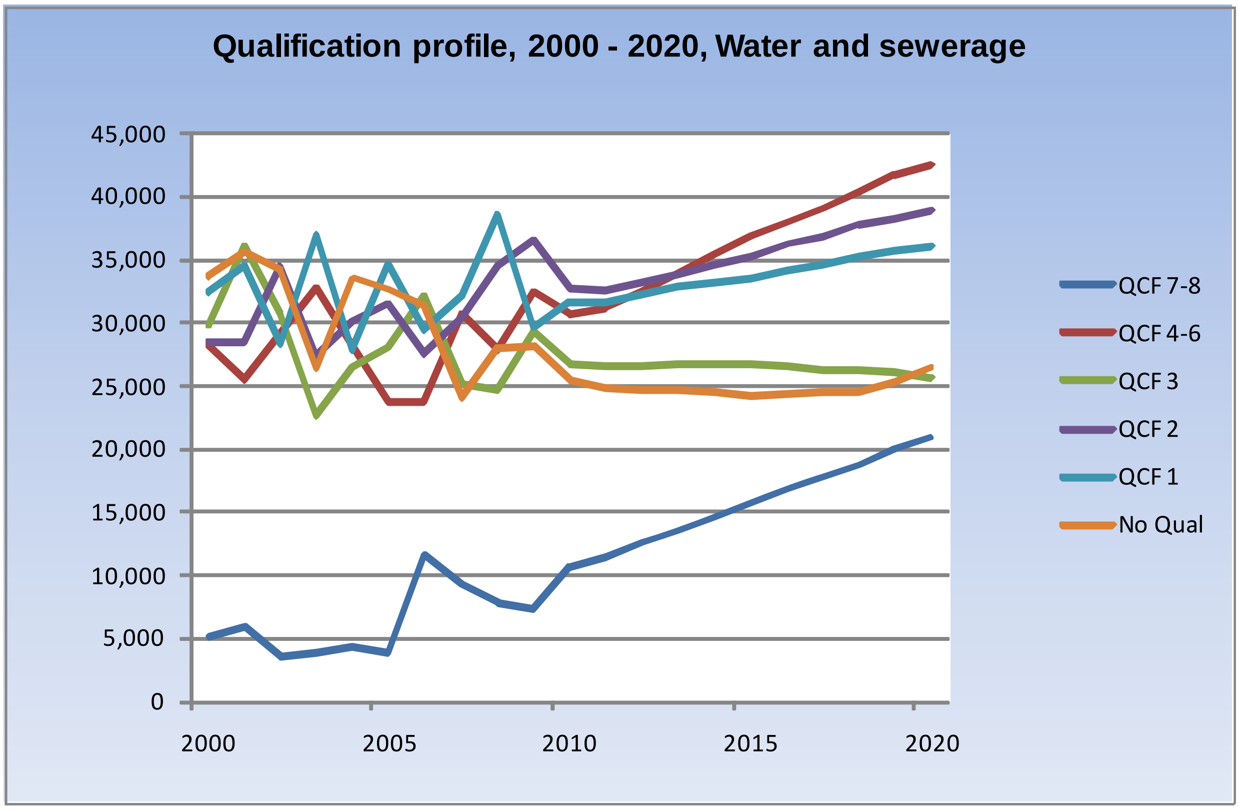
Figure 7.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 7.5: Implications for employment by qualification

United Kingdom : Water and sewerage				000s	
QCF group	Base year level 2010	Change 2010 - 2020	Projected level 2020	Replacement Demand	Total requirement 2010 - 2020
QCF 7-8	11	10	21	4	15
QCF 4-6	31	12	43	12	24
QCF 3	27	-1	26	11	10
QCF 2	33	6	39	13	19
QCF 1	32	4	36	13	17
No Qual	25	1	26	10	11
Total	158	33	190	63	96
	% share	% change	% share	% share	% of base year level
QCF 7-8	6.8	96.2	11.0	6.8	136.3
QCF 4-6	19.5	38.3	22.3	19.5	78.4
QCF 3	16.9	-3.9	13.5	16.9	36.2
QCF 2	20.7	18.8	20.4	20.7	58.9
QCF 1	20.0	14.1	19.0	20.0	54.2
No Qual	16.1	3.7	13.8	16.1	43.8
Total	100.0	20.7	100.0	100.0	60.7

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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8 Construction

8.1 Description of the industry

INDUSTRY 8: CONSTRUCTION
SIC2007 headings: 41-43

41: Construction of buildings

42: Civil engineering

43: Specialised construction activities

INDUSTRY PROFILE		
		All industries
Share of UK Output (% 2010):	6.8	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	2,092,096	30,458,094
Share of total employment (% 2010):	6.9	100.0
Gender split (male:female) (% 2010):	89:11	53:47
Part-time share (% 2010):	5.3	27.9
Self-employment share (% 2010):	41.7	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

8.2 Industry Commentary

Background

Construction was one the industries hit hardest by the recession and the crash in the housing market.

It is an industry dominated by small firms. Although it is not highly concentrated, a relatively small number of large firms carry out a disproportionate share of the work by value.

A steady stream of infrastructure and public works has helped to support construction activity over the last few years, but prospects remain uncertain over the next few years.

The medium and longer term prospects improve, as the economy recovers, and as longer term trends are re-established.

8.3 Productivity and Output Trends

Output: The industry now accounts for around 7 per cent of total output.

The construction industry is highly cyclical. It was also closely associated with the problems of the credit crunch and subsequent recessions. Mainly as a result of this, output levels fell over the second half of the decade.

Over the next decade things are projected to be more optimistic. Output growth is projected to recover at rates of around 2 per cent per annum or better.

Productivity: Productivity increased slightly over the past decade as a whole.

Modest growth in productivity is projected, reflecting recovery from recession, as well as continued restructuring and technological change.

Employment: The industry's share of total employment is also about 7 per cent (over 2 million jobs).

Employment rose slightly over the past decade as a whole, but this disguises the sharp effect of the recession, following a period of significant boom.

As a consequence of the combination of expected output and productivity trends, employment levels are projected to grow modestly, by around 200,000, over the coming decade.

8.4 Employment by Status and Gender

The construction industry is one of the most male dominated industries in employment terms featured here. Females account for barely 1 in 10 of all jobs.

Self-employment still accounts for 4 in 10 of all jobs despite efforts by the Inland Revenue to tighten up on definitions of self-employed status.

Part-time employment is relatively unimportant in the industry, accounting for just 1 in 20 jobs.

Patterns of full-time working remain dominant in the industry.

None of the patterns are expected to change dramatically over the coming decade.

8.5 Projections of Employment by Occupation

Key aspects of occupational structure

Skilled trades continue to account for just under half of all jobs (see Table 8.3).

The only other occupational groups with significant job shares are managers, directors & senior officials, professionals, and process, plant & machine operatives, each of which accounts for about 1 in 10 jobs.

As demand for unskilled labour has fallen elementary occupations have experienced significant job losses over recent decades.

Future changes

It is skilled trades occupations, together with managers, directors & senior officials, professional occupations and associate professionals, that are expected to be the main beneficiaries of job growth.

Skilled trades are expected to see a slight decline in their share of total jobs.

Job shares for administrative & secretarial, elementary occupations, and process, plant & machine operatives are also expected to fall slightly.

These are offset by small increases in employment shares for managerial, professional and associate professional & technical occupations.

8.6 Replacement demands

Table 8.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Despite expected job losses in some parts of the industry, this does not mean there will not be a need to recruit some new workers.

The projections indicate a modest expansion of employment for the industry over the decade as a whole.

This does not take into account the very substantial need to replace members of the existing workforce who will retire or leave for other reasons over the next decade. This will have significant implications for training of new entrants.

In combination these two elements amount to almost a million jobs over the decade as a whole.

Skilled trades is the occupational group with the largest requirement. Positive expansion demands are heavily reinforced by replacement needs reflecting a high percentage of craftsmen nearing retirement age. The estimated replacement demands for this group alone are over 400,000.

Significant replacement demands are also projected for all other groups, especially managers and professionals.

8.7 Shift share analysis

Table 8.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

During the 1990s the industry effect was negative, accounting for the loss of around 1 in 5 jobs. Over the next decade as a whole this turned into a positive effect (mainly a result of the boom up to 2008, before the subsequent crash).

Over the next decade a gradual recovery from recession is projected, as the combination of modest output growth and accelerated productivity improvements results in a some job increases.

Occupational effects are projected to be positive for most occupations over the projection period. However there are negative effects for administrative & secretarial occupations, skilled trades, process, plant & machine operatives and elementary occupations.

8.8 Implications for qualifications

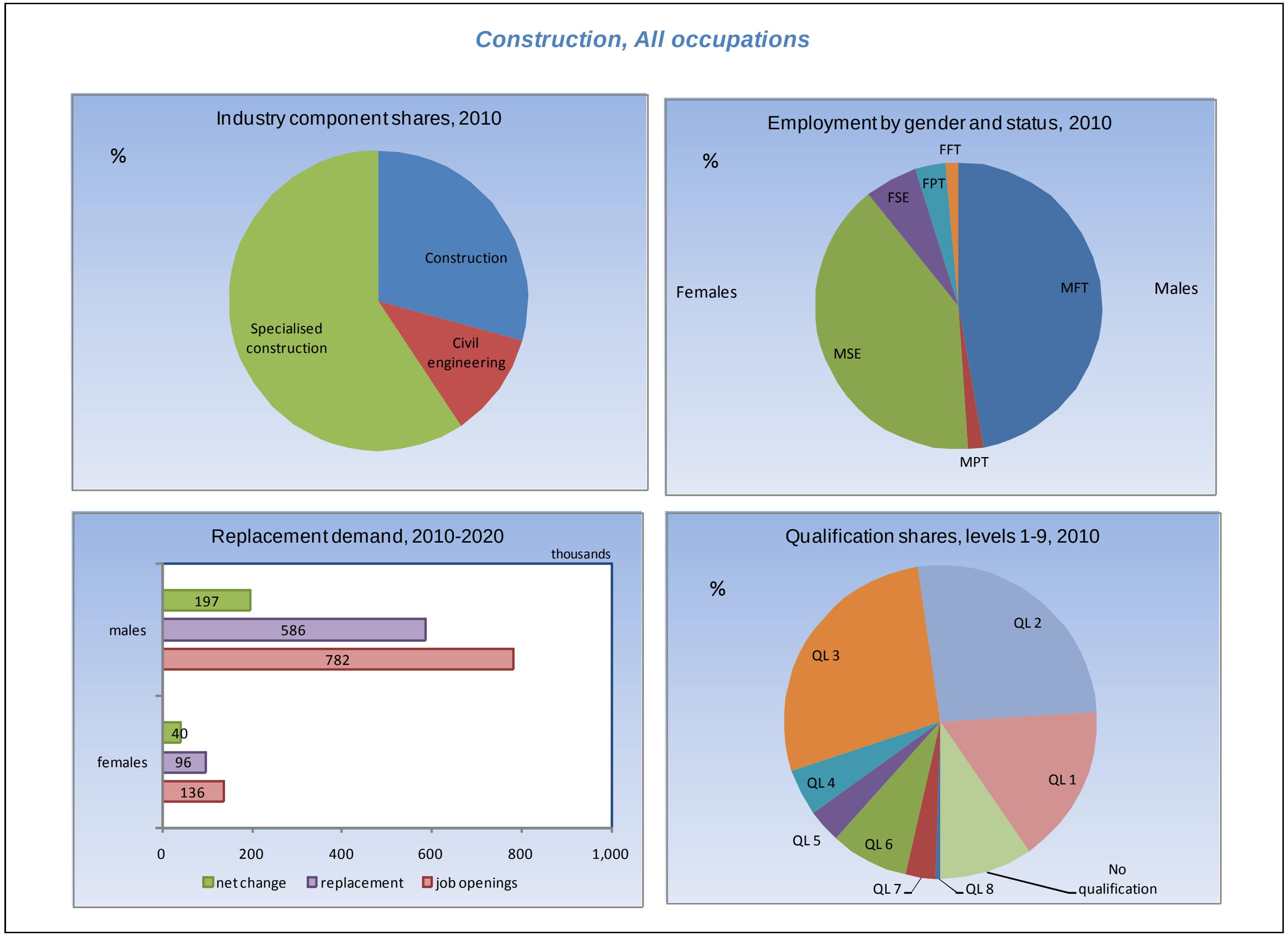
The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The Construction industry's occupational structure favours those qualified at intermediate and to a lesser extent, at low level.

Just over a quarter of those employed in 2010 had low or no formal qualifications (QCF 0-1) while 55 per cent had qualifications at QCF levels 2 and 3. The intermediate levels shares are projected to remain stable until 2020, during which time those with higher qualifications increase slightly and those with no qualifications at all (QCF 0) are expected to fall below 10 per cent.

Figure 8.1: Construction – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 8.1: Trends in Output, Productivity and Employment

Average change in the period

Construction Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	3.1	-0.4	2.0	2.7
Employment (% pa)	2.5	-0.9	0.9	1.2
(000s)	253	-97	97	140
Productivity (% pa)	0.6	0.5	1.1	1.5

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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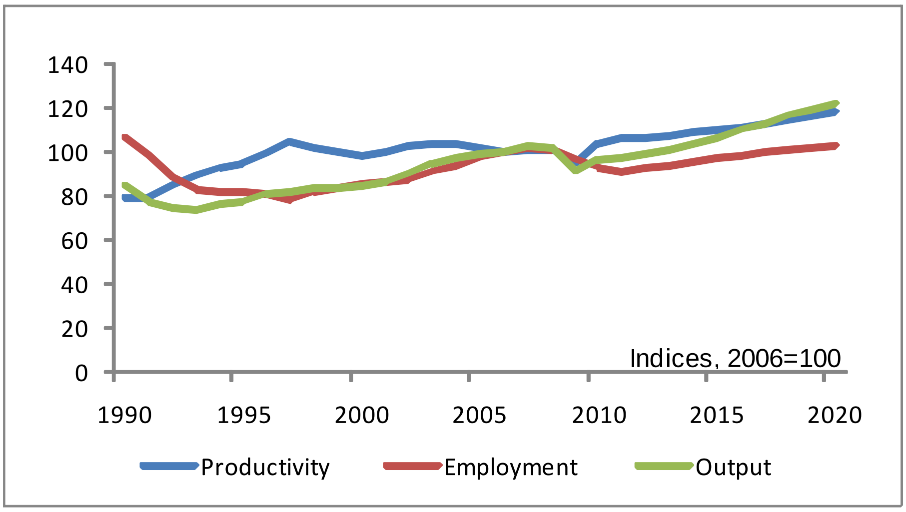
Figure 8.2: Output, productivity and employment in Construction



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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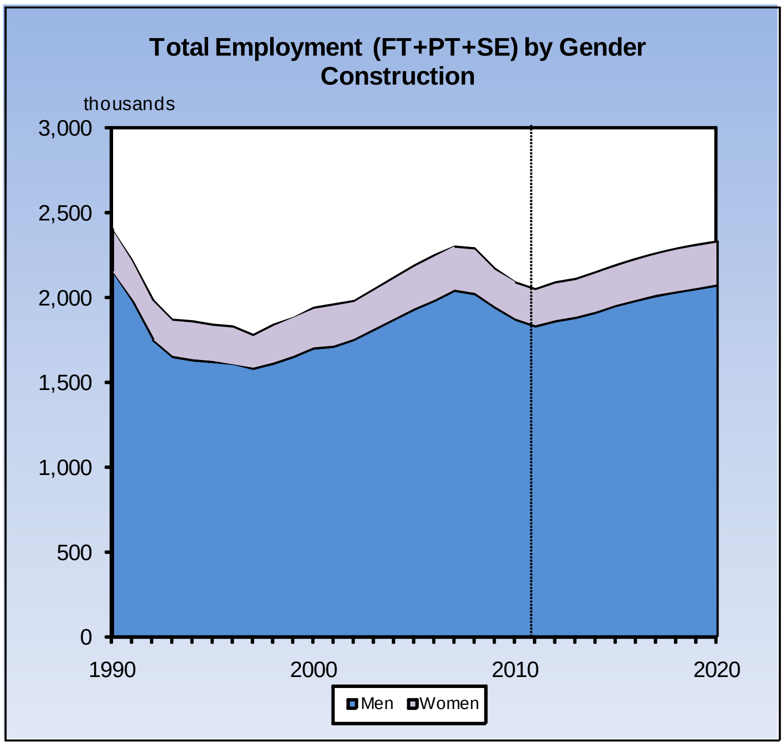
Figure 8.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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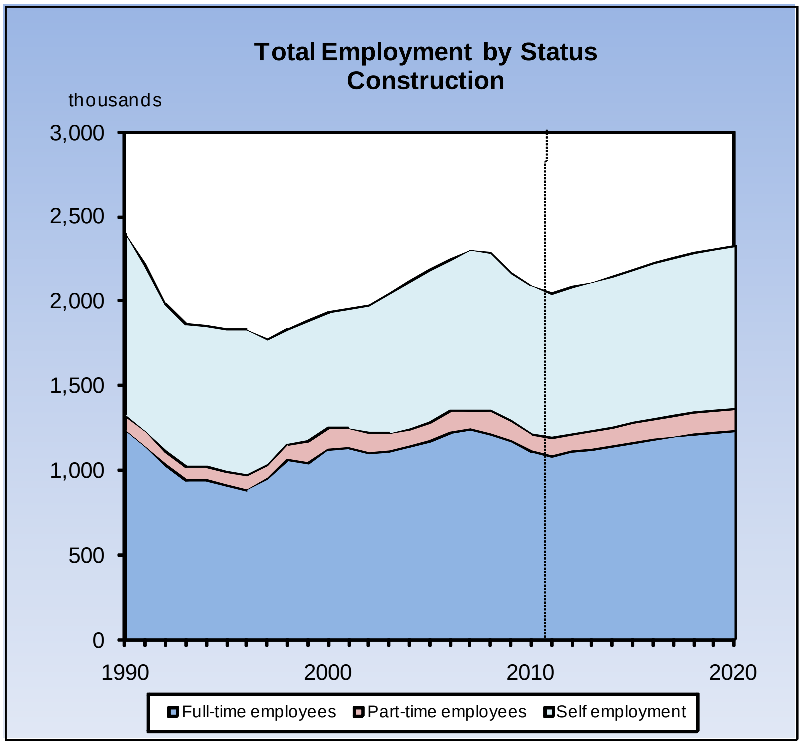
Figure 8.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 8.2: Employment by gender and status

	Employment Status				Construction							
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	988	(47.2)	37	(1.8)	842	(40.2)	1,867	(89.2)	44	3	33	80
Female employment	121	(5.8)	73	(3.5)	30	(1.4)	225	(10.8)	8	7	2	16
Total employment	1,109	(53)	111	(5.3)	872	(41.7)	2,092	(100)	52	10	35	97
2015									**2015-2020**			
Male employment	1,032	(47.1)	40	(1.8)	875	(40)	1,947	(89)	62	5	50	117
Female employment	129	(5.9)	80	(3.7)	32	(1.5)	241	(11)	11	9	4	23
Total employment	1,161	(53)	121	(5.5)	907	(41.5)	2,189	(100)	73	13	54	140
2020									**2010-2020**			
Male employment	1,094	(47)	45	(1.9)	925	(39.7)	2,064	(88.6)	106	8	83	197
Female employment	140	(6)	89	(3.8)	36	(1.6)	265	(11.4)	18	15	6	40
Total employment	1,234	(53)	134	(5.7)	961	(41.3)	2,329	(100)	124	23	89	237

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 8.3: Employment by occupation

Changing Composition of Employment by Occupation								
United Kingdom : Construction						2010-2020 Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	144	130	174	199	230	56	73	129
2. Professional occupations	156	146	187	211	239	52	69	121
3. Associate professional and technical	115	114	124	140	159	35	45	80
4. Administrative and secretarial	206	178	140	138	140	0	65	65
5. Skilled trades occupations	1,375	1,044	1,158	1,186	1,242	83	435	518
6. Caring, leisure and other service	2	2	4	4	5	1	2	3
7. Sales and customer service	22	24	30	33	36	6	10	16
8. Process, plant and machine operatives	216	169	172	173	171	-1	69	68
9. Elementary occupations	167	130	104	104	107	3	35	38
Total	2,402	1,936	2,092	2,189	2,329	237	802	1,039
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	6.0	6.7	8.3	9.1	9.9	32.4	41.9	74.2
2. Professional occupations	6.5	7.5	8.9	9.6	10.3	28.0	36.8	64.8
3. Associate professional and technical	4.8	5.9	5.9	6.4	6.8	28.0	36.4	64.4
4. Administrative and secretarial	8.6	9.2	6.7	6.3	6.0	0.1	46.3	46.4
5. Skilled trades occupations	57.2	53.9	55.4	54.2	53.3	7.2	37.5	44.7
6. Caring, leisure and other service	0.1	0.1	0.2	0.2	0.2	31.0	45.7	76.6
7. Sales and customer service	0.9	1.2	1.4	1.5	1.5	20.7	32.2	52.9
8. Process, plant and machine operatives	9.0	8.7	8.2	7.9	7.4	-0.5	40.2	39.7
9. Elementary occupations	6.9	6.7	5.0	4.8	4.6	3.1	34.0	37.1
Total	100.0	100.0	100.0	100.0	100.0	11.3	38.3	49.6

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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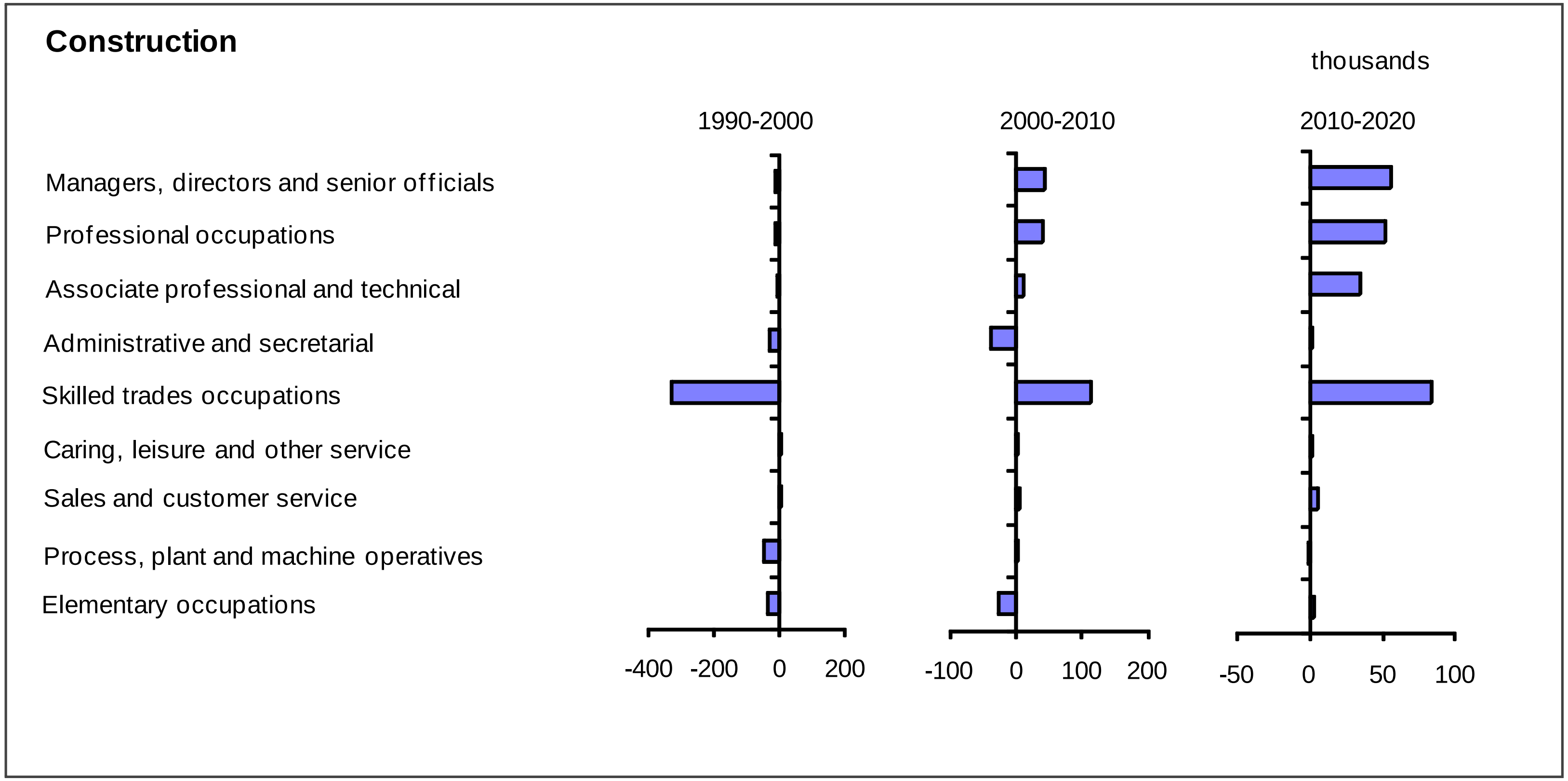
Figure 8.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 8.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**
1. Managers, directors and senior officials	-13	2	-30	14	43	6	5	33	56	9	11	37
2. Professional occupations	-10	2	-33	20	41	6	5	29	52	10	12	31
3. Associate professional and technical	-2	2	-24	21	11	5	4	1	35	6	8	21
4. Administrative and secretarial	-27	3	-43	13	-39	8	7	-53	0	7	9	-16
5. Skilled trades occupations	-331	20	-287	-64	114	45	39	30	83	59	72	-48
6. Caring, leisure and other service	0	0	0	1	2	0	0	2	1	0	0	1
7. Sales and customer service	1	0	-5	6	6	1	1	4	6	2	2	3
8. Process, plant and machine operatives	-47	3	-45	-5	3	7	6	-10	-1	9	11	-20
9. Elementary occupations	-37	2	-35	-5	-26	6	5	-36	3	5	6	-9
Total	-466	35	-501	0	156	84	72	0	237	106	130	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	-9.4	1.5	-20.9	10.0	33.4	4.3	3.7	25.3	32.4	5.1	6.2	21.1
2. Professional occupations	-6.5	1.5	-20.9	12.9	27.8	4.3	3.7	19.7	28.0	5.1	6.2	16.7
3. Associate professional and technical	-1.3	1.5	-20.9	18.1	9.2	4.3	3.7	1.2	28.0	5.1	6.2	16.7
4. Administrative and secretarial	-13.3	1.5	-20.9	6.1	-21.7	4.3	3.7	-29.7	0.1	5.1	6.2	-11.2
5. Skilled trades occupations	-24.1	1.5	-20.9	-4.7	10.9	4.3	3.7	2.9	7.2	5.1	6.2	-4.1
6. Caring, leisure and other service	11.4	1.5	-20.9	30.8	106.5	4.3	3.7	98.5	31.0	5.1	6.2	19.7
7. Sales and customer service	5.5	1.5	-20.9	24.9	25.6	4.3	3.7	17.5	20.7	5.1	6.2	9.4
8. Process, plant and machine operatives	-21.8	1.5	-20.9	-2.4	2.1	4.3	3.7	-6.0	-0.5	5.1	6.2	-11.8
9. Elementary occupations	-22.2	1.5	-20.9	-2.8	-20.0	4.3	3.7	-28.1	3.1	5.1	6.2	-8.2
Total	-19.4	1.5	-20.9	0.0	8.0	4.3	3.7	0.0	11.3	5.1	6.2	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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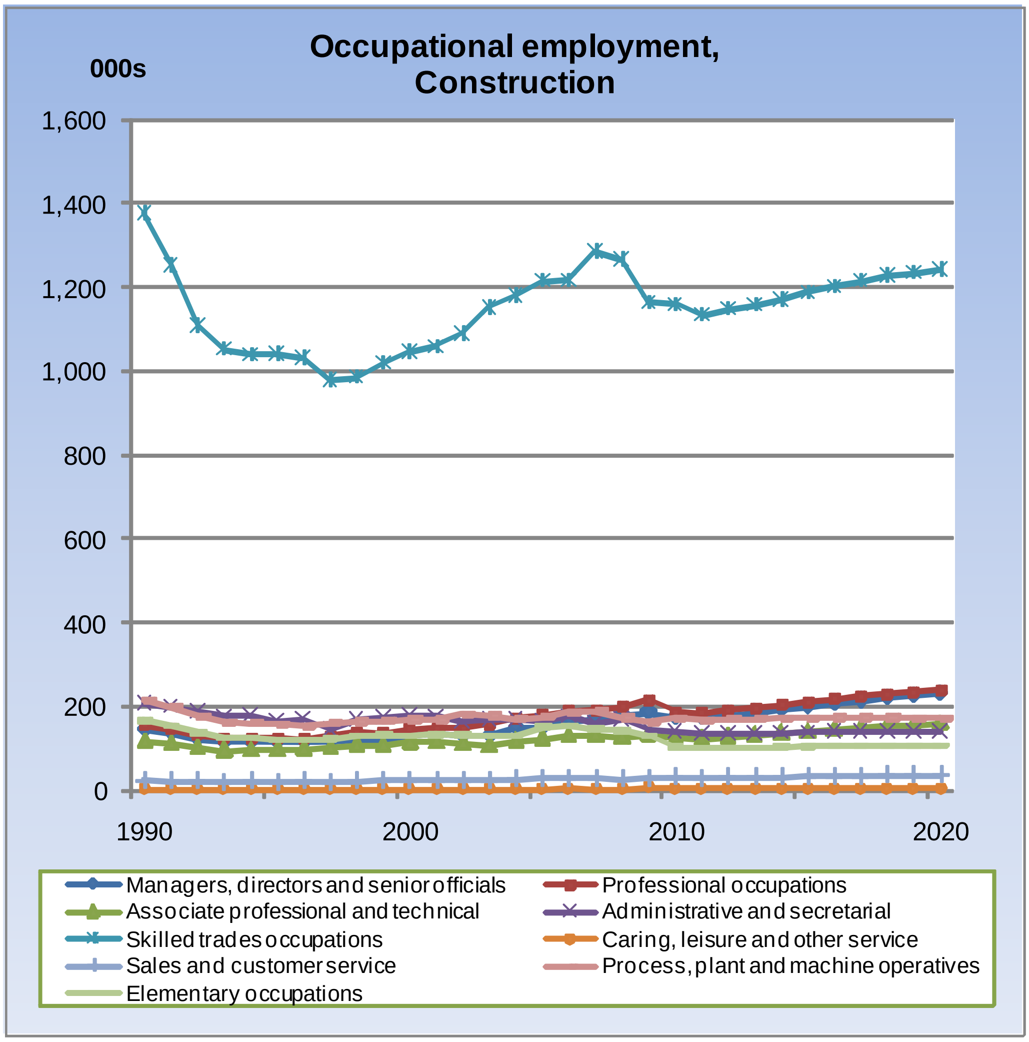
Figure 8.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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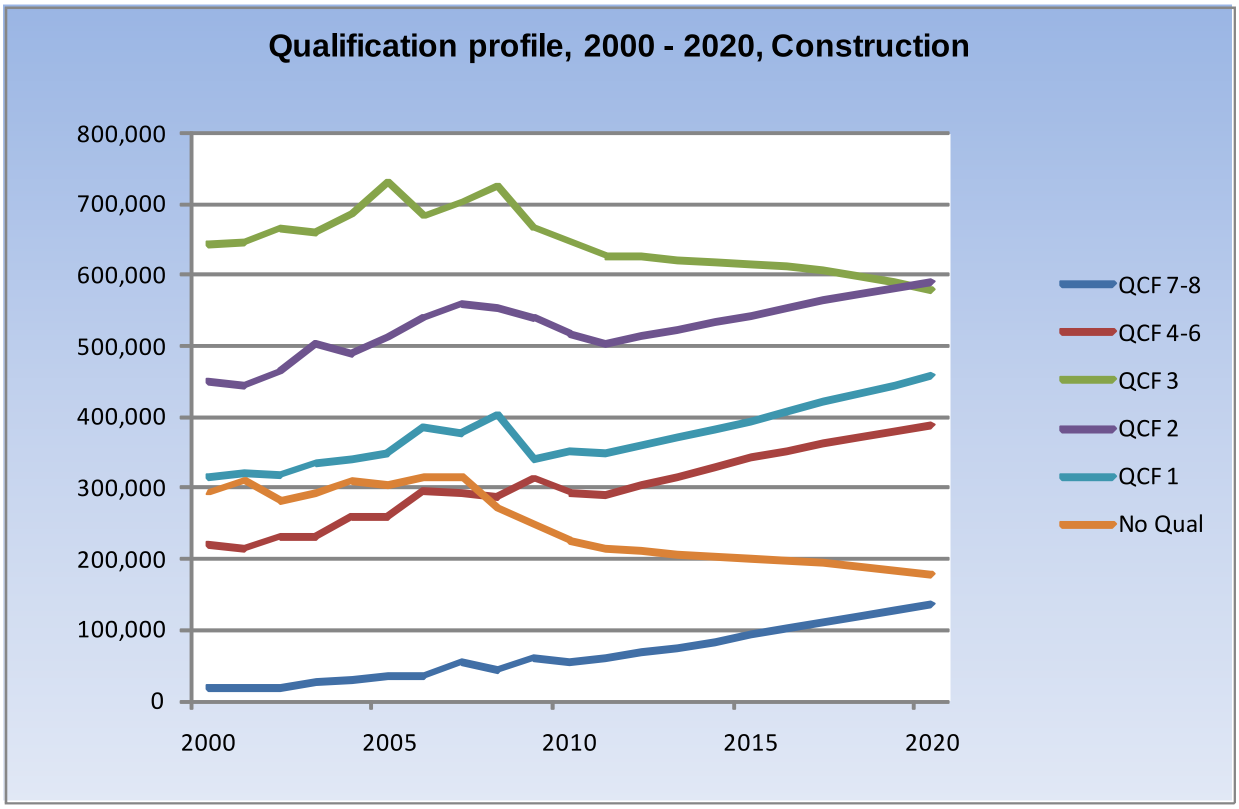
Figure 8.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Figure 7.2, forecast C111

Table: 8.5: Implications for employment by qualification

United Kingdom : Construction				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	56	81	137	22	102
QCF 4-6	294	94	388	113	207
QCF 3	647	-69	579	248	179
QCF 2	517	73	590	198	271
QCF 1	351	107	458	135	242
No Qual	227	-50	178	87	38
Total	2,092	237	2,329	802	1,039
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	2.7	143.3	5.9	2.7	181.7
QCF 4-6	14.0	32.0	16.7	14.0	70.3
QCF 3	30.9	-10.6	24.8	30.9	27.7
QCF 2	24.7	14.2	25.3	24.7	52.5
QCF 1	16.8	30.5	19.7	16.8	68.9
No Qual	10.9	-21.8	7.6	10.9	16.5
Total	100.0	11.3	100.0	100.0	49.6

CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

9 Wholesale and retail trade

9.1 Description of the industry

INDUSTRY 9: WHOLESALE AND RETAIL TRADE
SIC2007 headings: 45-47

45: Wholesale and retail trade of motor vehicles and motorcycles

46.: Wholesale trade

47.: Retail trade

INDUSTRY PROFILE		
		All industries
Share of UK Output (% 2010):	12.5	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	high	average
Total employment (2010):	4,660,846	30,458,094
Share of total employment (% 2010):	15.3	100.0
Gender split (male:female) (% 2010):	52:48	53:47
Part-time share (% 2010):	37.7	27.9
Self-employment share (% 2010):	9.1	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

9.2 Industry Commentary

Background

The structure of the distribution sector has changed in recent years. Distribution is traditionally divided into two main parts wholesale distribution or merchant wholesaling, consisting of the sale of products to retailers or to professional users; and retailing, or the sale to final consumers.

Technological changes linked especially to information and communication technologies have radically transformed the sector, in combination with economies of scale and radical restructuring.

Retailing, of course, takes many forms, from market stalls to independent high street shops, and internet retailers. The use of the internet by households to make purchases has grown rapidly in recent years.

9.3 Productivity and Output Trends

Output: The industry accounts for around 12½ per cent of total output.

Output has grown steadily in this industry in recent years, but like most others it has been hard hit by the recession. Despite this it still exhibited modest growth over the past 5 years as things have picked up.

This pattern of recovery is expected to continue, with quite strong rates of output growth over the coming decade at just under 3 per cent per annum.

Productivity: Productivity has also improved steadily in recent years, although again this was affected by the downturn at the end of the last decade. As competitive and other pressures continue, further improvements in productivity are projected.

Employment: The industry's share of total employment is about 15 per cent (over 4½ million jobs).

Employment fell slightly over the past decade as a whole, but this disguises the sharp effect of the recession, following a significant boom.

Employment is projected to increase slightly over the coming decade as a result of significant output growth, being mostly offset by productivity improvements.

As a consequence of the combination of expected output and productivity trends, employment levels are projected to grow by around 160,000 jobs over the coming decade.

9.4 Employment by Status and Gender

This is an industry in which there are many jobs taken by women, who account for almost half of all jobs.

However these jobs are spread very differently in terms of employment status (i.e. full-time, part-time and self-employment), and by occupation, between the two genders.

Part-time employment accounts for almost 40 per cent of all jobs, but the vast majority of these are held by women.

Self-employment currently accounts for around 1 in 10 jobs, but 2 out of 3 of these are taken by men.

Based on a continuation of recent trends, the female share of total employment is projected to continue to rise, reaching parity with males by 2020.

The share of part-timers is projected to continue to rise.

A slight reduction in self-employment shares is projected.

9.5 Projections of Employment by Occupation

Key aspects of occupational structure

Accounting for almost 1 in 4 of all jobs in the sector, sales & customer service occupations are the most important group of workers in this industry (see Table 9.3).

The other occupational groups with significant job shares are managers, directors & senior officials, administrative & secretarial occupations and elementary occupations, each of which accounts for about 1 in 10 jobs.

As demand for less skilled labour has fallen, administrative & secretarial occupations and elementary occupations have also experienced significant job losses over the past decade.

Future changes

Managers & senior officials and sales & customer service occupations, together with professionals and associate professional occupations are expected to see the largest growth in jobs over the coming decade.

Sales & customer service occupations, skilled trades and process, plant & machine operatives are projected to see falling shares of total employment in the industry.

9.6 Replacement demands

Table 9.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Over the next 10 years, replacement demands for this industry are very significant at around 1 ½ million jobs.

The sales & customer service occupation group generates the highest replacement demand with over half a million job openings, but managers, directors & senior officials, administrative & secretarial also each generate the best part of 200,000 jobs for replacement needs.

There are also substantial replacement needs across all the other occupational groups, other than caring, leisure and other service occupations.

9.7 Shift share analysis

Table 9.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure *within* the industry.

The industry effect represented a significant negative impact on occupational employment levels over the past decade.

The industry effect is projected to be more modest (but still negative) over the coming decade.

Over the projection period negative occupational effects are also significant for skilled trades, sales & customer service occupations and process plant & machine operatives.

9.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

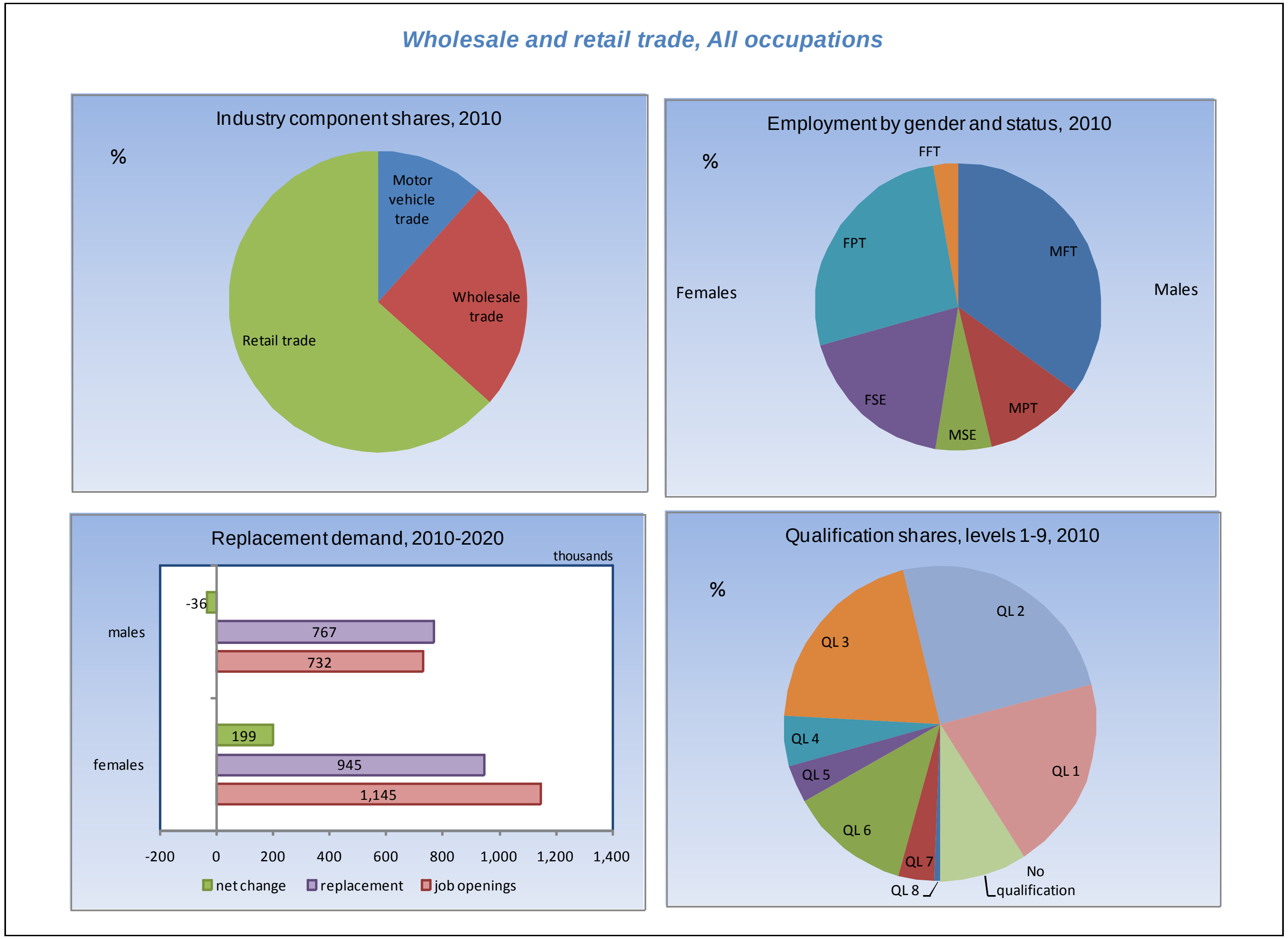
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in the Wholesale and Retail trade favours those qualified at intermediate level and the pattern of projected qualification changes follows the general trend.

Just under 50 per cent of employment was accounted for by those with intermediate qualifications (QCF 2 and 3) in 2010 and this is not expected to change significantly by 2020.

However, the 15 per cent of those with no formal qualifications (QCF 0) is expected to fall to nearer to 10 per cent by 2020 while higher qualifications (QCF4-8) are expected to rise from 16 per cent to almost 23 per cent during the same period.

Figure 9.1: Wholesale and retail trade – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 9.1: Trends in Output, Productivity and Employment

Average change in the period

Whol. & retail trade Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	3.9	0.4	2.7	3.0
Employment (% pa)	0.6	-1.2	0.2	0.5
(000s)	157	-295	55	108
Productivity (% pa)	3.2	1.6	2.5	2.5

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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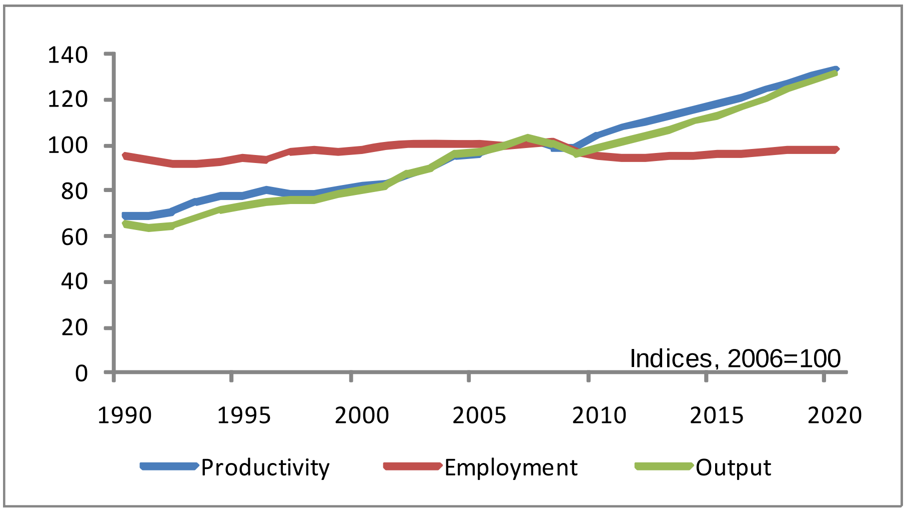
Figure 9.2: Output, productivity and employment in Wholesale and retail trade



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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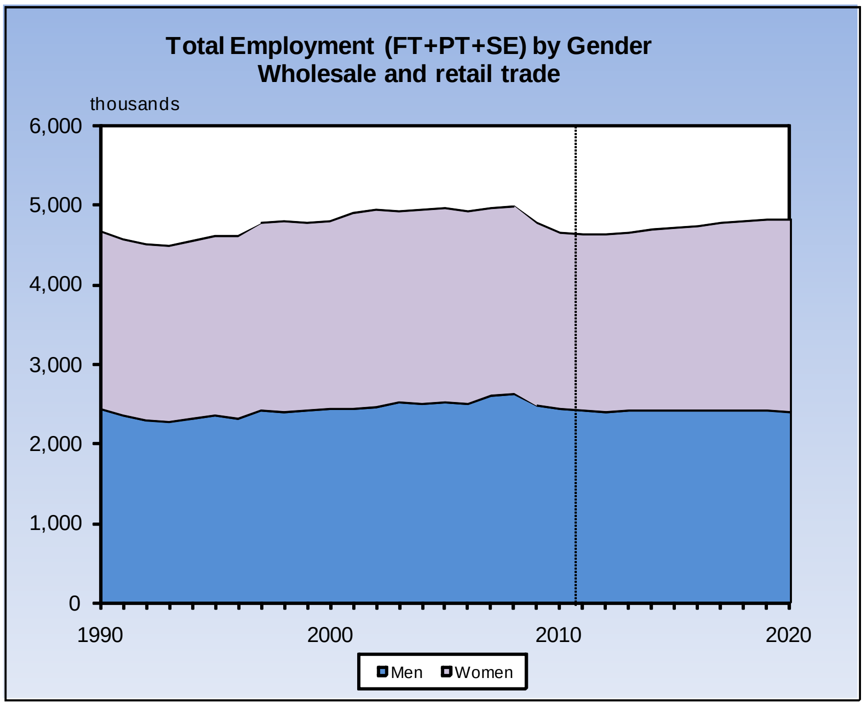
Figure 9.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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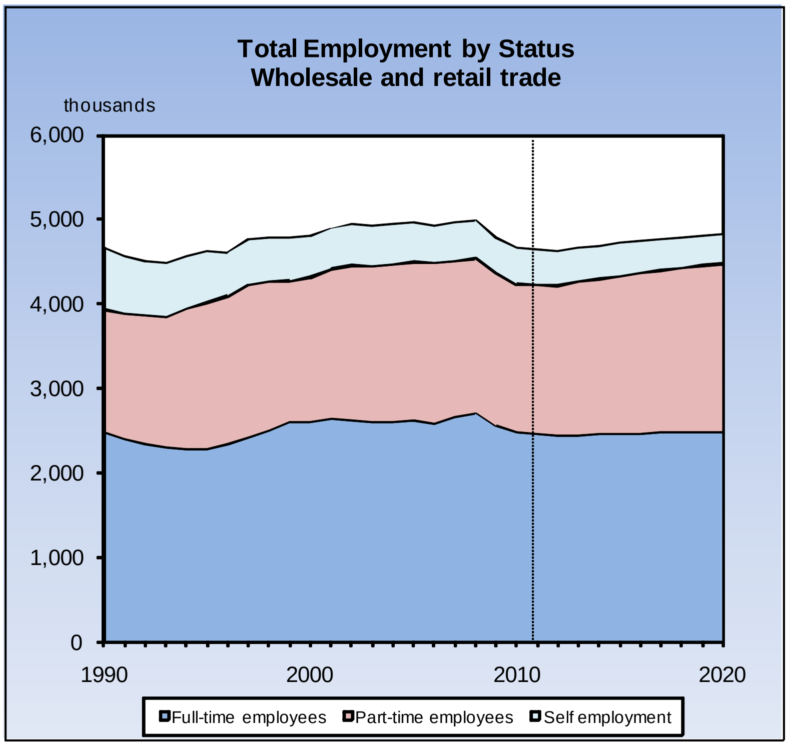
Figure 9.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 9.2: Employment by gender and status

Employment Status	Wholesale and retail trade									Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**			**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**		**2010-2015**			
Male employment	1,630	(35)	527	(11.3)	289	(6.2)	2,446	(52.5)		-48	43	-22	-28
Female employment	850	(18.2)	1,230	(26.4)	134	(2.9)	2,215	(47.5)		36	67	-19	83
Total employment	2,480	(53.2)	1,757	(37.7)	423	(9.1)	4,661	(100)		-13	109	-41	55
2015										**2015-2020**			
Male employment	1,582	(33.5)	570	(12.1)	267	(5.7)	2,418	(51.3)		-35	49	-22	-8
Female employment	886	(18.8)	1,297	(27.5)	115	(2.4)	2,298	(48.7)		46	85	-15	116
Total employment	2,467	(52.3)	1,867	(39.6)	382	(8.1)	4,716	(100)		11	134	-37	108
2020										**2010-2020**			
Male employment	1,547	(32.1)	619	(12.8)	245	(5.1)	2,410	(50)		-83	91	-44	-36
Female employment	932	(19.3)	1,382	(28.6)	100	(2.1)	2,414	(50)		82	152	-34	199
Total employment	2,479	(51.4)	2,000	(41.5)	345	(7.2)	4,824	(100)		-2	243	-78	164

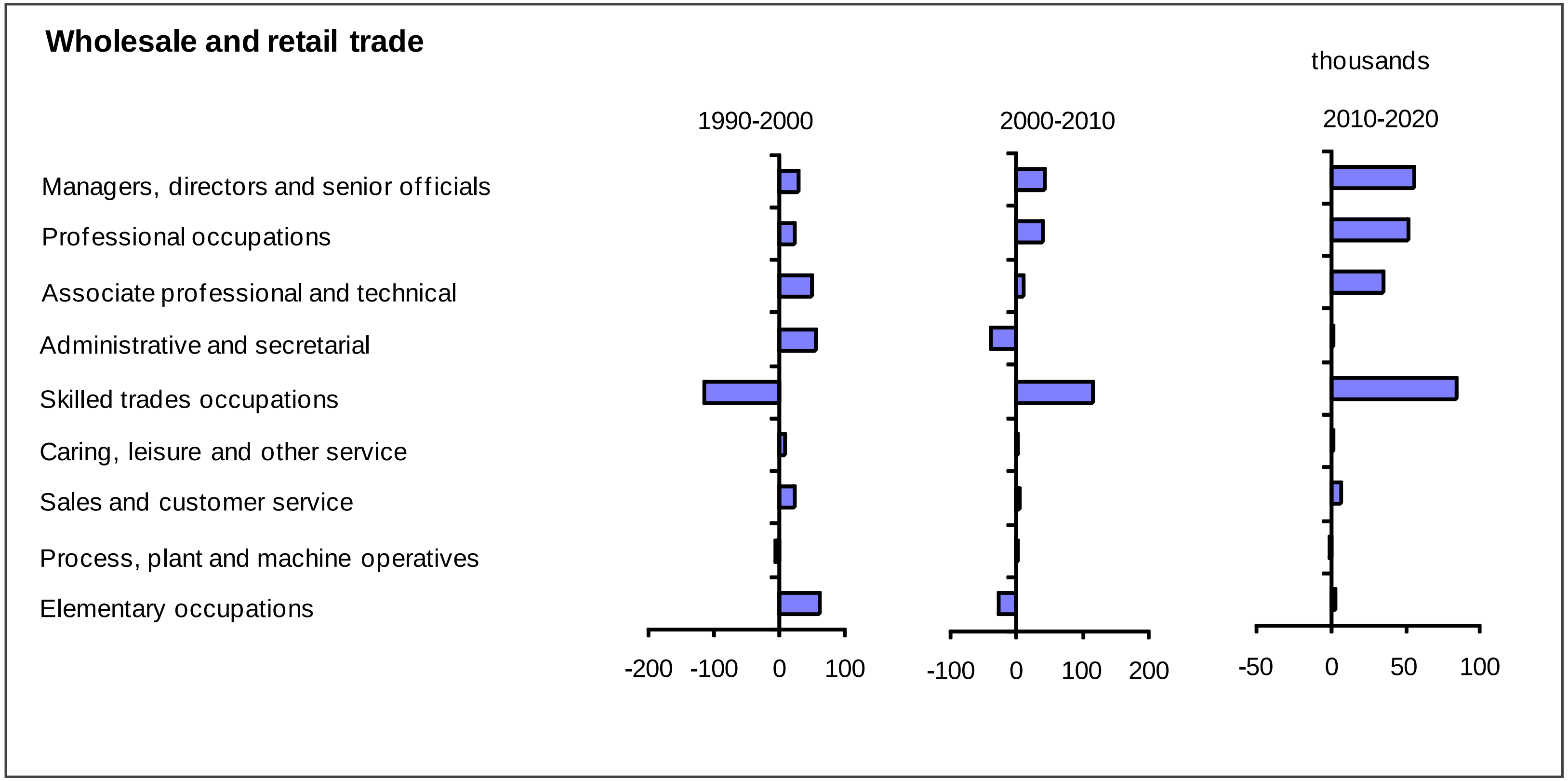
Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.2, forecast C111

Table 9.3: Employment by occupation

Changing Composition of Employment by Occupation								
United Kingdom : Wholesale and retail trade						2010-2020		
Employment Levels (000s)	1990	2000	2010	2015	2020	Net Change	Replacement Demands	Total Requirement
1. Managers, directors and senior officials	589	619	592	653	690	98	254	351
2. Professional occupations	256	281	301	351	383	82	116	198
3. Associate professional and technical	369	418	401	450	492	91	150	242
4. Administrative and secretarial	492	547	438	454	461	23	197	220
5. Skilled trades occupations	592	478	442	412	380	-62	169	107
6. Caring, leisure and other service	17	25	24	27	29	5	10	15
7. Sales and customer service	1,675	1,697	1,693	1,606	1,623	-70	625	555
8. Process, plant and machine operatives	303	297	324	292	278	-46	142	96
9. Elementary occupations	375	437	446	470	488	42	170	213
Total	4,670	4,799	4,661	4,716	4,824	164	1,834	1,998
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	12.6	12.9	12.7	13.8	14.3	16.5	42.8	59.4
2. Professional occupations	5.5	5.9	6.5	7.4	7.9	27.2	38.5	65.7
3. Associate professional and technical	7.9	8.7	8.6	9.5	10.2	22.8	37.6	60.4
4. Administrative and secretarial	10.5	11.4	9.4	9.6	9.6	5.3	45.0	50.3
5. Skilled trades occupations	12.7	10.0	9.5	8.7	7.9	-14.0	38.3	24.3
6. Caring, leisure and other service	0.4	0.5	0.5	0.6	0.6	20.4	42.8	63.2
7. Sales and customer service	35.9	35.4	36.3	34.0	33.6	-4.2	36.9	32.8
8. Process, plant and machine operatives	6.5	6.2	7.0	6.2	5.8	-14.1	43.8	29.7
9. Elementary occupations	8.0	9.1	9.6	10.0	10.1	9.5	38.2	47.7
Total	100.0	100.0	100.0	100.0	100.0	3.5	39.4	42.9

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 9.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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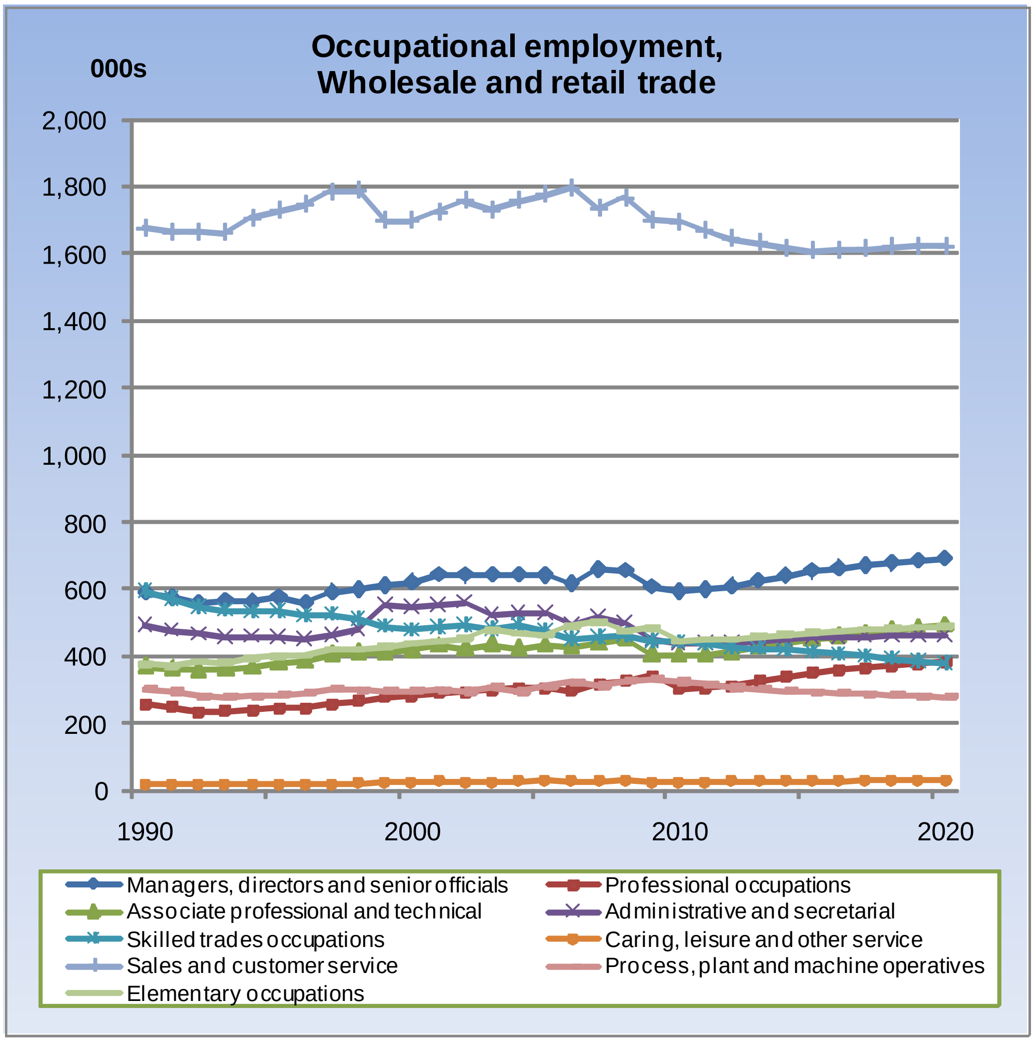
Table 9.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	30	9	8	13	-27	27	-45	-9	98	30	-9	77
2. Professional occupations	25	4	3	18	21	12	-20	29	82	15	-5	71
3. Associate professional and technical	49	5	5	39	-18	18	-30	-6	91	20	-6	77
4. Administrative and secretarial	55	7	6	41	-110	24	-40	-94	23	22	-7	8
5. Skilled trades occupations	-114	9	8	-131	-37	21	-35	-23	-62	22	-7	-77
6. Caring, leisure and other service	8	0	0	8	-1	1	-2	0	5	1	0	4
7. Sales and customer service	22	25	22	-24	-4	74	-123	45	-70	86	-27	-130
8. Process, plant and machine operatives	-6	4	4	-15	27	13	-21	36	-46	16	-5	-57
9. Elementary occupations	61	6	5	51	9	19	-32	22	42	23	-7	27
Total	129	69	60	0	-138	208	-347	0	164	237	-74	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	5.0	1.5	1.3	2.3	-4.4	4.3	-7.2	-1.5	16.5	5.1	-1.6	13.0
2. Professional occupations	9.6	1.5	1.3	6.8	7.3	4.3	-7.2	10.2	27.2	5.1	-1.6	23.7
3. Associate professional and technical	13.3	1.5	1.3	10.5	-4.2	4.3	-7.2	-1.3	22.8	5.1	-1.6	19.3
4. Administrative and secretarial	11.2	1.5	1.3	8.4	-20.0	4.3	-7.2	-17.1	5.3	5.1	-1.6	1.8
5. Skilled trades occupations	-19.3	1.5	1.3	-22.0	-7.6	4.3	-7.2	-4.8	-14.0	5.1	-1.6	-17.5
6. Caring, leisure and other service	47.2	1.5	1.3	44.4	-3.3	4.3	-7.2	-0.4	20.4	5.1	-1.6	16.9
7. Sales and customer service	1.3	1.5	1.3	-1.4	-0.3	4.3	-7.2	2.6	-4.2	5.1	-1.6	-7.7
8. Process, plant and machine operatives	-2.0	1.5	1.3	-4.8	9.3	4.3	-7.2	12.1	-14.1	5.1	-1.6	-17.6
9. Elementary occupations	16.3	1.5	1.3	13.5	2.2	4.3	-7.2	5.0	9.5	5.1	-1.6	6.0
Total	2.8	1.5	1.3	0.0	-2.9	4.3	-7.2	0.0	3.5	5.1	-1.6	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 9.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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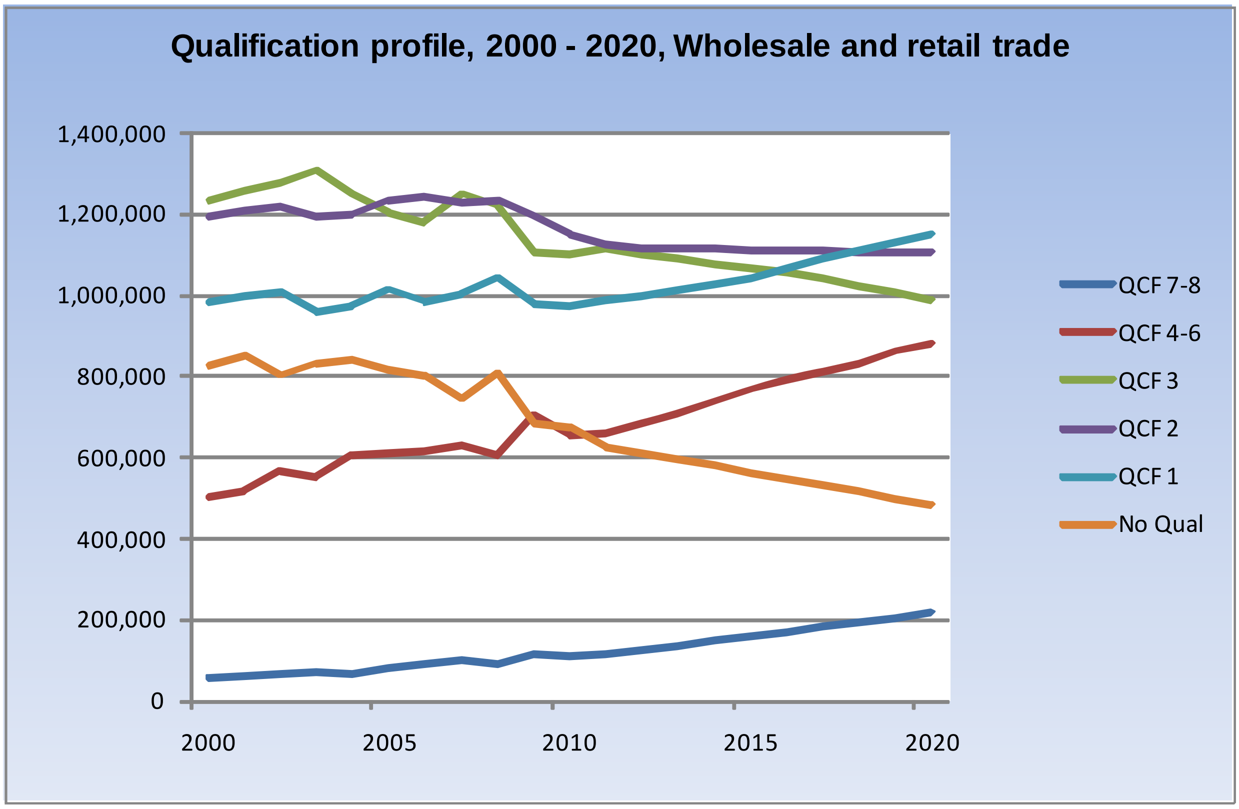
Figure 9.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Figure 7.2, forecast C111

Table 9.5: Implications for employment by qualification

United Kingdom : Wholesale and retail trade			000s		
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	108	108	216	43	151
QCF 4-6	654	224	879	258	482
QCF 3	1,101	-111	990	434	323
QCF 2	1,148	-40	1,108	452	413
QCF 1	973	177	1,149	383	560
No Qual	677	-195	482	267	72
Total	4,661	164	4,824	1,836	2,000
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	2.3	99.7	4.5	2.3	139.1
QCF 4-6	14.0	34.3	18.2	14.0	73.7
QCF 3	23.6	-10.1	20.5	23.6	29.3
QCF 2	24.6	-3.5	23.0	24.6	35.9
QCF 1	20.9	18.2	23.8	20.9	57.6
No Qual	14.5	-28.8	10.0	14.5	10.6
Total	100.0	3.5	100.0	100.0	42.9

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

10 Transport and storage

10.1 Description of the industry

INDUSTRY 10: TRANSPORT AND STORAGE
SIC2007 headings: 49-53

49: Land transport and transport via pipelines

50: Water transport

51: Air transport

52: Warehousing and support activities for transportation

53: Postal and courier activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	4.9	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	high	average
Total employment (2010):	1,423,799	30,458,094
Share of total employment (% 2010):	4.7	100.0
Gender split (male:female) (% 2010):	80:20	53:47
Part-time share (% 2010):	13.6	27.9
Self-employment share (% 2010):	18.2	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

10.2 Industry Commentary

Background

Transport & storage comprises all types of commercial land transport and supporting facilities. It does not include the most popular mode of passenger transport, the private car (which with a few exceptions is not, normally, part of a commercial and revenue-earning industry).

It also includes: land transport via pipelines ; water transport; air transport; warehousing and various support activities for transportation; and postal and courier activities .

In the UK freight market, road transport dominates, but rail's share has increased a little over the past ten years. Because of its role in commuter and freight transport, rail transport, has remained a crucial part of the economy. Air transport has also seen rapid growth in recent years. Water transport, while a small industry in terms of employment is of great economic and social importance in the UK. The postal and courier industry is still quite significant in terms of employment.

10.3 Productivity and Output Trends

Output: The industry accounts for around 5 per cent of total output.

For many years, output trends have been positive in this industry. More recently, this has slowed markedly as a consequence of the recession and other factors.

Things are expected to pick up as the recovery from recession continues, with projected output growth of around 3 per cent per annum over the coming decade.

Productivity: Productivity growth was also depressed over the past 5 years.

This is expected to pick up to around 2½ per cent per annum over the next decade.

Employment: The industry’s share of total employment is about 5 per cent (almost 1½ million jobs).

Employment rose slightly over the past decade as a whole, but this disguises a downturn in the second half of the decade as the effect of the recession offset the previous growth.

As a consequence of the combination of expected output and productivity trends, employment levels are projected to grow by around 60,000 jobs over the coming decade.

10.4 Employment by Status and Gender

This is an industry in which jobs are mainly undertaken by men, although women account for around 1 in 5 jobs.

Part-time employment is important accounting for 3 in every 20 jobs, split fairly evenly between men and women. This share is quite low compared to many other service industries.

Full time employees in the industry are predominantly male.

Self-employment currently accounts for almost 1 in 5 jobs, and is especially high in the road transport sector. The vast majority of these posts are taken by men (lorry drivers, etc).

Based on a continuation of recent trends, the female share of total employment is projected to rise slightly.

The share of part-timers is also projected to continue to rise.

A slight reduction in self-employment shares is projected.

10.5 Projections of Employment by Occupation

Key aspects of occupational structure

Process, plant & Machine operatives (especially drivers) remain the largest occupational group in this industry, despite declines in their employment share over recent decades. This group still accounts for 4 in 10 of all jobs.

Elementary occupations are also important accounting for over 15 per cent.

The former has been declining in importance as measured by shares of total employment.

Future changes

Changes in occupational structure inevitably will tend to favour white collar groups such as managers, professionals and associate professionals.

Caring, leisure and other service occupations and sales & customer service occupations are also projected to show small but significant increases.

In contrast, small but significant job losses are projected for skilled trades and process, plant & machine operatives.

10.6 Replacement demands

Table 10.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Although only a modest increase in total employment is projected (of around 100,000 jobs), once again, the need to replace those who will be leaving the current workforce will be very substantial.

Replacement demands are projected to be over 5 times as big as the increases arising from expansion demands.

Replacement demands over the next 10 years are estimated at over ½ million jobs in total.

By far the largest figures are for process, plant & machine operatives, followed by elementary occupations.

As in other industries, a substantial proportion of the current workforce will need to be replaced over the next decade in all other occupations. Typically these average over a third of current employment levels over the decade as a whole.

10.7 Shift share analysis

Table 10.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect was largely insignificant over the past two decade. This pattern is projected to continue.

Occupational effects are generally similar to those for all industries and services, positive for higher level white collar occupations but negative effects for blue collar occupations such as skilled trades and process, plant & machine operatives.

10.8 Implications for qualifications

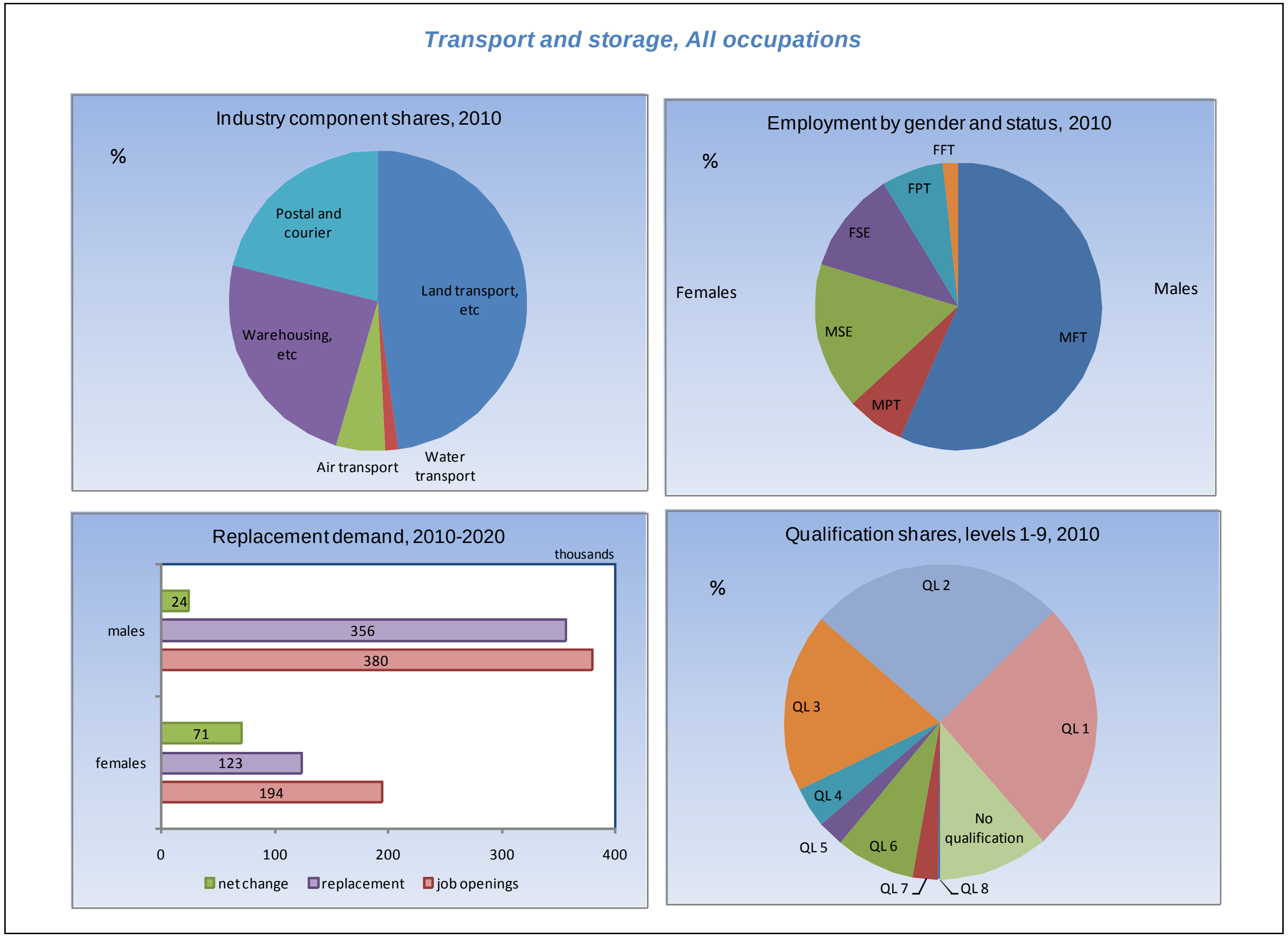
The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Transport and storage favours those qualified at intermediate and low level. Just over 45 per cent of employment was accounted for by those with intermediate qualifications (QCF2 and 3) in 2010 and this is expected to fall slightly by 2020.

The share of those with higher qualifications (QCF4-8) is also expected to rise during the same period from just over 15 per cent to almost 25 per cent. On the other hand, those with low or no formal qualifications (QCF 0-1) are expected to fall from well over 35 per cent in 2010 to around 33 per cent by 2020.

Figure 10.1: Transport and storage – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 10.1: Trends in Output, Productivity and Employment

Average change in the period

Transport & storage				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	2.0	-1.0	3.0	3.4
Employment (% pa)	1.5	-0.7	0.5	0.8
(000s)	105	-49	36	59
Productivity (% pa)	0.5	-0.3	2.4	2.5

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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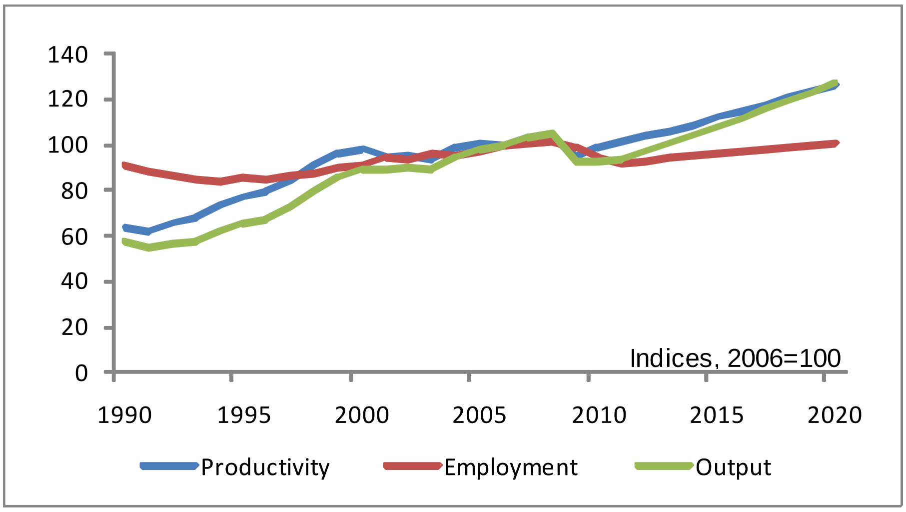
Figure 10.2: Output, productivity and employment in Transport and storage



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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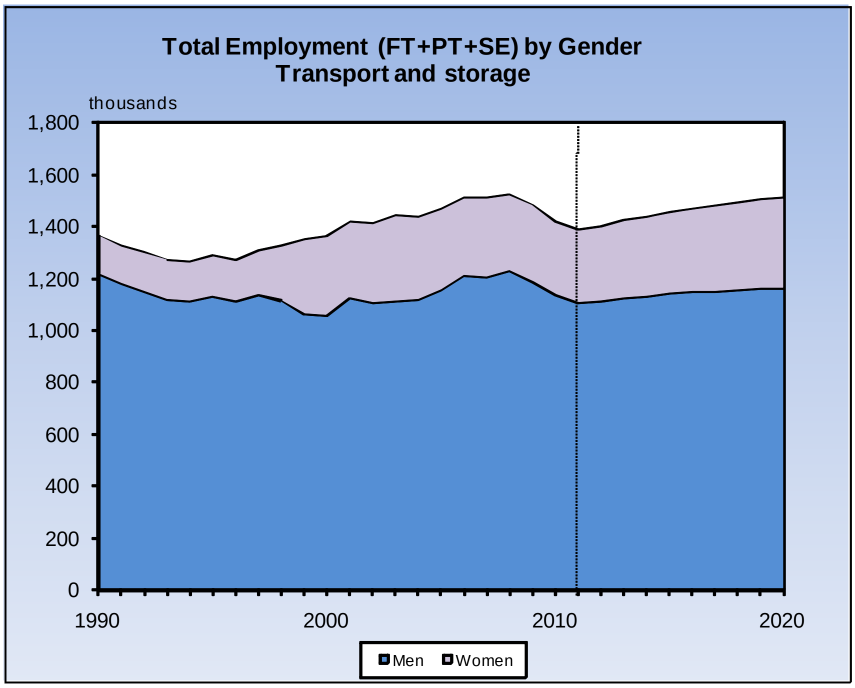
Figure 10.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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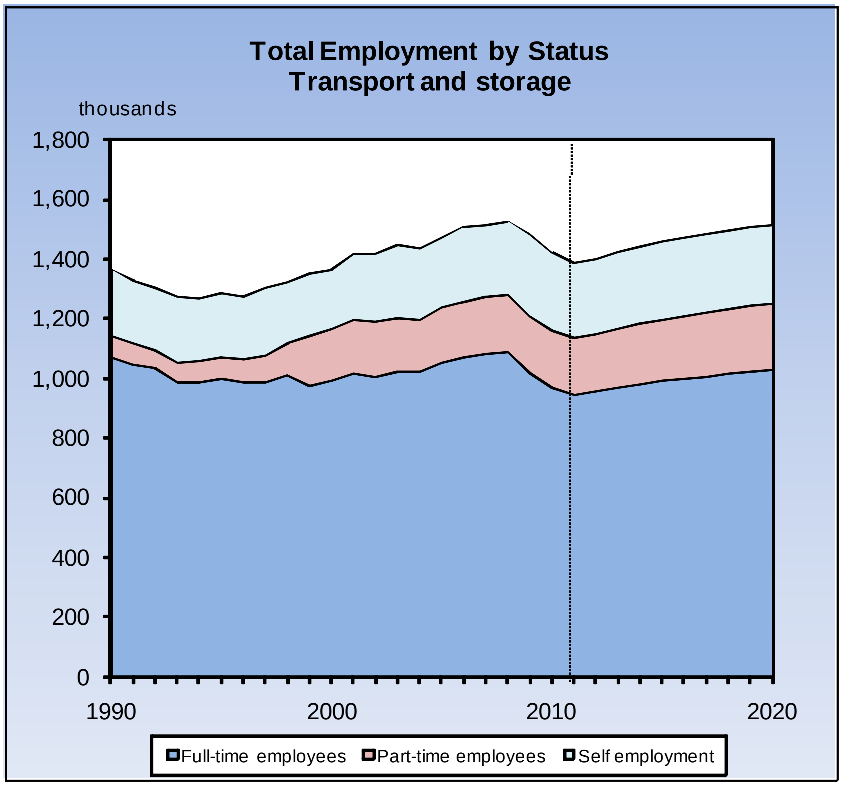
Figure 10.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 10.2: Employment by gender and status

Employment Status	Transport and storage											
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	806	(56.6)	94	(6.6)	235	(16.5)	1,135	(79.7)	0	2	2	4
Female employment	165	(11.6)	99	(6.9)	25	(1.7)	289	(20.3)	20	14	-2	32
Total employment	971	(68.2)	193	(13.6)	260	(18.2)	1,424	(100)	20	15	0	36
2015									**2015-2020**			
Male employment	806	(55.2)	96	(6.6)	237	(16.3)	1,139	(78)	12	2	6	20
Female employment	185	(12.7)	112	(7.7)	23	(1.6)	320	(22)	24	17	-2	39
Total employment	991	(67.9)	209	(14.3)	260	(17.8)	1,460	(100)	37	19	4	59
2020									**2010-2020**			
Male employment	818	(53.9)	98	(6.4)	243	(16)	1,159	(76.3)	12	4	8	24
Female employment	210	(13.8)	129	(8.5)	21	(1.4)	360	(23.7)	44	30	-4	71
Total employment	1,028	(67.7)	227	(15)	264	(17.4)	1,519	(100)	56	34	4	95

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 10.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Transport and storage						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	91	93	105	118	131	26	45	70
2. Professional occupations	65	63	71	81	92	21	27	47
3. Associate professional and technical	135	113	103	115	131	28	38	66
4. Administrative and secretarial	117	158	148	152	153	5	64	69
5. Skilled trades occupations	114	93	88	83	80	-9	33	24
6. Caring, leisure and other service	61	87	89	100	115	26	38	65
7. Sales and customer service	29	43	49	56	63	14	16	30
8. Process, plant and machine operatives	561	508	543	524	515	-29	254	225
9. Elementary occupations	195	209	227	232	240	13	80	93
Total	1,369	1,367	1,424	1,460	1,519	95	594	689
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	6.6	6.8	7.4	8.1	8.6	24.4	42.3	66.7
2. Professional occupations	4.8	4.6	5.0	5.5	6.0	28.9	37.6	66.5
3. Associate professional and technical	9.9	8.2	7.2	7.9	8.6	27.1	36.9	64.1
4. Administrative and secretarial	8.6	11.6	10.4	10.4	10.1	3.4	43.4	46.8
5. Skilled trades occupations	8.3	6.8	6.2	5.7	5.2	-10.0	37.3	27.3
6. Caring, leisure and other service	4.5	6.4	6.2	6.9	7.6	29.7	43.1	72.8
7. Sales and customer service	2.1	3.2	3.5	3.8	4.2	28.1	31.8	59.8
8. Process, plant and machine operatives	40.9	37.1	38.2	35.9	33.9	-5.3	46.7	41.4
9. Elementary occupations	14.2	15.3	15.9	15.9	15.8	5.7	35.2	40.9
Total	100.0	100.0	100.0	100.0	100.0	6.7	41.7	48.4

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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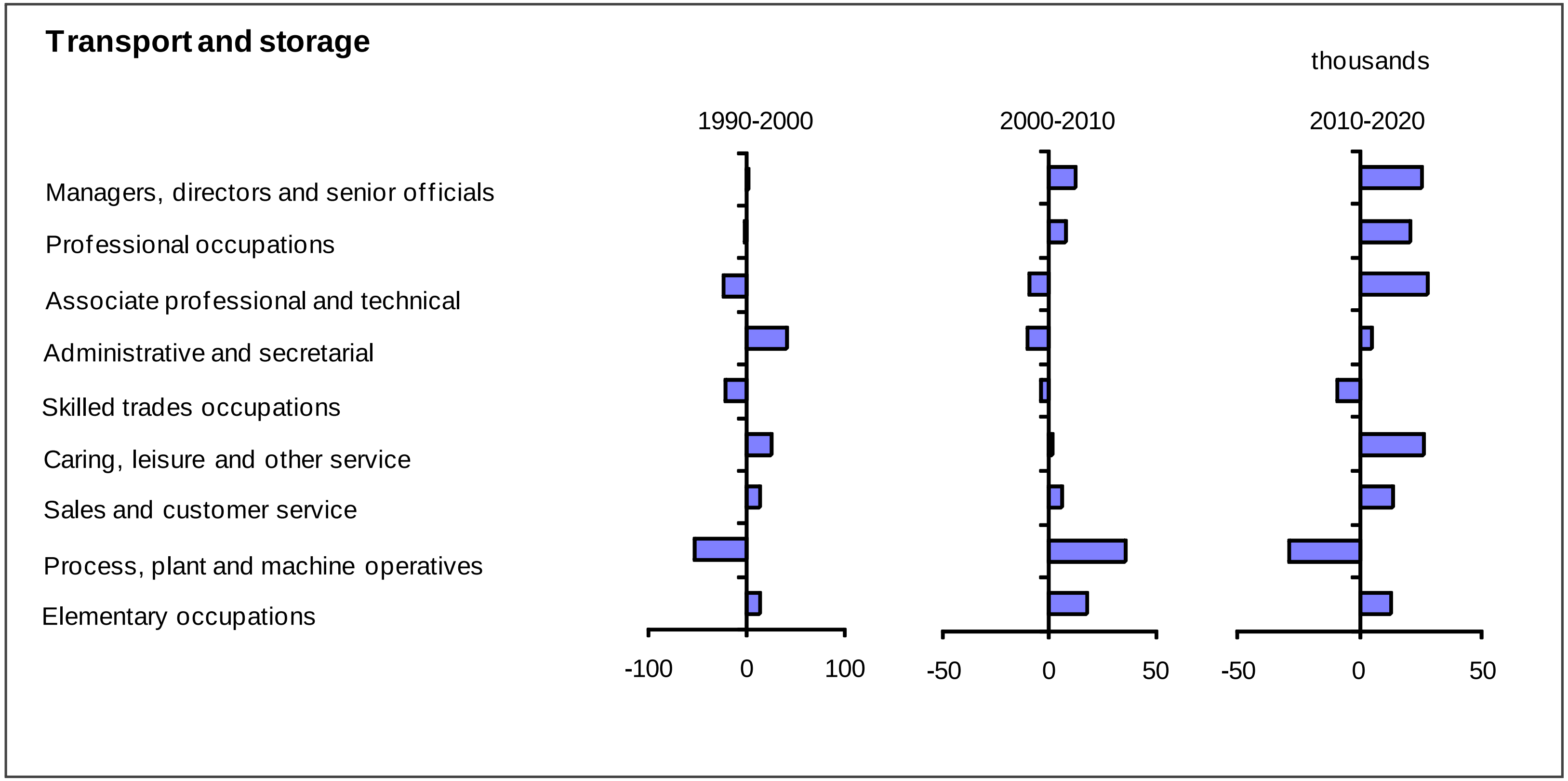
Figure 10.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 10.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	2	1	-1	3	12	4	0	8	26	5	2	19
2. Professional occupations	-2	1	-1	-2	8	3	0	5	21	4	1	16
3. Associate professional and technical	-23	2	-2	-23	-10	5	0	-14	28	5	2	21
4. Administrative and secretarial	41	2	-2	41	-10	7	0	-17	5	8	2	-5
5. Skilled trades occupations	-21	2	-2	-21	-4	4	0	-8	-9	5	1	-15
6. Caring, leisure and other service	26	1	-1	26	2	4	0	-2	26	5	1	21
7. Sales and customer service	14	0	0	14	6	2	0	4	14	3	1	11
8. Process, plant and machine operatives	-53	8	-9	-52	36	22	-1	15	-29	28	9	-65
9. Elementary occupations	14	3	-3	14	17	9	0	9	13	12	4	-2
Total	-2	20	-22	0	56	59	-3	0	95	72	22	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	2.7	1.5	-1.6	2.8	12.9	4.3	-0.2	8.8	24.4	5.1	1.6	17.7
2. Professional occupations	-2.7	1.5	-1.6	-2.5	12.4	4.3	-0.2	8.2	28.9	5.1	1.6	22.3
3. Associate professional and technical	-16.8	1.5	-1.6	-16.7	-8.6	4.3	-0.2	-12.7	27.1	5.1	1.6	20.5
4. Administrative and secretarial	34.7	1.5	-1.6	34.8	-6.4	4.3	-0.2	-10.6	3.4	5.1	1.6	-3.3
5. Skilled trades occupations	-18.8	1.5	-1.6	-18.6	-4.7	4.3	-0.2	-8.8	-10.0	5.1	1.6	-16.7
6. Caring, leisure and other service	42.0	1.5	-1.6	42.1	1.9	4.3	-0.2	-2.3	29.7	5.1	1.6	23.1
7. Sales and customer service	46.7	1.5	-1.6	46.9	14.4	4.3	-0.2	10.3	28.1	5.1	1.6	21.4
8. Process, plant and machine operatives	-9.4	1.5	-1.6	-9.3	7.0	4.3	-0.2	2.9	-5.3	5.1	1.6	-11.9
9. Elementary occupations	7.3	1.5	-1.6	7.4	8.3	4.3	-0.2	4.2	5.7	5.1	1.6	-0.9
Total	-0.1	1.5	-1.6	0.0	4.1	4.3	-0.2	0.0	6.7	5.1	1.6	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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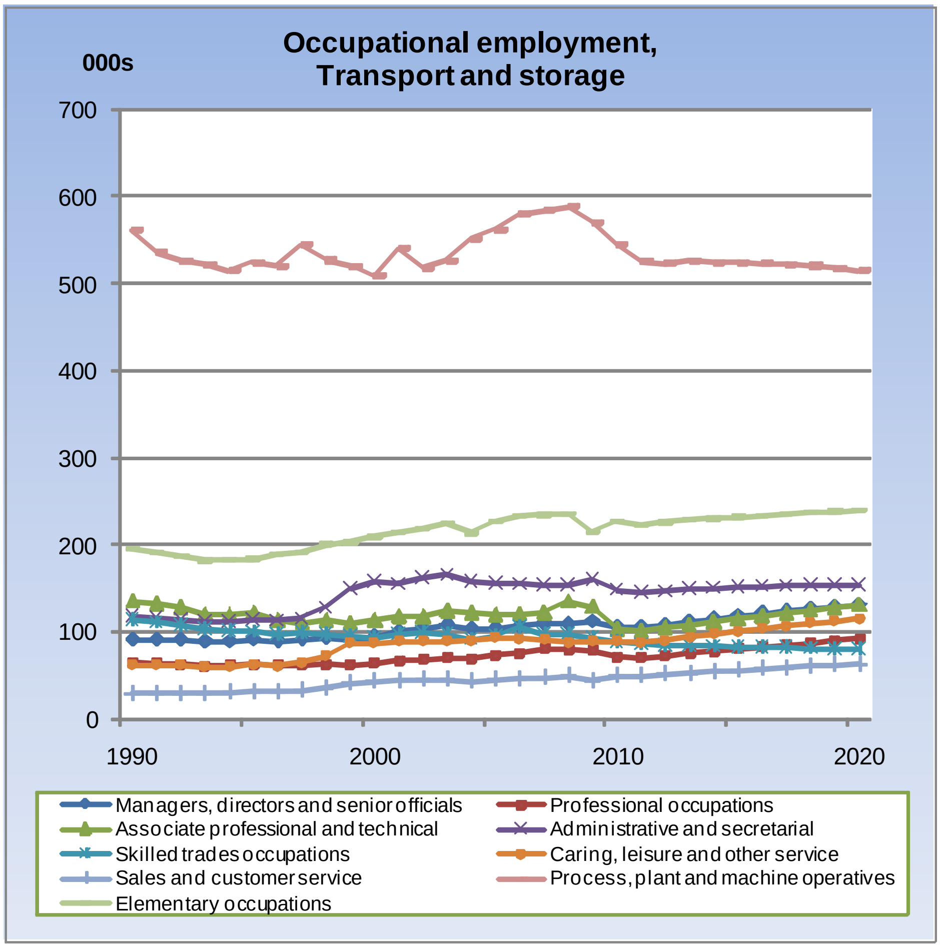
Figure 10.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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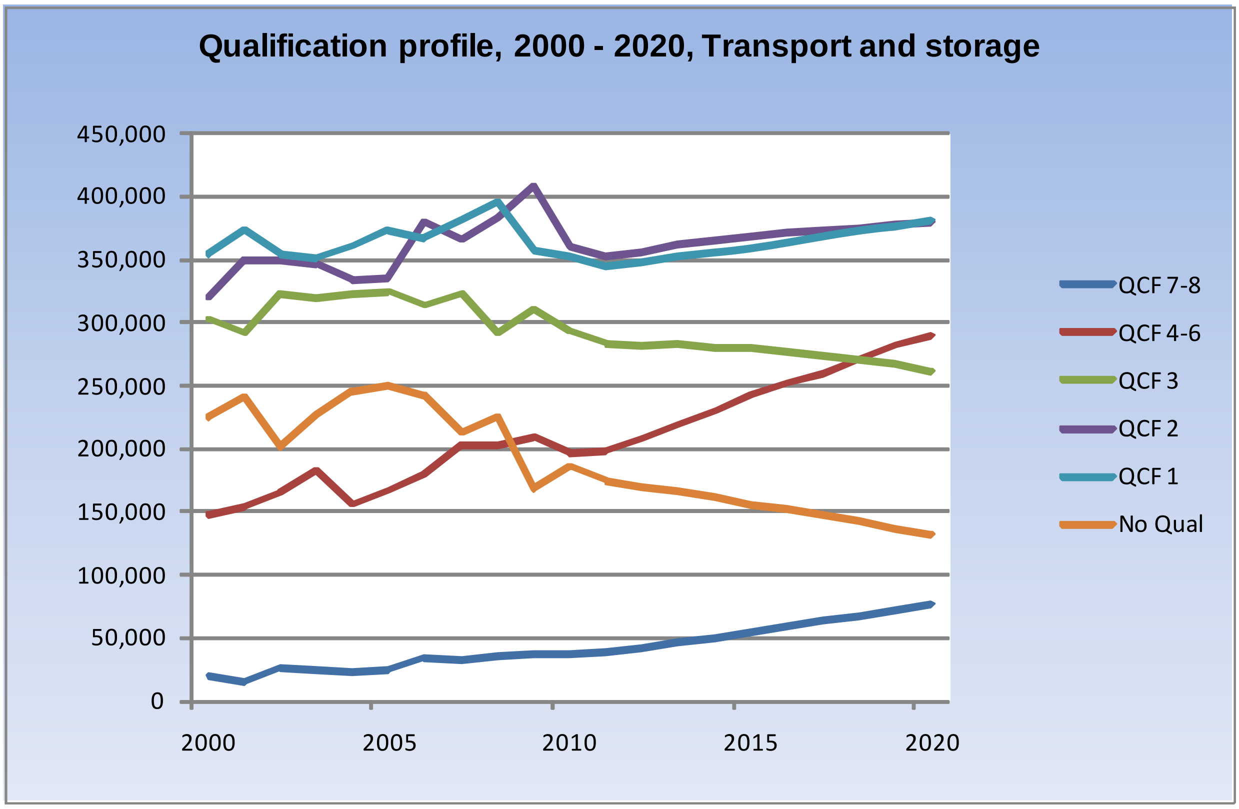
Figure 10.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 10.5: Implications for employment by qualification

United Kingdom : Transport and storage			000s		
QCF group	Base year level 2010	Change 2010 - 2020	Projected level 2020	Replacement Demand	Total requirement 2010 - 2020
QCF 7-8	37	40	77	15	56
QCF 4-6	197	93	290	82	175
QCF 3	292	-30	262	122	92
QCF 2	360	19	379	150	169
QCF 1	352	27	380	147	175
No Qual	186	-54	131	78	23
Total	1,424	95	1,519	594	689
	% share	% change	% share	% share	% of base year level
QCF 7-8	2.6	109.9	5.1	2.6	151.6
QCF 4-6	13.8	47.2	19.1	13.8	89.0
QCF 3	20.5	-10.3	17.2	20.5	31.4
QCF 2	25.3	5.2	25.0	25.3	46.9
QCF 1	24.8	7.8	25.0	24.8	49.5
No Qual	13.0	-29.3	8.6	13.0	12.4
Total	100.0	6.7	100.0	100.0	48.4

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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11 Accommodation and food

11.1 Description of the industry

INDUSTRY 11: ACCOMMODATION AND FOOD
SIC2007 headings: 55-56

55: Accommodation

56: Food and beverage service activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	3.2	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	1,892,394	30,458,094
Share of total employment (% 2010):	6.2	100.0
Gender split (male:female) (% 2010):	48:52	53:47
Part-time share (% 2010):	49.0	27.9
Self-employment share (% 2010):	8.6	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

11.2 Industry Commentary

Background

The accommodation and food industry because of its great dependence on tourism, is particularly vulnerable to seasonal trends, fashion and currency movements.

It was initially hard hit by the recession but has since bounced back, in part due to the lower exchange rate for the pound.

After a slowdown in 2008-2010 due to the financial crisis and recession hotels and restaurants can expect a boost in the short term from the London Olympic Games.

11.3 Productivity and Output Trends

Output: The industry accounts for around 3¼ per cent of total output.

Output trends have continued to be positive, despite the impact of the recession, although rates of increase in output were well down in the second half of the decade.

Over the medium term, the longer term trend is expected to be re-established, with strong growth of 3-3 ½ per cent per annum over the coming decade.

Productivity: Over much of the 1980s and 1990s, productivity levels were fairly flat (when measured by output per head).

Some improvements were observed in recent years, despite the impact of the recession, as attempts to cut costs by reducing staffing levels (in what is a very labour intensive industry), bore fruit.

This is expected to be maintained over the coming decade, with rates of growth in productivity of 2-3 per cent per annum being achieved.

Employment: The industry's share of total employment is about 6 per cent (almost 2 million jobs).

The net impact of the expected developments in output levels and productivity on the growth in employment levels is that they are expected to pick up, but remain modest compared to the rates of growth achieved before the recession.

Some significant increases are still expected, amounting to around 150,000 extra jobs by the end of the decade.

11.4 Employment by Status and Gender

In this industry females currently account for just over half of all employment.

Around half the jobs in the industry are also part-time, these are predominantly held by women.

Self-employment now accounts for fewer than 1 in 10 jobs and is on a declining trend in terms of share of employment.

A slight decrease in the female share of employment is projected, reaching parity with males in terms of total job numbers.

However, patterns by occupation and status (i.e. full-time, part-time, or self-employment) are very different between the two genders.

Continuing the long-term decline, self-employment shares are projected to weaken slightly.

Full-time employees are expected to increase their employment shares modestly.

11.5 Projections of Employment by Occupation

Key aspects of occupational structure

One group dominates employment numerically in this sector. Elementary occupations account for half of all the jobs. This includes many jobs such as cleaners, bar staff, porters and others that need only short periods of induction training in order to do them successfully.

Managers, directors & senior officials and skilled trades are the other two significant groups in terms of numbers each accounting for around 3 in 20 of all jobs.

Future changes

These general patterns are not expected to change very much over the next decade.

Most groups other than skilled trades are expected to have employment increases.

Professional and associate professional occupations are projected to see the fastest rate of employment growth (albeit from small base levels).

11.6 Replacement demands

Table 11.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

There are projected to be significant, replacement demand needs for almost all occupations, reinforcing the positive expansion demands.

Around 800,000 new workers will be needed just to replace existing personnel over the next 10 years.

The largest increases are in the elementary occupations and the managers, directors & senior officials groups.

In terms of education and training needs, these present some markedly different challenges.

Over the next 10 years, most other occupations will also require significant proportions of the current workforce to be replaced (typically some 40 per cent of the current workforce).

11.7 Shift share analysis

Table 11.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect played a marked part in expanding employment for many occupations in this industry during the 1990s, but this fell to zero in the past decade .

The industry effect is projected to pick up again over the next 10 years.

Occupational effects are largely similar to the general pattern for all industries and services but the sharp negative effect for skilled trades and the positive effect for elementary occupations are notable.

11.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

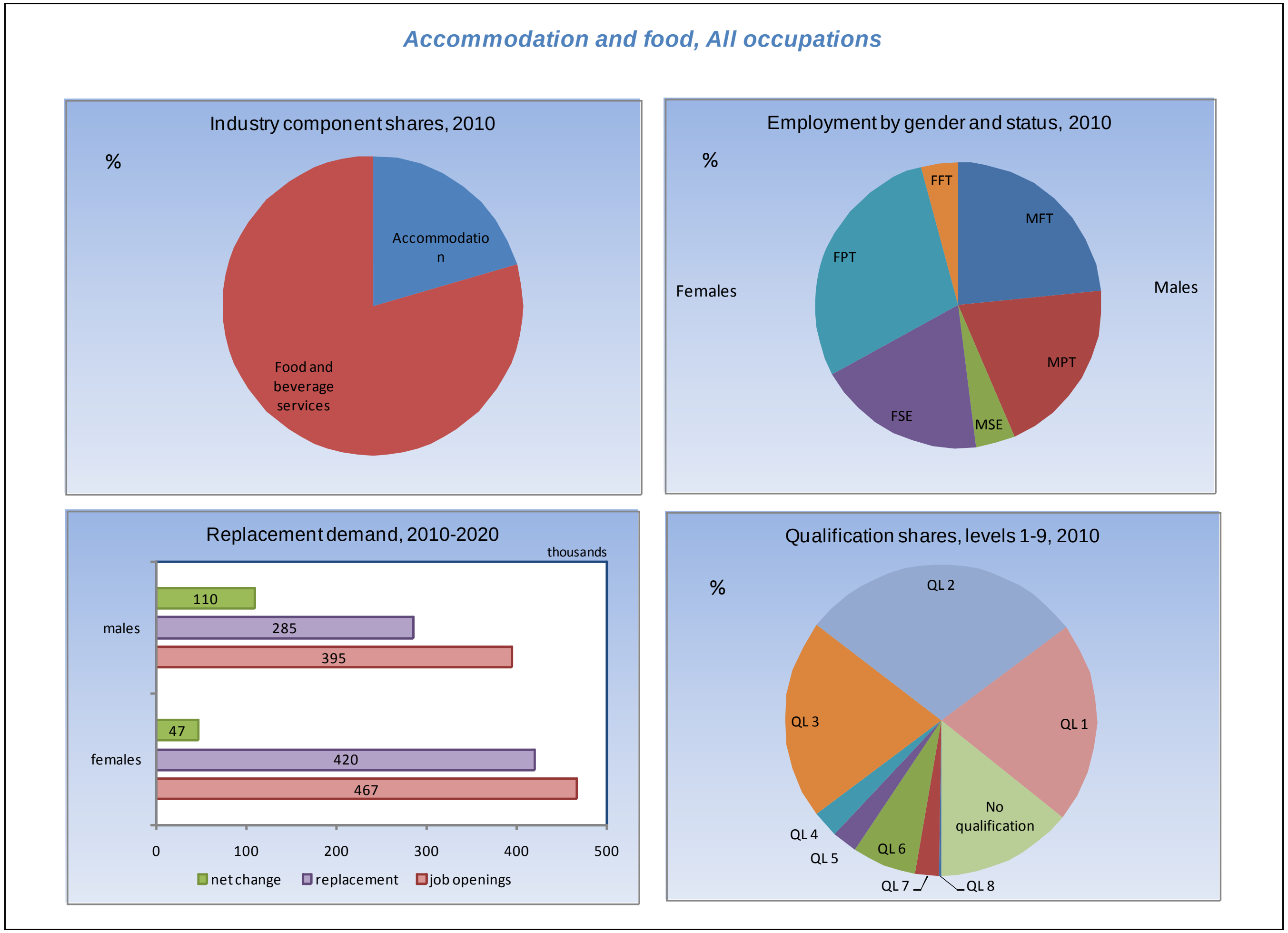
The occupational structure in Accommodation and food favours those qualified at intermediate and low level.

Almost 35 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1) while nearly 50 per cent had qualifications at QCF levels 2 and 3.

However, the shares of those qualified at higher levels are rising significantly. They are projected to rise from around 15 per cent to well over 25 per cent of total employment by 2020.

Shares of those with intermediate qualifications(QCF 2 and 3) and those with low or no qualifications (QCF 0-1) are both projected to fall, with low or no qualifications accounting for less than a third of all jobs by 2020.

Figure 11.1: Accommodation and food – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 11.1: Trends in Output, Productivity and Employment

Average change in the period

Accommod. & food				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	2.3	0.5	3.1	3.5
Employment (% pa)	1.7	-0.8	0.9	0.7
(000s)	156	-75	83	74
Productivity (% pa)	0.7	1.3	2.2	2.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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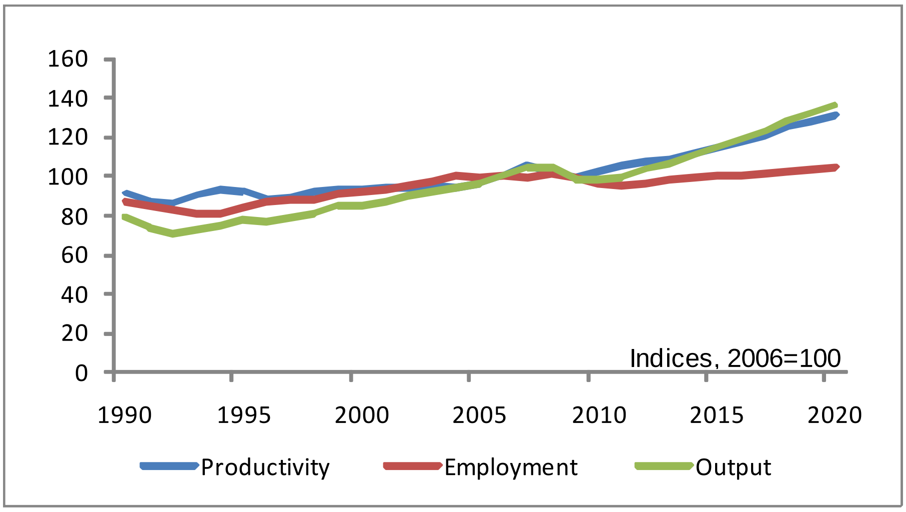
Figure 11.2: Output, productivity and employment in Accommodation & food



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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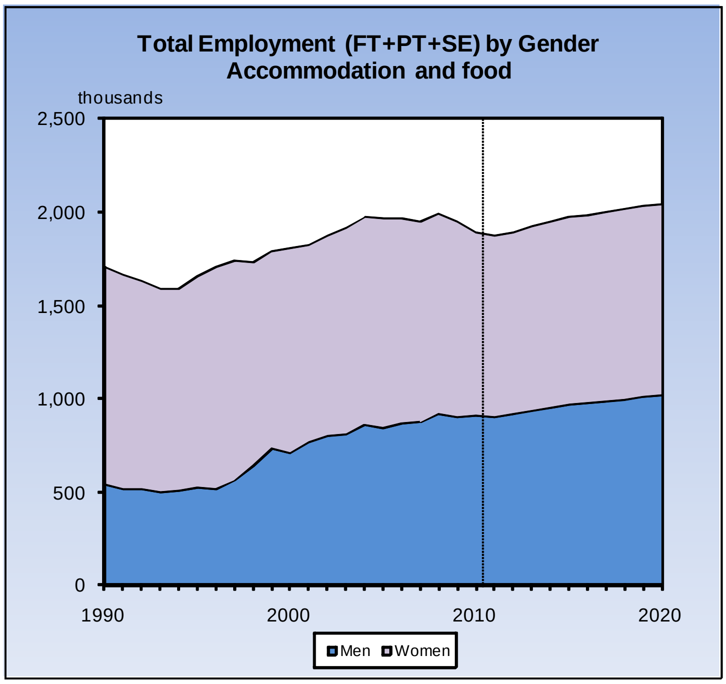
Figure 11.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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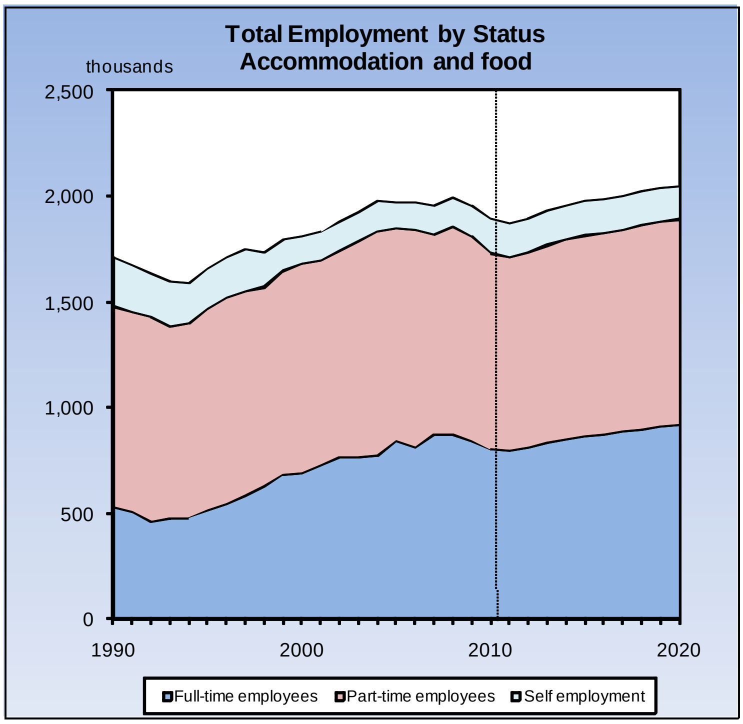
Figure 11.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 11.2: Employment by gender and status

	Employment Status				Accommodation and food							
									Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**		**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	443	(23.4)	382	(20.2)	84	(4.4)	909	(48)	30	34	-7	56
Female employment	359	(18.9)	546	(28.9)	79	(4.2)	984	(52)	32	-11	6	27
Total employment	801	(42.3)	928	(49)	163	(8.6)	1,892	(100)	61	22	-1	83
2015									**2015-2020**			
Male employment	472	(23.9)	416	(21)	77	(3.9)	965	(48.8)	29	33	-8	54
Female employment	390	(19.8)	535	(27.1)	85	(4.3)	1,010	(51.2)	31	-17	6	20
Total employment	863	(43.7)	951	(48.1)	162	(8.2)	1,975	(100)	60	16	-2	74
2020									**2010-2020**			
Male employment	501	(24.5)	448	(21.9)	69	(3.4)	1,018	(49.7)	59	66	-15	110
Female employment	421	(20.6)	518	(25.3)	91	(4.4)	1,030	(50.3)	63	-28	11	47
Total employment	923	(45)	967	(47.2)	160	(7.8)	2,049	(100)	122	39	-4	156

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 11.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Accommodation and food						**Net**	**Replacement**	**Total**
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	243	263	314	322	359	46	145	191
2. Professional occupations	36	42	51	55	64	13	20	33
3. Associate professional and technical	39	52	67	75	87	20	25	45
4. Administrative and secretarial	106	110	104	111	109	5	49	55
5. Skilled trades occupations	259	253	304	275	246	-58	115	57
6. Caring, leisure and other service	57	63	71	78	85	14	30	44
7. Sales and customer service	82	103	122	127	130	8	45	53
8. Process, plant and machine operatives	24	28	51	52	51	0	22	22
9. Elementary occupations	864	896	808	880	916	108	335	443
Total	1,711	1,811	1,892	1,975	2,049	156	787	943
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	14.2	14.5	16.6	16.3	17.5	14.5	46.3	60.8
2. Professional occupations	2.1	2.3	2.7	2.8	3.1	25.2	39.9	65.2
3. Associate professional and technical	2.3	2.9	3.6	3.8	4.3	29.9	37.4	67.2
4. Administrative and secretarial	6.2	6.1	5.5	5.6	5.3	5.2	47.6	52.8
5. Skilled trades occupations	15.1	14.0	16.1	13.9	12.0	-19.1	37.9	18.9
6. Caring, leisure and other service	3.3	3.5	3.8	3.9	4.2	20.3	41.8	62.2
7. Sales and customer service	4.8	5.7	6.5	6.5	6.4	6.6	36.7	43.3
8. Process, plant and machine operatives	1.4	1.6	2.7	2.6	2.5	0.2	42.9	43.1
9. Elementary occupations	50.5	49.5	42.7	44.6	44.7	13.3	41.4	54.8
Total	100.0	100.0	100.0	100.0	100.0	8.3	41.6	49.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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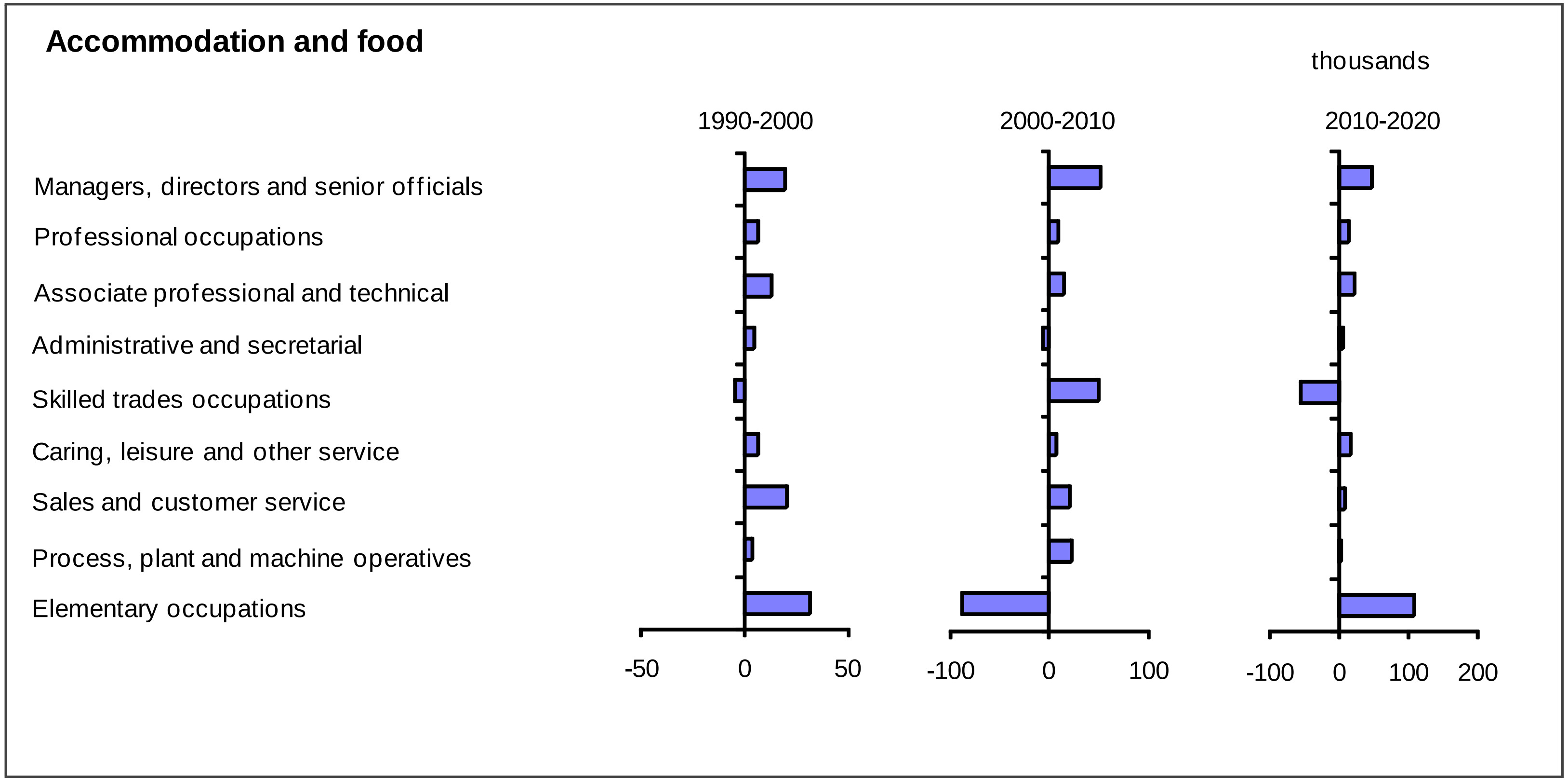
Figure 11.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 11.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	20	4	11	5	51	11	0	39	46	16	10	20
2. Professional occupations	6	1	2	4	9	2	0	7	13	3	2	9
3. Associate professional and technical	13	1	2	10	16	2	0	13	20	3	2	15
4. Administrative and secretarial	4	2	5	-2	-6	5	0	-11	5	5	3	-3
5. Skilled trades occupations	-5	4	11	-20	50	11	0	39	-58	15	10	-83
6. Caring, leisure and other service	7	1	2	3	8	3	0	5	14	4	2	9
7. Sales and customer service	20	1	4	15	19	4	0	15	8	6	4	-2
8. Process, plant and machine operatives	4	0	1	2	23	1	0	22	0	3	2	-4
9. Elementary occupations	32	13	38	-19	-88	39	2	-128	108	41	26	41
Total	100	25	74	0	82	79	3	0	156	96	60	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	8.1	1.5	4.4	2.2	19.4	4.3	0.2	14.9	14.5	5.1	3.2	6.3
2. Professional occupations	16.9	1.5	4.4	11.0	21.1	4.3	0.2	16.6	25.2	5.1	3.2	17.0
3. Associate professional and technical	31.8	1.5	4.4	26.0	29.9	4.3	0.2	25.4	29.9	5.1	3.2	21.6
4. Administrative and secretarial	4.1	1.5	4.4	-1.7	-5.7	4.3	0.2	-10.2	5.2	5.1	3.2	-3.1
5. Skilled trades occupations	-1.9	1.5	4.4	-7.8	19.8	4.3	0.2	15.3	-19.1	5.1	3.2	-27.3
6. Caring, leisure and other service	11.5	1.5	4.4	5.7	12.2	4.3	0.2	7.6	20.3	5.1	3.2	12.1
7. Sales and customer service	24.6	1.5	4.4	18.8	18.9	4.3	0.2	14.4	6.6	5.1	3.2	-1.6
8. Process, plant and machine operatives	15.3	1.5	4.4	9.5	82.1	4.3	0.2	77.6	0.2	5.1	3.2	-8.0
9. Elementary occupations	3.7	1.5	4.4	-2.2	-9.8	4.3	0.2	-14.3	13.3	5.1	3.2	5.1
Total	5.8	1.5	4.4	0.0	4.5	4.3	0.2	0.0	8.3	5.1	3.2	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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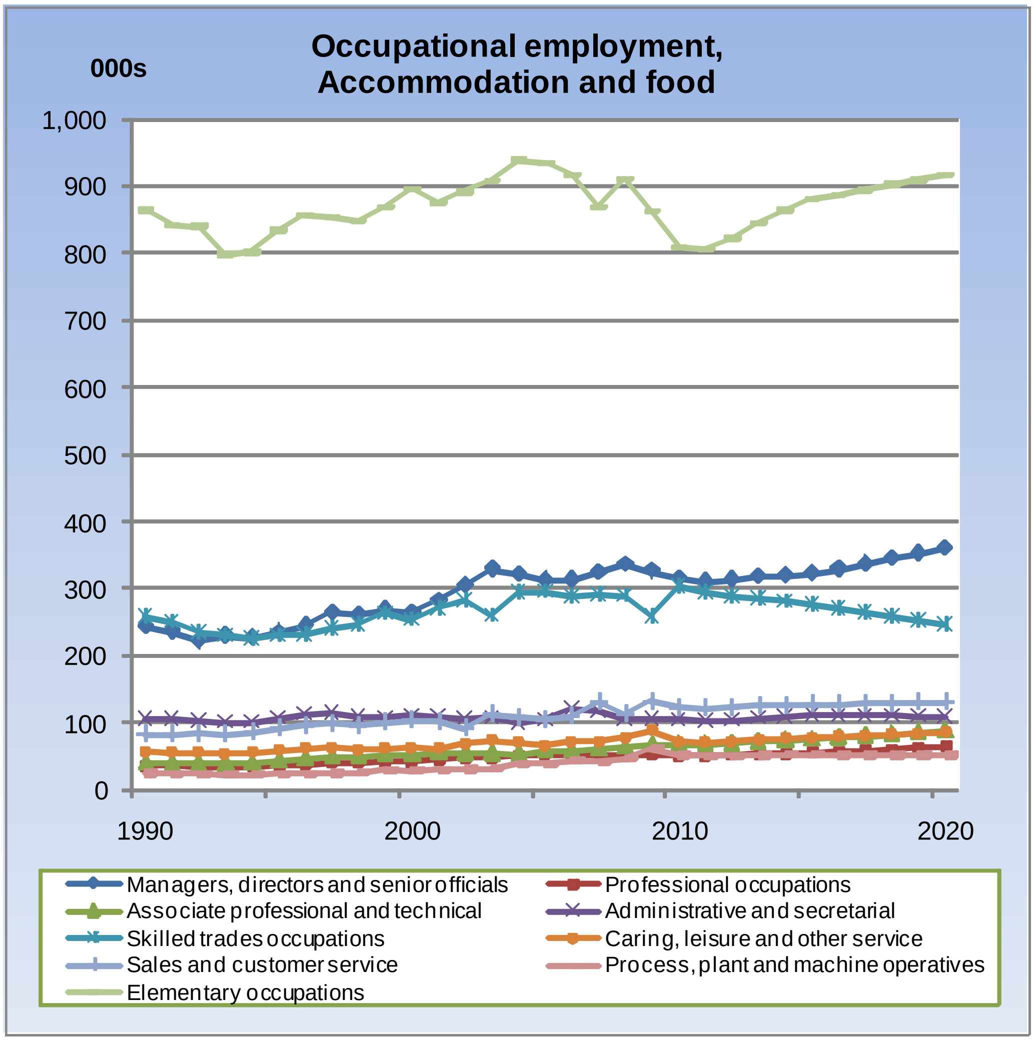
Figure 11.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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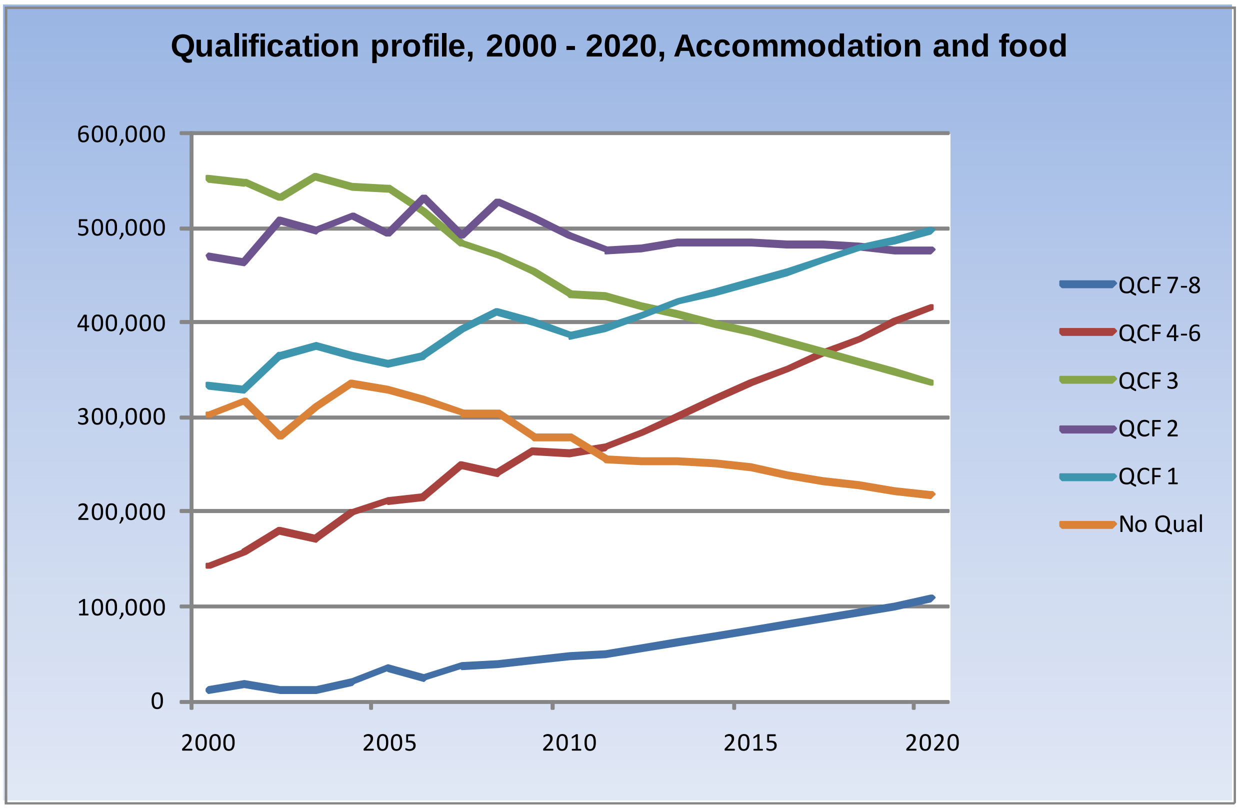
Figure 11.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 11.5: Implications for employment by qualification

United Kingdom : Accommodation and food				000s	
QCF group	Base year level 2010	Change 2010 - 2020	Projected level 2020	Replacement Demand	Total requirement 2010 - 2020
QCF 7-8	47	61	107	19	80
QCF 4-6	263	153	415	109	262
QCF 3	429	-93	336	178	85
QCF 2	490	-14	476	204	189
QCF 1	386	111	497	161	271
No Qual	278	-60	218	116	55
Total	1,892	156	2,049	787	943
	% share	% change	% share	% share	% of base year level
QCF 7-8	2.5	131.1	5.2	2.5	172.7
QCF 4-6	13.9	58.1	20.3	13.9	99.6
QCF 3	22.7	-21.7	16.4	22.7	19.9
QCF 2	25.9	-2.9	23.2	25.9	38.7
QCF 1	20.4	28.6	24.3	20.4	70.2
No Qual	14.7	-21.7	10.6	14.7	19.9
Total	100.0	8.3	100.0	100.0	49.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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12 Media

12.1 Description of the industry

INDUSTRY 12: MEDIA
SIC2007 headings: 58-60

58: Publishing activities

59: Motion picture, video and music publishing

60: Programming and broadcasting activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	1.8	100.0
Exposure to International Trade:	medium	average
Concentration (market share of largest employers):	high	average
Total employment (2010):	323,029	30,458,094
Share of total employment (% 2010):	1.1	100.0
Gender split (male:female) (% 2010):	57:43	53:47
Part-time share (% 2010):	14.7	27.9
Self-employment share (% 2010):	23.8	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

12.2 Industry Commentary

Background

The media industry includes the broadcast media as well as publishing.

The UK has one of the most liberal markets in the world for the media as well as publishing. These activities have continued to develop at a rapid rate in this environment.

In the long term, the industry will be shaped by the forces of rapidly developing technologies, particularly in communications. Innovation is likely to be further driven by cross-border competition resulting from European harmonisation under the Services Directive, currently under public consultation in the UK.

12.3 Productivity and Output Trends

Output: The industry now accounts for around 2 per cent of total output.

In recent years, output in this industry has grown rapidly, despite the recession.

It has been one of the UK's fastest growing sectors.

Output trends in this industry accelerated in the second half of the past decade and these rapid rates of growth are expected to pick up as the economy recovers.

It remains a high growth area.

Productivity: Productivity has also grown rapidly.

A fast rate of productivity increase is anticipated, as further technological change takes place, and pressures to save costs grow.

.

Employment: The industry's share of total employment is currently about 1¼ per cent (around 325,000 jobs).

The net impact of the expected developments in output levels and the projected increases in productivity on the growth in employment levels is that they are also expected to pick up.

But increases in job numbers are modest, around 65,000 extra jobs by end of the decade.

12.4 Employment by Status and Gender

In this industry females currently account for around 4 in 10 jobs.

Around 3 in 20 jobs in the industry are part-time, these are predominantly held by women..

Self-employment accounts for almost a quarter of all jobs, but these are predominantly held by men.

Females are expected to increase their share of employment slightly over the coming decade.

The shares of part-time and self-employment jobs are projected to remain unchanged.

12.5 Projections of Employment by Occupation

Key aspects of occupational structure

Currently employment in this industry is concentrated in three main occupations:

- Managers, directors & senior officials (3 in 20);
- Professionals (almost 1 in 5); and
- Associate professional (more than 3 in 10 of all jobs)

All of these occupations have seen their employment shares rise in recent years.

Future changes

These general patterns are not expected to change very much over the next decade.

Most groups other than administrative & secretarial occupations are expected to experience employment increases.

Professional and associate professional occupations are projected to see the fastest rate of employment growth.

Managers and caring, leisure and other service occupations also benefit from rapid rates of growth.

12.6 Replacement demands

Table 12.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

There will be significant replacement needs to be met across all occupations.

These replacement needs are predominantly concentrated in the higher level occupations highlighted above.

A total replacement demand of around 130,000 workers is projected across the industry as whole.

12.7 Shift share analysis

Table 12.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

There was a small negative industry effect over the past decade, in contrast to strong positive effect in the 1990s.

The latter is projected to re-establish itself in the coming decade.

Over the projection period, occupational effects are positive for occupations other than administrative & secretarial, skilled trades, sales and customer service occupations process, plant & machine operatives.

12.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

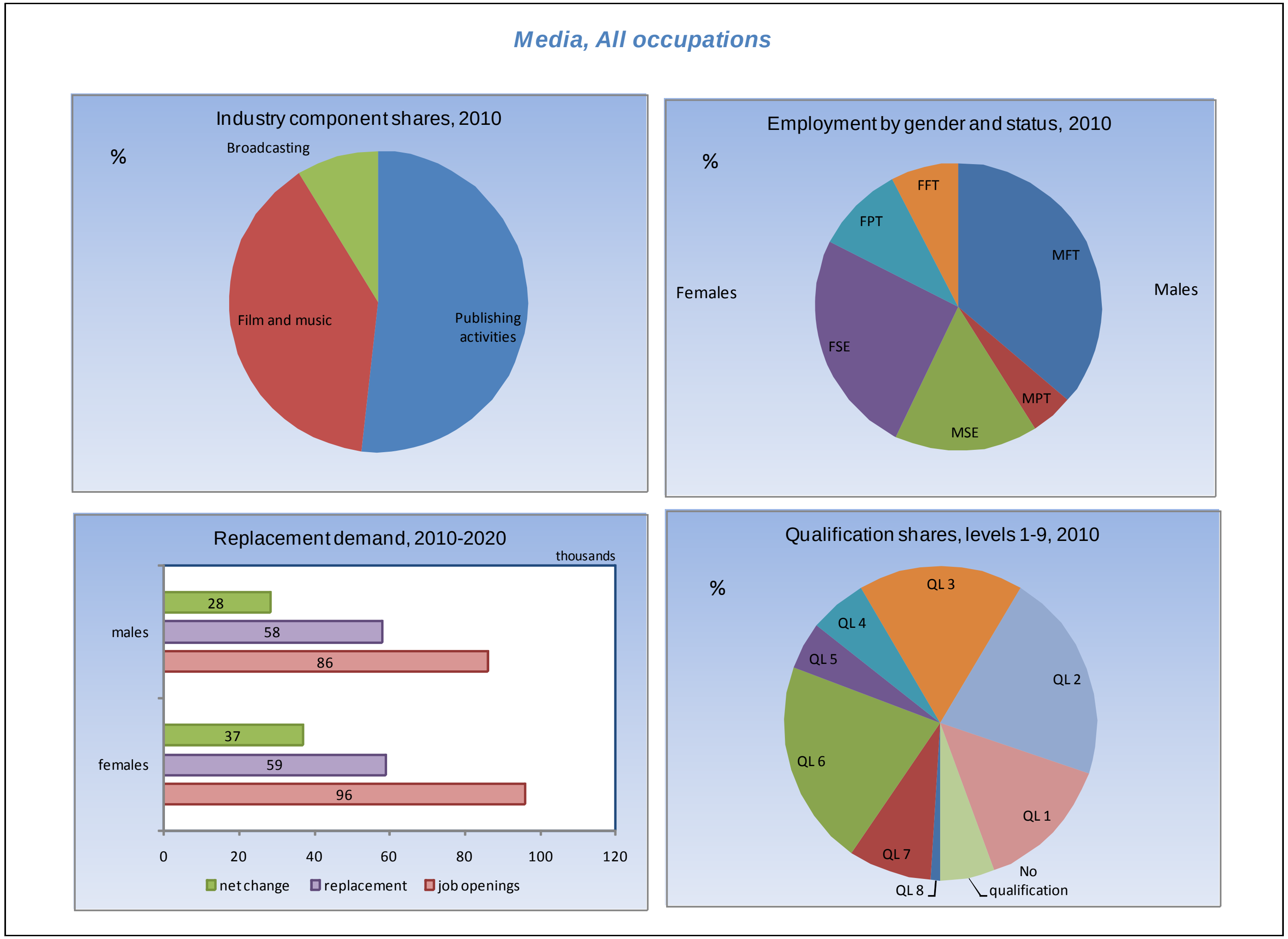
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Media already favours those qualified at intermediate and high levels.

Less than 20 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1) while over 35 per cent had qualifications at QCF levels 2 and 3 and over 45 per cent had higher qualifications (QCF 4-8).

The trend toward more employees being highly qualified is expected to continue with the higher levels (QCF 4-8) rising to nearly 50 per cent by 2020. Intermediate (QCF levels 2 and 3) are projected to fall.

Figure 12.1: Media – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 12.1: Trends in Output, Productivity and Employment

Average change in the period

Media Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	0.2	3.9	4.7	6.9
Employment (% pa)	0.1	-0.4	1.6	2.1
(000s)	1	-6	28	38
Productivity (% pa)	0.2	4.3	3.0	4.7

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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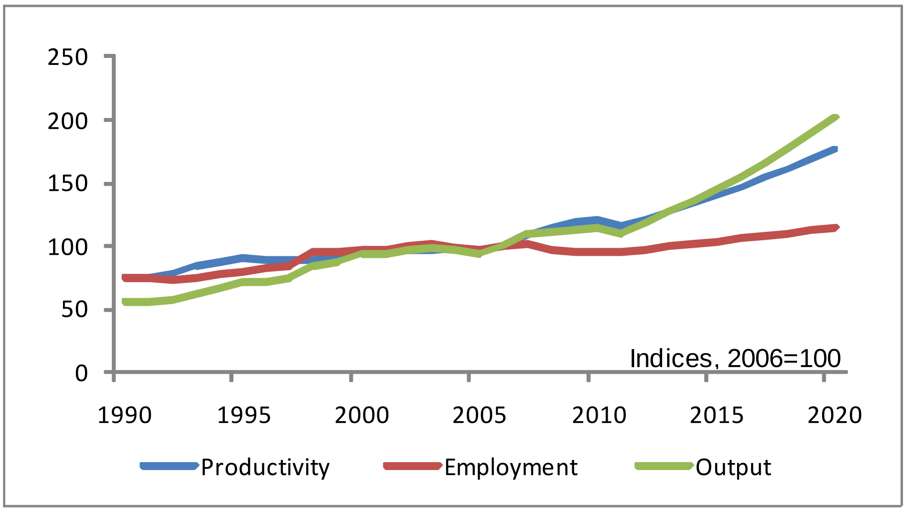
Figure 12.2: Output, productivity and employment in Media



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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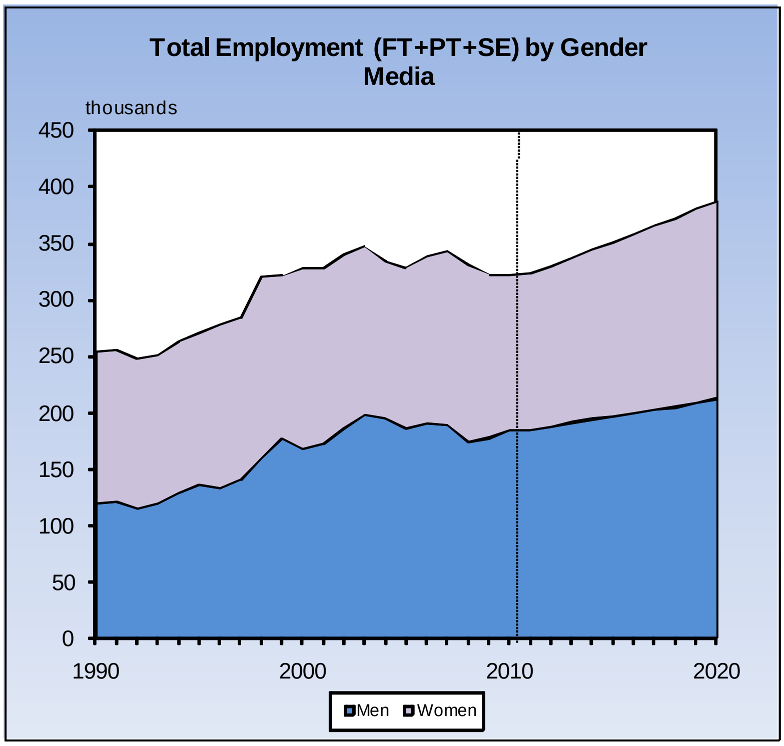
Figure 12.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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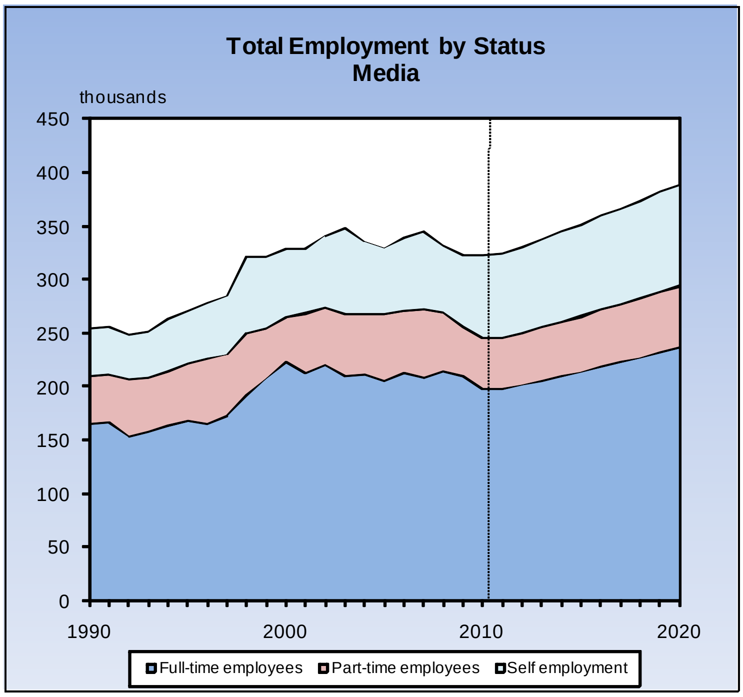
Figure 12.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 12.2: Employment by gender and status

Employment Status	Media												
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	117	(36.2)	15	(4.8)	52	(16.2)	185	(57.2)	6	1	6	12
Female employment	81	(25.2)	32	(10)	25	(7.6)	138	(42.8)	10	4	2	16
Total employment	198	(61.4)	48	(14.7)	77	(23.8)	323	(100)	15	5	8	28
2015									**2015-2020**			
Male employment	123	(34.9)	16	(4.6)	58	(16.5)	197	(56.1)	9	1	6	16
Female employment	91	(26)	36	(10.3)	27	(7.7)	154	(43.9)	14	4	3	21
Total employment	214	(60.9)	52	(14.9)	85	(24.2)	351	(100)	23	5	9	38
2020									**2010-2020**			
Male employment	132	(33.9)	17	(4.4)	64	(16.5)	213	(54.9)	15	2	12	28
Female employment	105	(27.1)	40	(10.3)	30	(7.7)	175	(45.1)	24	8	5	37
Total employment	237	(61)	57	(14.7)	94	(24.3)	388	(100)	38	9	17	65

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 12.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Media						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	26	36	45	51	57	12	20	32
2. Professional occupations	34	58	63	71	80	17	24	41
3. Associate professional and technical	50	89	97	111	125	28	37	65
4. Administrative and secretarial	48	45	35	34	34	0	16	16
5. Skilled trades occupations	44	42	30	27	28	-2	12	10
6. Caring, leisure and other service	8	9	9	10	11	2	4	6
7. Sales and customer service	12	15	15	15	17	2	5	7
8. Process, plant and machine operatives	8	9	6	6	6	0	3	3
9. Elementary occupations	25	25	25	26	30	5	10	15
Total	255	328	323	351	388	65	130	195
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	10.1	11.0	13.9	14.5	14.6	26.5	43.9	70.4
2. Professional occupations	13.2	17.5	19.4	20.3	20.6	27.9	38.0	65.9
3. Associate professional and technical	19.8	27.1	29.9	31.6	32.2	29.2	38.1	67.3
4. Administrative and secretarial	18.9	13.7	10.7	9.6	8.9	-0.5	46.4	45.8
5. Skilled trades occupations	17.2	12.7	9.2	7.8	7.2	-6.0	40.2	34.1
6. Caring, leisure and other service	3.2	2.8	2.7	2.7	2.8	24.0	43.6	67.5
7. Sales and customer service	4.7	4.7	4.6	4.4	4.4	14.9	35.2	50.0
8. Process, plant and machine operatives	3.2	2.8	1.9	1.7	1.6	3.5	43.9	47.4
9. Elementary occupations	9.8	7.7	7.7	7.5	7.7	20.3	38.7	59.0
Total	100.0	100.0	100.0	100.0	100.0	20.2	40.1	60.3

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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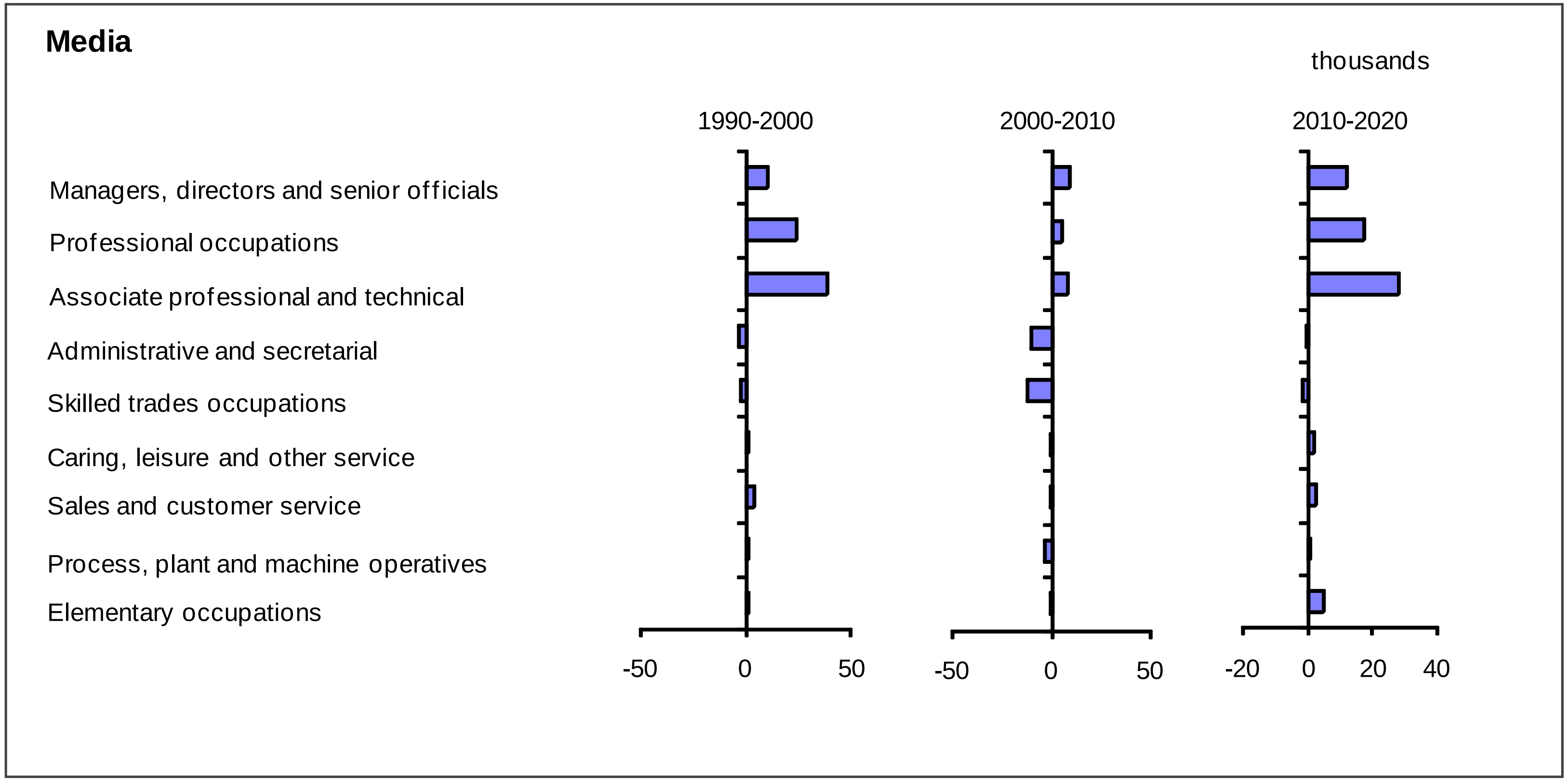
Figure 12.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 12.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	10	0	7	3	9	2	-2	9	12	2	7	3
2. Professional occupations	24	0	9	14	5	2	-3	6	17	3	9	5
3. Associate professional and technical	39	1	14	24	8	4	-5	9	28	5	15	9
4. Administrative and secretarial	-3	1	13	-17	-10	2	-3	-10	0	2	5	-7
5. Skilled trades occupations	-2	1	12	-15	-12	2	-2	-11	-2	2	4	-8
6. Caring, leisure and other service	1	0	2	-1	0	0	-1	0	2	0	1	0
7. Sales and customer service	3	0	3	0	-1	1	-1	0	2	1	2	-1
8. Process, plant and machine operatives	1	0	2	-1	-3	0	-1	-3	0	0	1	-1
9. Elementary occupations	0	0	7	-7	-1	1	-1	0	5	1	4	0
Total	73	4	70	0	-5	14	-19	0	65	16	49	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	39.8	1.5	27.4	10.9	24.4	4.3	-5.9	25.9	26.5	5.1	15.1	6.3
2. Professional occupations	71.5	1.5	27.4	42.7	8.9	4.3	-5.9	10.4	27.9	5.1	15.1	7.7
3. Associate professional and technical	76.6	1.5	27.4	47.8	8.8	4.3	-5.9	10.4	29.2	5.1	15.1	9.0
4. Administrative and secretarial	-6.6	1.5	27.4	-35.5	-22.9	4.3	-5.9	-21.4	-0.5	5.1	15.1	-20.7
5. Skilled trades occupations	-5.0	1.5	27.4	-33.9	-28.4	4.3	-5.9	-26.9	-6.0	5.1	15.1	-26.2
6. Caring, leisure and other service	12.3	1.5	27.4	-16.6	-4.7	4.3	-5.9	-3.2	24.0	5.1	15.1	3.8
7. Sales and customer service	29.0	1.5	27.4	0.2	-3.5	4.3	-5.9	-2.0	14.9	5.1	15.1	-5.3
8. Process, plant and machine operatives	14.5	1.5	27.4	-14.3	-34.2	4.3	-5.9	-32.7	3.5	5.1	15.1	-16.7
9. Elementary occupations	1.5	1.5	27.4	-27.3	-2.4	4.3	-5.9	-0.9	20.3	5.1	15.1	0.1
Total	28.9	1.5	27.4	0.0	-1.6	4.3	-5.9	0.0	20.2	5.1	15.1	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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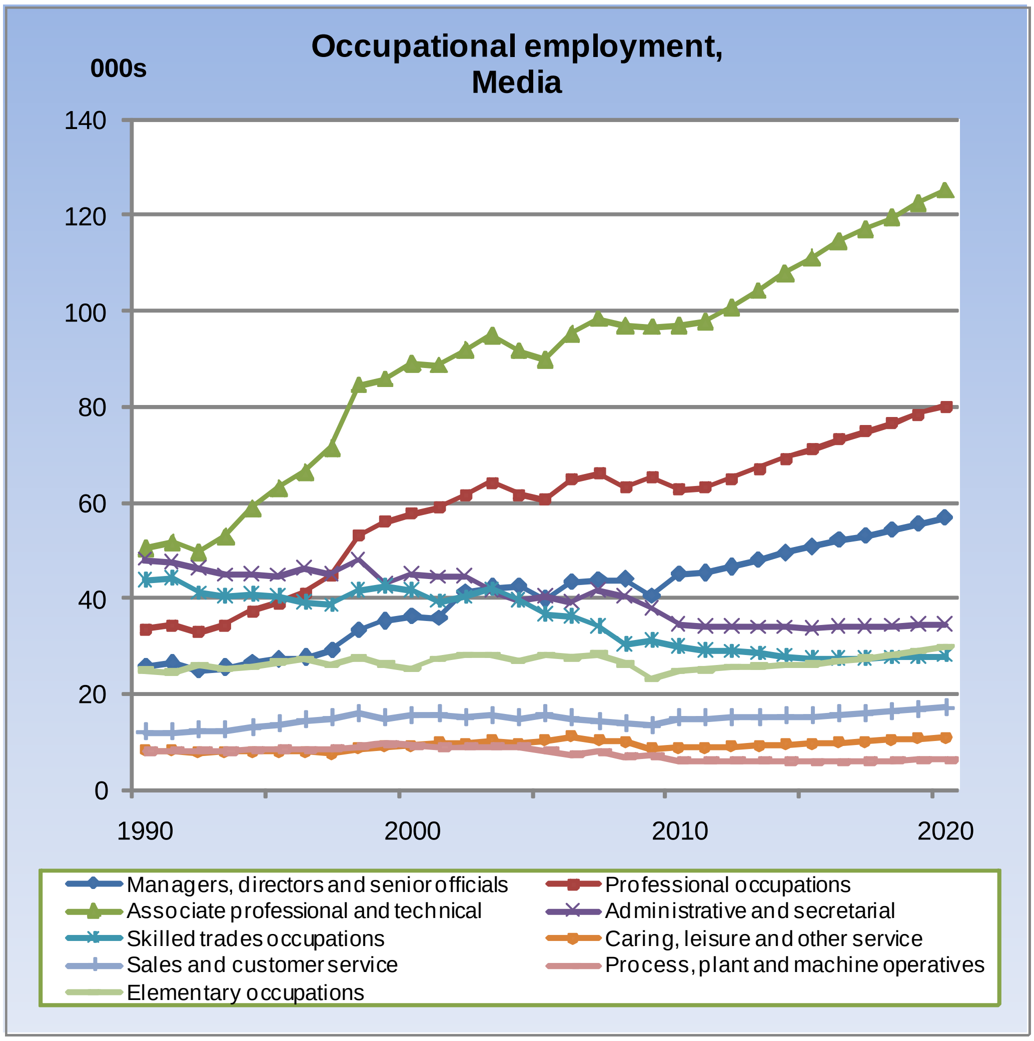
Figure 12.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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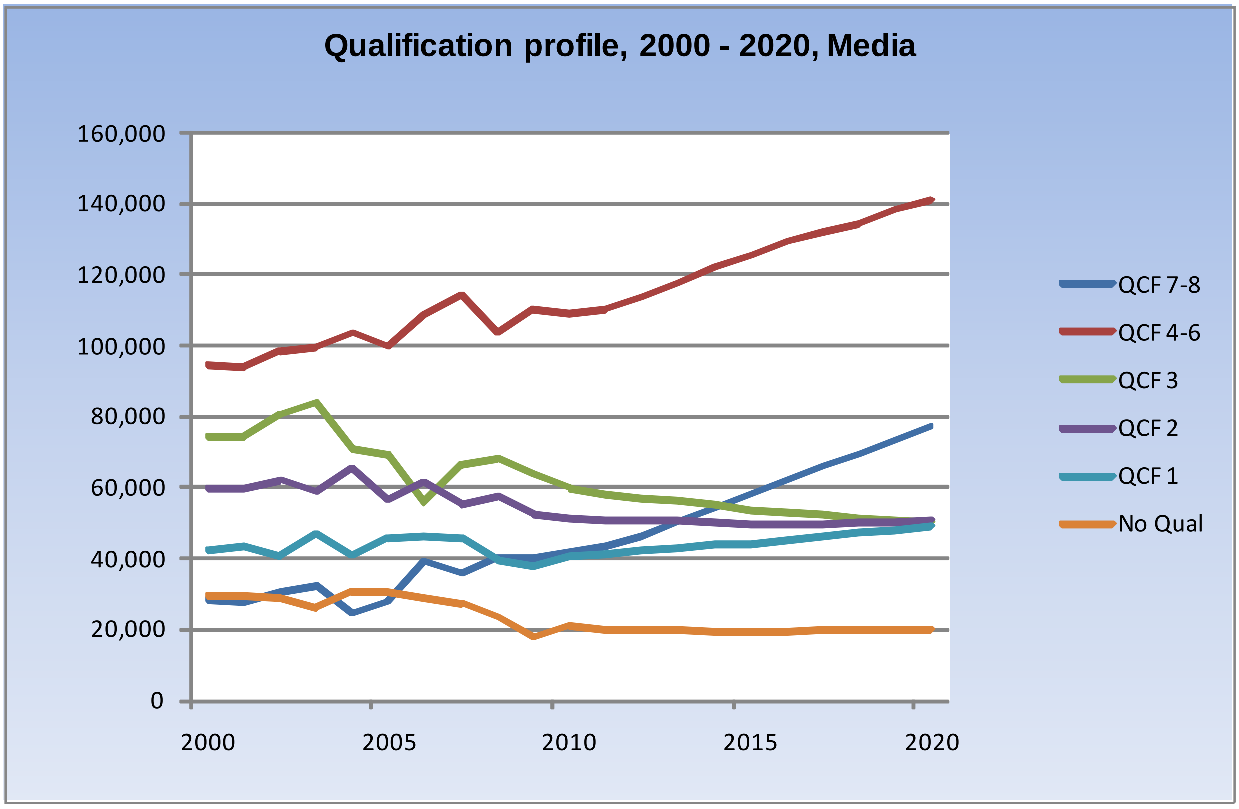
Figure 12.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 12.5: Implications for employment by qualification

United Kingdom : Media				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	42	35	77	17	52
QCF 4-6	109	32	141	44	76
QCF 3	60	-9	50	24	15
QCF 2	51	-1	51	21	20
QCF 1	41	8	49	16	25
No Qual	21	-1	20	8	8
Total	323	65	388	130	195
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	13.0	84.4	19.9	13.0	124.5
QCF 4-6	33.7	29.6	36.3	33.7	69.8
QCF 3	18.4	-15.7	12.9	18.4	24.4
QCF 2	15.9	-1.1	13.1	15.9	39.0
QCF 1	12.6	20.8	12.6	12.6	60.9
No Qual	6.5	-4.1	5.2	6.5	36.1
Total	100.0	20.2	100.0	100.0	60.3

CE/IER estimates based on ONS data(MDM revision 7146).
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13 Information technology

13.1 Description of the industry

INDUSTRY 13: INFORMATION TECHNOLOGY
SIC2007 headings: 61-63

61: Telecommunications

62: Computer programming, consultancy and related activities

63: Information service activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	5.6	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	772,525	30,458,094
Share of total employment (% 2010):	2.5	100.0
Gender split (male:female) (% 2010):	74:26	53:47
Part-time share (% 2010):	10.3	27.9
Self-employment share (% 2010):	11.8	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

13.2 Industry Commentary

Background

IT has been the driver of much change in other industries over the past 30 years.

It is now a mature technology and the days of its own dramatic growth are probably over.

Firms in the IT industry will face fierce competition in the largely saturated UK market, and so will need investment and innovation to maintain or gain market share. The industry has already experienced a trend towards convergence of technologies, and it is these 'new wave' technologies that are likely to stimulate most growth.

In addition, legislative changes encouraging cross-border telecommunications and increased competition are also likely to play a significant role in the medium-term.

13.3 Productivity and Output Trends

Output: The industry currently accounts for around 6 per cent of total output.

Output trends in the past decade turned down as consequence of the recession and employment declined in the second half of the decade.

Output levels are expected to pick up significantly in the coming decade.

Productivity: Over the second part of the past decade productivity growth rates also fell off.

Things are expected to improve over the coming decade as things get back towards long-term trend values.

Employment: The industry’s share of total employment is about 2½ per cent (over 770,000 jobs).

The net impact of the expected developments in output levels and productivity on the growth in employment levels is that they are expected to pick up, but growth remain modest compared to the rates of growth achieved before the recession.

13.4 Employment by Status and Gender

Females currently account for about a quarter of all jobs.

Around 1 in 10 of the jobs in the industry are part-time, these are predominantly held by women.

Self-employment accounts for just over 1 in 10 jobs but is on a declining trend in terms of share of employment.

These patterns are not expected to change very significantly over the coming decade.

13.5 Projections of Employment by Occupation

Key aspects of occupational structure

The professional occupations group dominates employment in this sector in terms of numbers, accounting for 4 in every 10 jobs.

Managers, directors & senior officials and associate professional each account for just under 1 in 5 jobs

Future changes

These general patterns are not expected to change very much over the next decade.

Most groups other than administrative & secretarial occupations and skilled trades are expected to see employment increases.

13.6 Replacement demands

Table 13.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Despite the expectation of only a modest growth in total employment there will be significant replacement needs to be met, especially amongst the professional group.

These replacement needs are predominantly concentrated in the occupations highlighted above.

A total replacement demand of some 285,000 workers is projected across the industry as whole.

Total requirements in some of the newly emerging occupations such as the caring, leisure and other service occupations show some of the highest rates of increase.

13.7 Shift share analysis

Table 13.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

There was a modest negative industry effect over the decade to 2010.

This negative effect is expected to continue over the coming decade but at a slower rate.

Over the projection period occupational effects are generally positive for the higher level occupations but significantly negative for administrative & secretarial occupations and skilled trades and, to a lesser extent, process, plant & machine operatives.

13.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

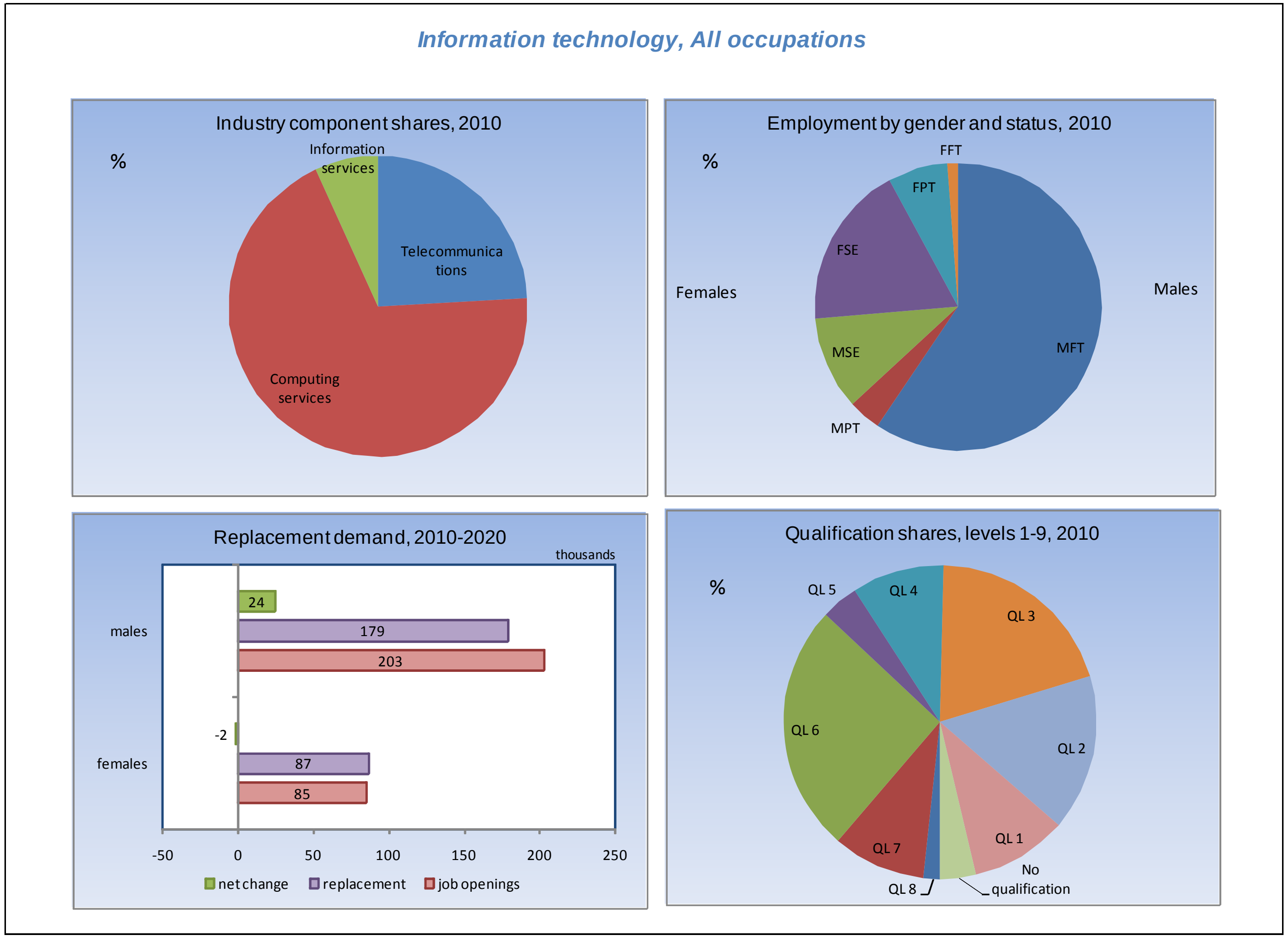
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure for Information Technology favours those qualified at higher levels in particular (QCF 4-8).

Less than 15 per cent of those employed in 2010 had low or no formal qualifications (QCF 0-1) and just below 30 per cent had qualifications at QCF levels 2 and 3. Those with higher qualifications accounted for around 55 per cent of employment in the sector.

The trend toward more employees being highly qualified is expected to continue with the higher levels (QCF 4-8) rising to around 60 per cent by 2020. Intermediate (QCF levels 2 and 3) are projected to fall significantly to under 20 per cent while the share of low level (QCF 0-1) qualifications are projected to rise slightly, against the general trend.

Figure 13.1: Information Technology – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 13.1: Trends in Output, Productivity and Employment

Average change in the period

IT Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	5.7	1.4	5.7	5.6
Employment (% pa)	1.2	-1.2	0.0	0.5
(000s)	46	-49	2	21
Productivity (% pa)	4.5	2.6	5.6	5.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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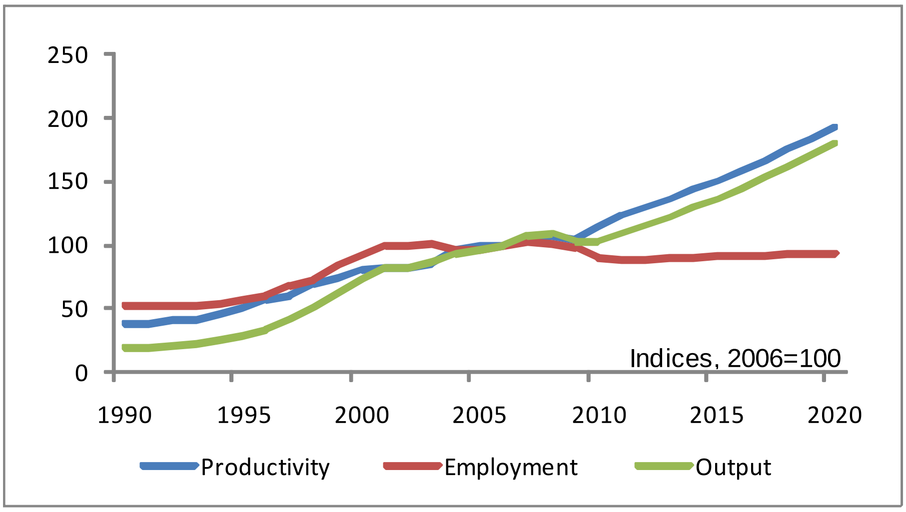
Figure 13.2: Output, productivity and employment in IT



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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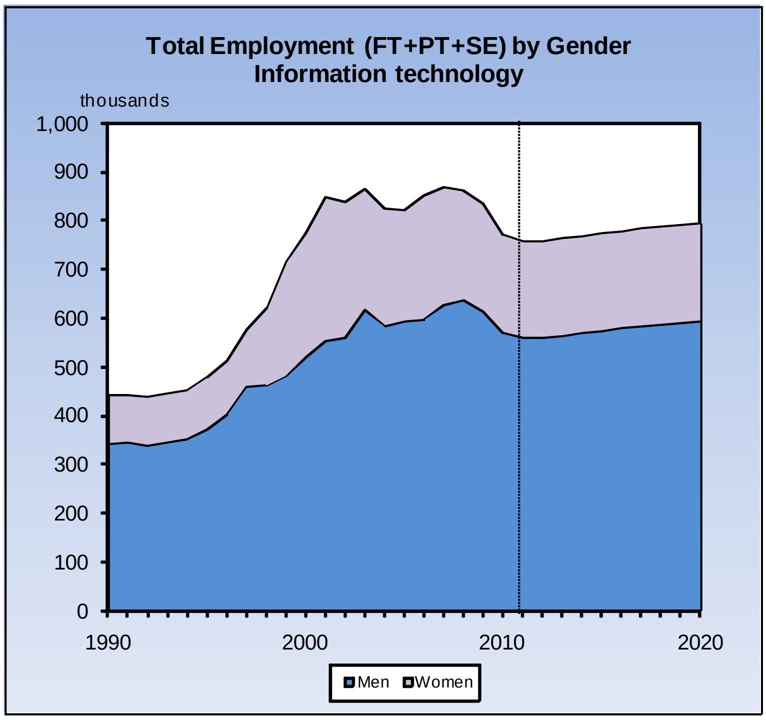
Figure 13.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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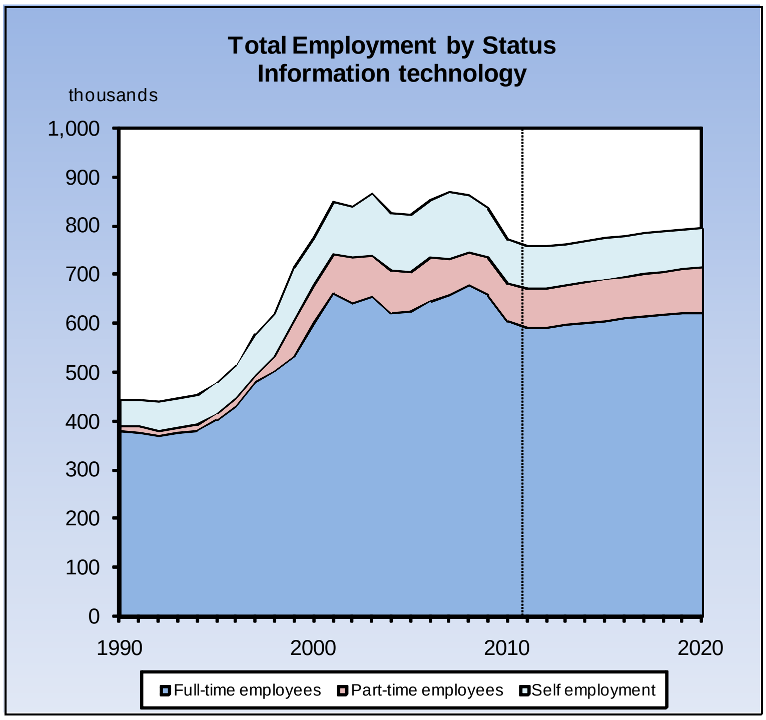
Figure 13.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 13.2: Employment by gender and status

	Employment Status				Information technology							
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	460	(59.6)	27	(3.5)	82	(10.6)	570	(73.7)	6	4	-4	5
Female employment	142	(18.4)	52	(6.7)	9	(1.2)	203	(26.3)	-3	2	-3	-4
Total employment	602	(77.9)	79	(10.3)	91	(11.8)	773	(100)	3	6	-7	2
2015									**2015-2020**			
Male employment	466	(60.2)	31	(4)	78	(10.1)	575	(74.2)	19	5	-5	19
Female employment	139	(17.9)	54	(7)	6	(0.8)	199	(25.8)	-2	4	0	2
Total employment	605	(78.1)	85	(11)	84	(10.9)	774	(100)	17	9	-5	21
2020									**2010-2020**			
Male employment	484	(60.9)	37	(4.6)	73	(9.2)	594	(74.7)	24	9	-9	24
Female employment	137	(17.2)	58	(7.3)	6	(0.8)	201	(25.3)	-5	6	-3	-2
Total employment	621	(78.2)	94	(11.9)	79	(10)	795	(100)	19	15	-12	22

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 13.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Information technology						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	51	90	119	123	130	11	49	61
2. Professional occupations	146	280	323	329	346	23	111	134
3. Associate professional and technical	72	137	139	140	145	6	49	55
4. Administrative and secretarial	53	96	55	50	47	-9	25	16
5. Skilled trades occupations	82	91	64	58	53	-11	25	14
6. Caring, leisure and other service	5	10	11	13	14	3	4	7
7. Sales and customer service	21	48	40	41	40	0	13	13
8. Process, plant and machine operatives	6	9	9	9	8	-1	4	3
9. Elementary occupations	9	14	11	11	12	0	4	5
Total	444	776	773	774	795	22	285	307
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	11.4	11.6	15.4	15.9	16.4	9.5	41.4	51.0
2. Professional occupations	32.8	36.1	41.9	42.5	43.6	7.1	34.3	41.3
3. Associate professional and technical	16.3	17.6	18.0	18.1	18.2	4.1	35.4	39.4
4. Administrative and secretarial	11.9	12.4	7.2	6.5	5.9	-16.0	44.7	28.7
5. Skilled trades occupations	18.4	11.7	8.3	7.4	6.7	-17.3	38.8	21.5
6. Caring, leisure and other service	1.1	1.3	1.4	1.6	1.7	23.7	40.1	63.9
7. Sales and customer service	4.8	6.2	5.2	5.3	5.1	0.2	33.1	33.3
8. Process, plant and machine operatives	1.2	1.2	1.2	1.1	1.1	-8.1	44.0	36.0
9. Elementary occupations	2.1	1.8	1.5	1.5	1.5	4.1	37.5	41.6
Total	100.0	100.0	100.0	100.0	100.0	2.9	36.9	39.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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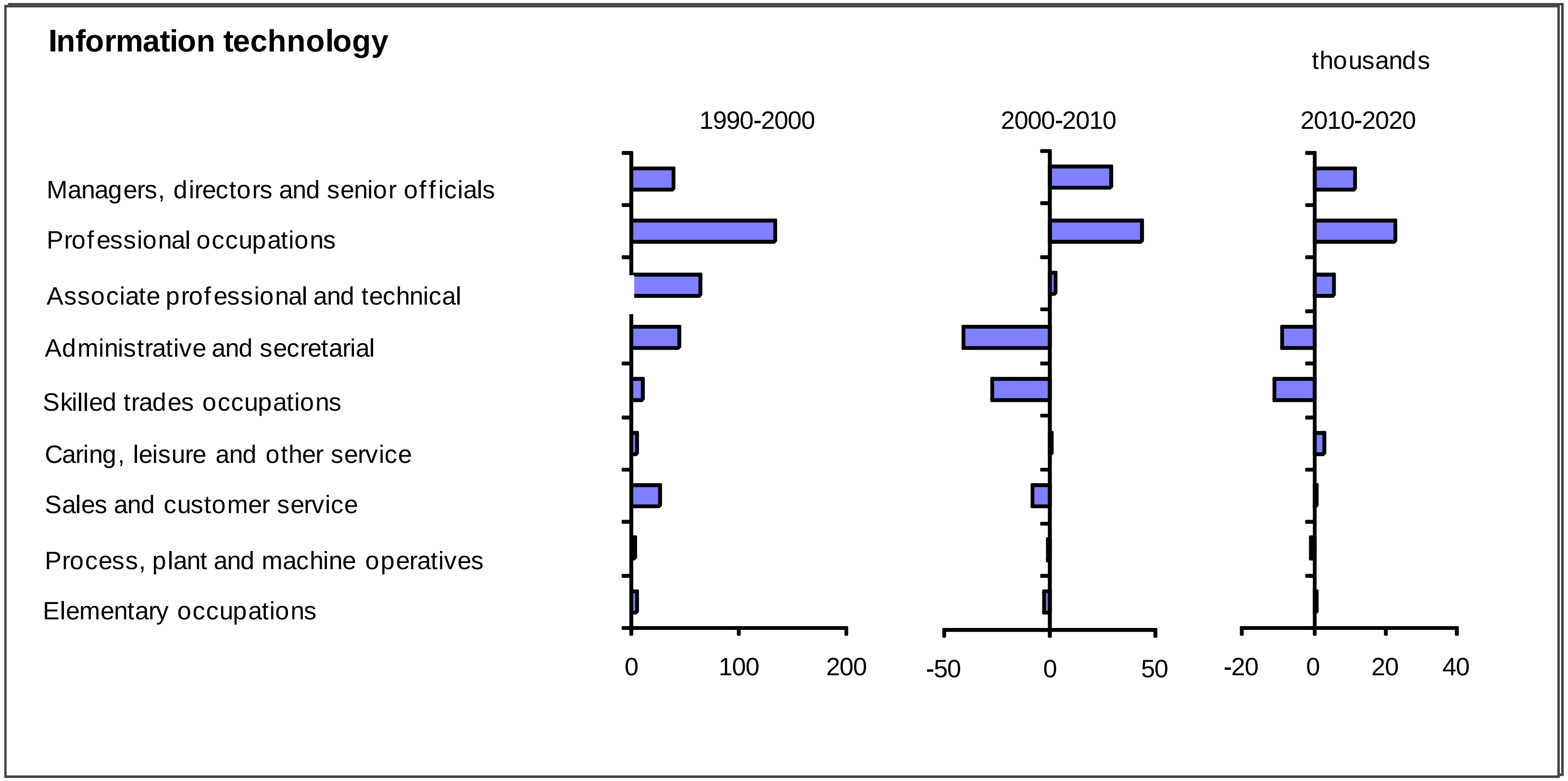
Figure 13.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 13.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**
1. Managers, directors and senior officials	39	1	37	1	29	4	-4	29	11	6	-3	8
2. Professional occupations	135	2	107	26	43	12	-13	44	23	16	-7	13
3. Associate professional and technical	64	1	53	10	3	6	-7	3	6	7	-3	2
4. Administrative and secretarial	44	1	39	4	-41	4	-5	-41	-9	3	-1	-10
5. Skilled trades occupations	10	1	60	-51	-27	4	-4	-27	-11	3	-1	-13
6. Caring, leisure and other service	5	0	4	2	1	0	0	1	3	1	0	2
7. Sales and customer service	27	0	16	11	-8	2	-2	-8	0	2	-1	-1
8. Process, plant and machine operatives	4	0	4	0	0	0	0	0	-1	0	0	-1
9. Elementary occupations	5	0	7	-2	-3	1	-1	-3	0	1	0	0
Total	332	7	326	0	-3	34	-37	0	22	39	-17	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	76.9	1.5	73.4	2.1	32.3	4.3	-4.8	32.7	9.5	5.1	-2.2	6.7
2. Professional occupations	92.5	1.5	73.4	17.7	15.4	4.3	-4.8	15.9	7.1	5.1	-2.2	4.2
3. Associate professional and technical	89.3	1.5	73.4	14.5	2.0	4.3	-4.8	2.4	4.1	5.1	-2.2	1.2
4. Administrative and secretarial	82.5	1.5	73.4	7.7	-42.6	4.3	-4.8	-42.2	-16.0	5.1	-2.2	-18.9
5. Skilled trades occupations	11.8	1.5	73.4	-63.1	-29.8	4.3	-4.8	-29.4	-17.3	5.1	-2.2	-20.2
6. Caring, leisure and other service	108.2	1.5	73.4	33.3	9.9	4.3	-4.8	10.4	23.7	5.1	-2.2	20.8
7. Sales and customer service	125.2	1.5	73.4	50.3	-16.6	4.3	-4.8	-16.2	0.2	5.1	-2.2	-2.7
8. Process, plant and machine operatives	68.4	1.5	73.4	-6.5	-2.1	4.3	-4.8	-1.7	-8.1	5.1	-2.2	-11.0
9. Elementary occupations	55.0	1.5	73.4	-19.9	-20.1	4.3	-4.8	-19.7	4.1	5.1	-2.2	1.2
Total	74.9	1.5	73.4	0.0	-0.4	4.3	-4.8	0.0	2.9	5.1	-2.2	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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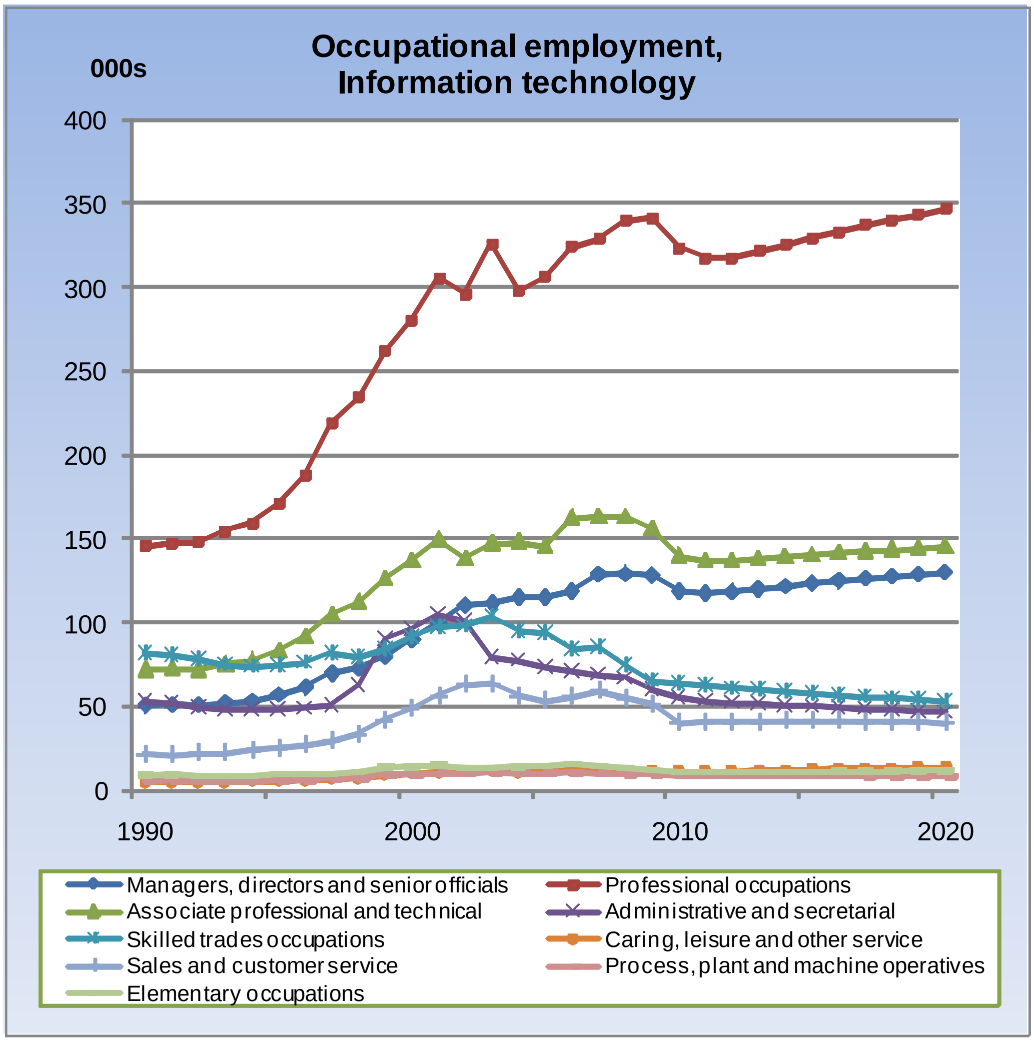
Figure 13.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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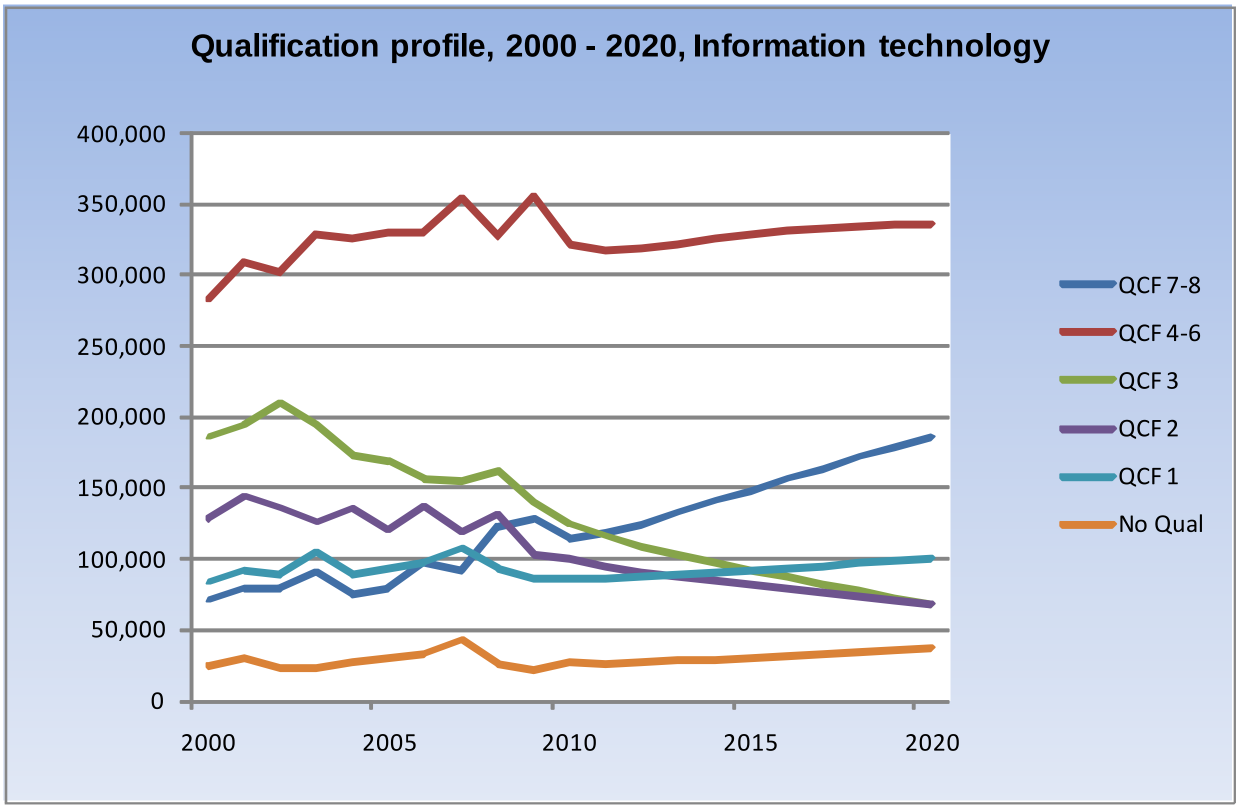
Figure 13.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 13.5: Implications for employment by qualification

United Kingdom : Information technology			000s		
QCF group	Base year level 2010	Change 2010 - 2020	Projected level 2020	Replacement Demand	Total requirement 2010 - 2020
QCF 7-8	114	72	186	42	114
QCF 4-6	322	14	336	119	133
QCF 3	124	-56	68	46	-10
QCF 2	100	-32	68	37	5
QCF 1	86	14	100	32	46
No Qual	27	10	37	10	20
Total	773	22	795	285	307
	% share	% change	% share	% share	% of base year level
QCF 7-8	14.7	63.8	23.4	14.7	100.7
QCF 4-6	41.6	4.5	42.3	41.6	41.4
QCF 3	16.1	-45.3	8.5	16.1	-8.4
QCF 2	13.0	-32.1	8.6	13.0	4.8
QCF 1	11.1	16.7	12.6	11.1	53.6
No Qual	3.5	35.6	4.6	3.5	72.5
Total	100.0	2.9	100.0	100.0	39.8

CE/IER estimates based on ONS data(MDM revision 7146).
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14 Finance and insurance

14.1 Description of the industry

INDUSTRY 14: FINANCE AND INSURANCE
SIC2007 headings: 64-66

64: Financial service activities

65: Insurance and pension funding

66: Activities auxiliary to financial services and insurance

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	8.9	100.0
Exposure to International Trade:	medium	average
Concentration (market share of largest employers):	high	average
Total employment (2010):	1,091,501	30,458,094
Share of total employment (% 2010):	3.6	100.0
Gender split (male:female) (% 2010):	51:49	53:47
Part-time share (% 2010):	14.4	27.9
Self-employment share (% 2010):	7.4	14.3

Source: 7922output.xls (industry profile) CE/IER estimates based on ONS data.

14.2 Industry Commentary

Background

The finance & insurance industry was at the heart of the financial crisis of 2008 and a number of UK banks and other financial institutions were seriously affected by it. Nevertheless, the UK finance & insurance industry remains one of the largest in the world.

Following huge support, on an international level, the industry has recovered quite quickly and is in some respects back to normal. However, critics caution that there are still lessons to be learned and the crisis in Greece and other countries regarding Sovereign debt suggest that there may still be problems ahead. Pressure to tighten up regulation of the sector, together with continuing trends towards globalisation will remain key features.

14.3 Productivity and Output Trends

Output: The industry accounts for around 9 per cent of total output. It remains crucial to the fortunes of the UK economy as a whole.

For many years, output in this industry has been growing strongly.

Despite the crash, and the subsequent recession, output growth has continued at around 2 per cent per annum, over the period 2005-2010

This pace is projected to pick up slightly, but then to settle down to around 3½ per cent per annum.

Productivity: Productivity growth has followed a similar path to output.

It slowed markedly following the crash, but has been maintained at around 2½ per cent per annum between 2005 and 2010.

It is projected to accelerate in the short to medium term before settling at around 2½ per cent per annum.

Employment: The industry's share of total employment is about 3½ per cent (almost 1.1 million jobs).

As productivity improvements offset the expected output growth, future trends in employment are expected to remain fairly flat over the first half of the coming decade before accelerating, resulting in a total rise of around 70,000 jobs by 2020.

14.4 Employment by Status and Gender

Employment in this industry is fairly even split between males and females, although many of the latter work only part-time.

Around 3 in 20 of the jobs in the industry are part-time, these are predominantly held by women.

Self-employment accounts for fewer than 1 in 10 jobs and is on a declining trend in terms of share of employment.

Many more men are self-employed but in total this only accounts for 1 in 20 of all jobs.

These patterns are not expected to change very significantly over the coming decade.

The gender mix of employment is not projected to change radically. The sector remains an attractive area of employment for females.

They are expected to slightly increase their current share of just over half of all the jobs in the industry, but the vast majority of the extra jobs will be part-time.

Self-employment will remain a small part of total employment, but is projected to broadly maintain its current share.

Part-time working is projected to increase its share of total employment significantly continuing recent trends. By 2020 almost 1 in 5 jobs will be part-time.

14.5 Projections of Employment by Occupation

Key aspects of occupational structure

Administrative & secretarial workers still accounted for almost 3 in 10 of all jobs in this industry in 2010, despite significant job losses over recent decades.

Accounting for at least 3 in 20 jobs each, managerial, professional and associate professional & technical occupations are also significant.

Associate professional & technical occupations have been increasing their employment share significantly, and now accounts for almost a quarter of all jobs.

Future changes

As on-line banking services reduce the demand for front line staff, continued declines in the employment share of administrative & secretarial occupations are projected.

These job losses are likely to be offset by small increases elsewhere for managers, directors & senior officials and the associate professional occupations.

14.6 Replacement demands

Table 14.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Total replacement demands for the industry are some 6 times as large as the modest scale of expansion demands.

Replacement demands are dominated by the associate professional and administrative & secretarial groups.

Although in decline, the latter will account for over a quarter of all replacement needs.

14.7 Shift share analysis

Table 14.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect played a negative role in the two recent decades. This was a result of continuing pressures to rationalise, cut costs, and improve productivity.

The industry effect is projected to be slightly positive over the projection period as output growth is above the average for all industries and services.

Managers and professionals, and especially associate professional occupations are expected to benefit particularly from positive occupational effects.

Administrative & secretarial occupations are projected to experience especially marked negative occupational effects.

14.8 Implications for qualifications

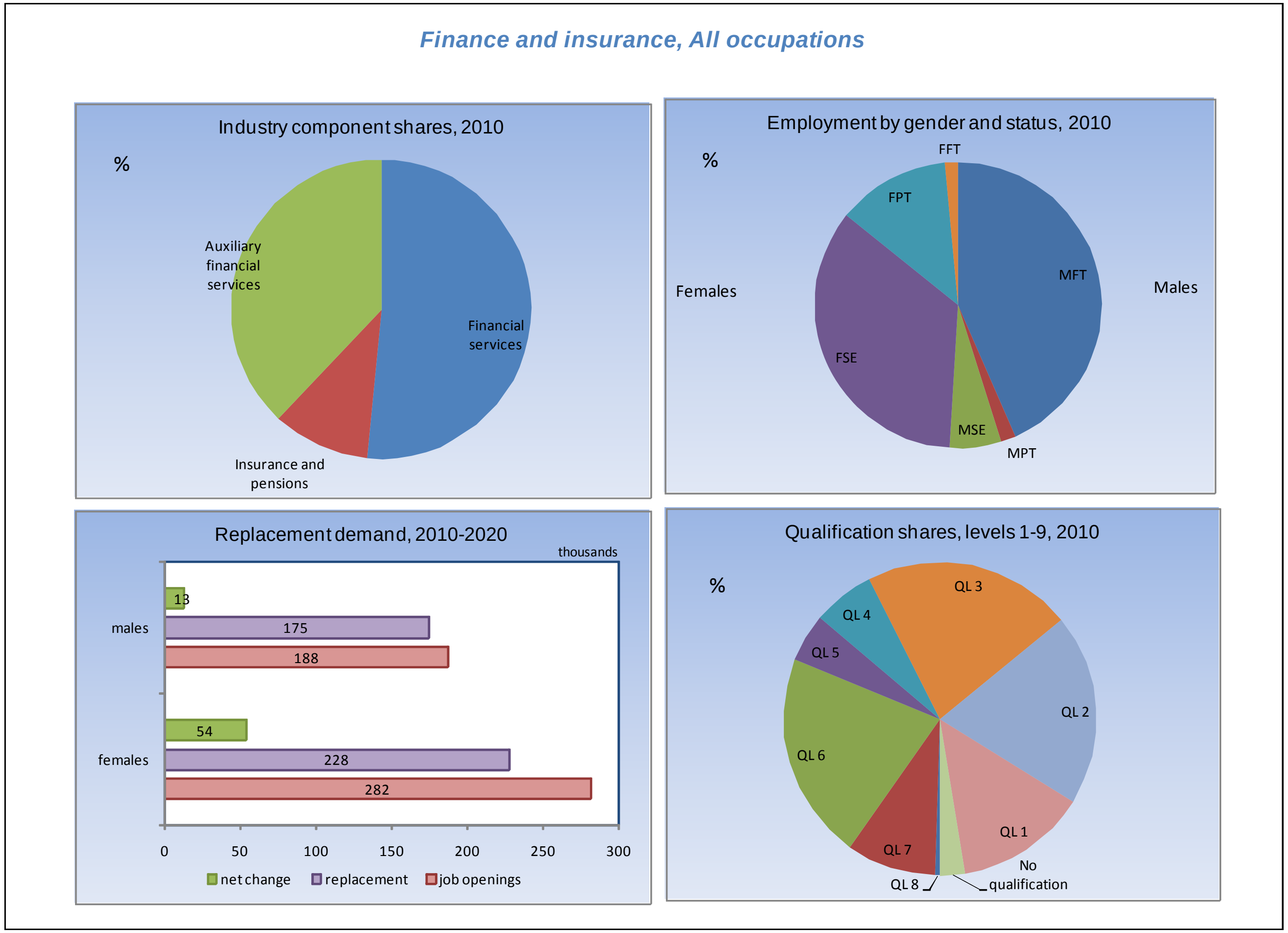
The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure for the Finance and insurance sector favours those qualified at intermediate and higher levels and the pattern of projected qualification changes follows the general trend. Just over 40 per cent of employment was accounted for by those with intermediate qualifications (QCF 2 and 3) in 2010 and a similar proportion had higher qualifications (QCF 4-8).

The 15 per cent of those with low or no formal qualifications (QCF 0-1) in 2010 is expected to fall closer to 10 per cent by 2020 while higher qualifications (QCF4-8) are expected to account for the biggest increase, reaching over 50 per cent by 2020.

Figure 14.1: Finance and insurance – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 14.1: Trends in Output, Productivity and Employment

Average change in the period

Finance & insurance				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	4.7	2.1	3.7	3.6
Employment (% pa)	0.2	-0.6	0.3	0.9
(000s)	9	-35	14	53
Productivity (% pa)	4.6	2.8	3.4	2.6

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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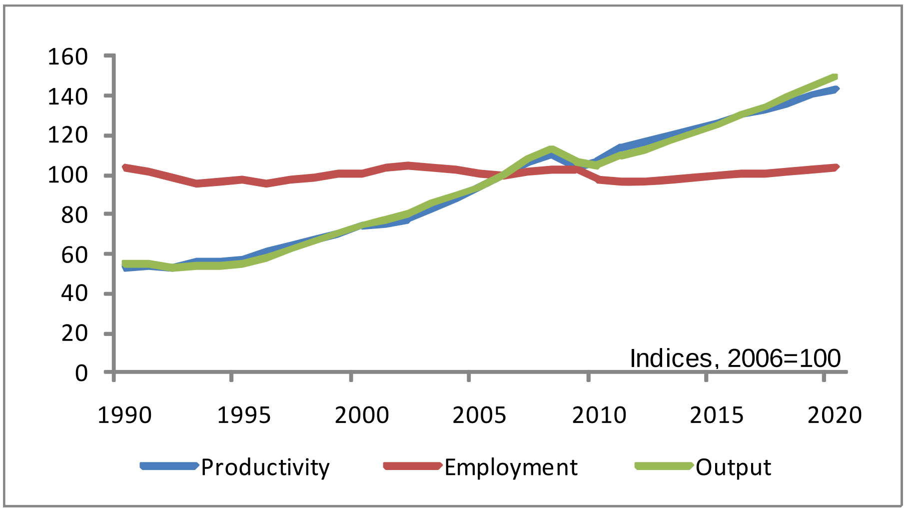
Figure 14.2: Output, productivity and employment in Finance and insurance



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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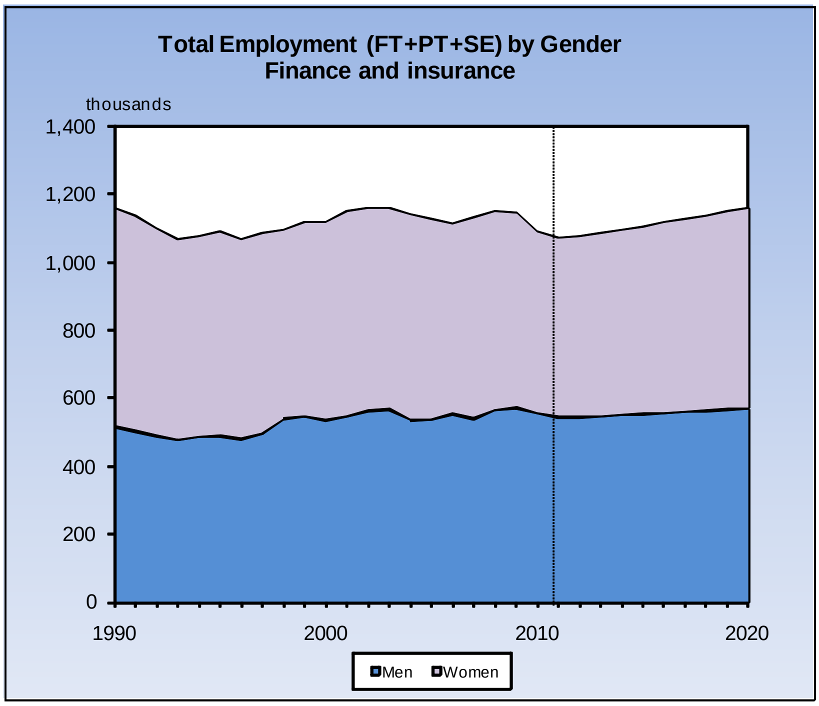
Figure 14.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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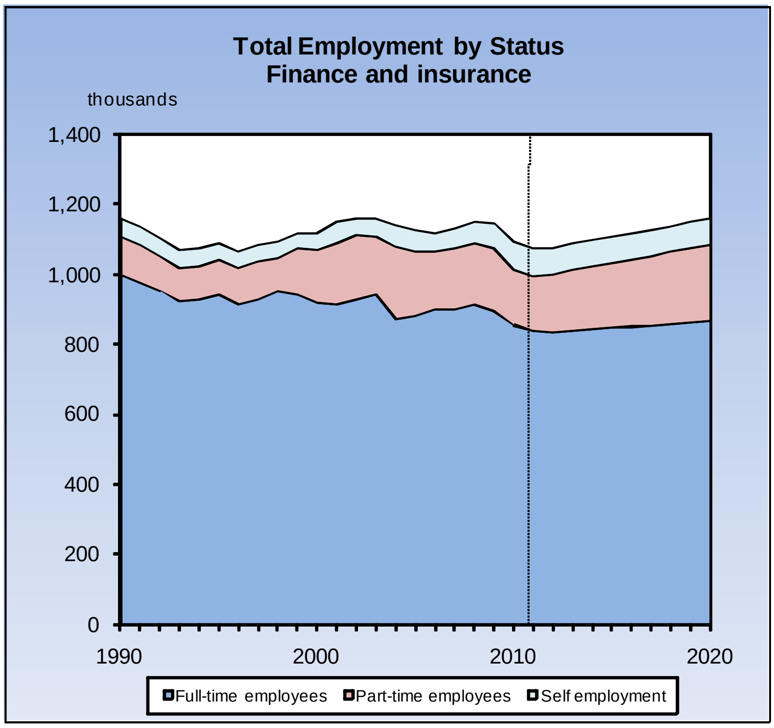
Figure 14.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 14.2: Employment by gender and status

Employment Status	Finance and insurance												
									Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**		**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	474	(43.4)	18	(1.7)	64	(5.9)	557	(51)	-1	6	-8	-3
Female employment	379	(34.7)	139	(12.7)	17	(1.5)	535	(49)	-7	22	3	18
Total employment	853	(78.2)	158	(14.4)	81	(7.4)	1,092	(100)	-9	28	-5	14
2015									**2015-2020**			
Male employment	473	(42.7)	25	(2.2)	56	(5.1)	553	(50)	15	8	-6	16
Female employment	372	(33.6)	161	(14.6)	19	(1.8)	552	(50)	4	27	5	36
Total employment	845	(76.4)	186	(16.8)	75	(6.8)	1,106	(100)	19	35	-2	53
2020									**2010-2020**			
Male employment	488	(42.1)	33	(2.8)	50	(4.3)	570	(49.2)	13	14	-14	13
Female employment	376	(32.4)	189	(16.3)	24	(2.1)	589	(50.8)	-3	50	8	54
Total employment	863	(74.5)	221	(19.1)	74	(6.4)	1,159	(100)	10	64	-7	67

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 14.3: Employment by occupation

Changing Composition of Employment by Occupation								
United Kingdom : Finance and insurance						2010-2020 Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	116	133	175	182	195	20	73	93
2. Professional occupations	145	155	184	189	201	17	69	86
3. Associate professional and technical	267	268	297	308	337	41	110	151
4. Administrative and secretarial	493	401	309	299	291	-18	138	120
5. Skilled trades occupations	17	17	17	16	16	-2	7	5
6. Caring, leisure and other service	5	6	5	5	6	1	2	3
7. Sales and customer service	96	116	87	89	94	7	30	37
8. Process, plant and machine operatives	7	7	7	7	7	0	3	3
9. Elementary occupations	14	15	10	11	12	2	4	5
Total	1,161	1,118	1,092	1,106	1,159	67	437	504
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	10.0	11.9	16.0	16.4	16.8	11.2	41.7	52.9
2. Professional occupations	12.5	13.8	16.9	17.1	17.4	9.1	37.6	46.7
3. Associate professional and technical	23.0	24.0	27.2	27.9	29.1	13.8	37.2	51.0
4. Administrative and secretarial	42.5	35.9	28.3	27.0	25.1	-5.8	44.8	39.0
5. Skilled trades occupations	1.5	1.5	1.6	1.5	1.4	-9.3	39.9	30.6
6. Caring, leisure and other service	0.4	0.5	0.5	0.5	0.5	21.2	41.8	62.9
7. Sales and customer service	8.3	10.4	7.9	8.1	8.1	7.9	34.4	42.4
8. Process, plant and machine operatives	0.6	0.6	0.7	0.6	0.6	-1.6	45.7	44.0
9. Elementary occupations	1.2	1.3	0.9	1.0	1.0	14.9	38.3	53.2
Total	100.0	100.0	100.0	100.0	100.0	6.1	40.0	46.2

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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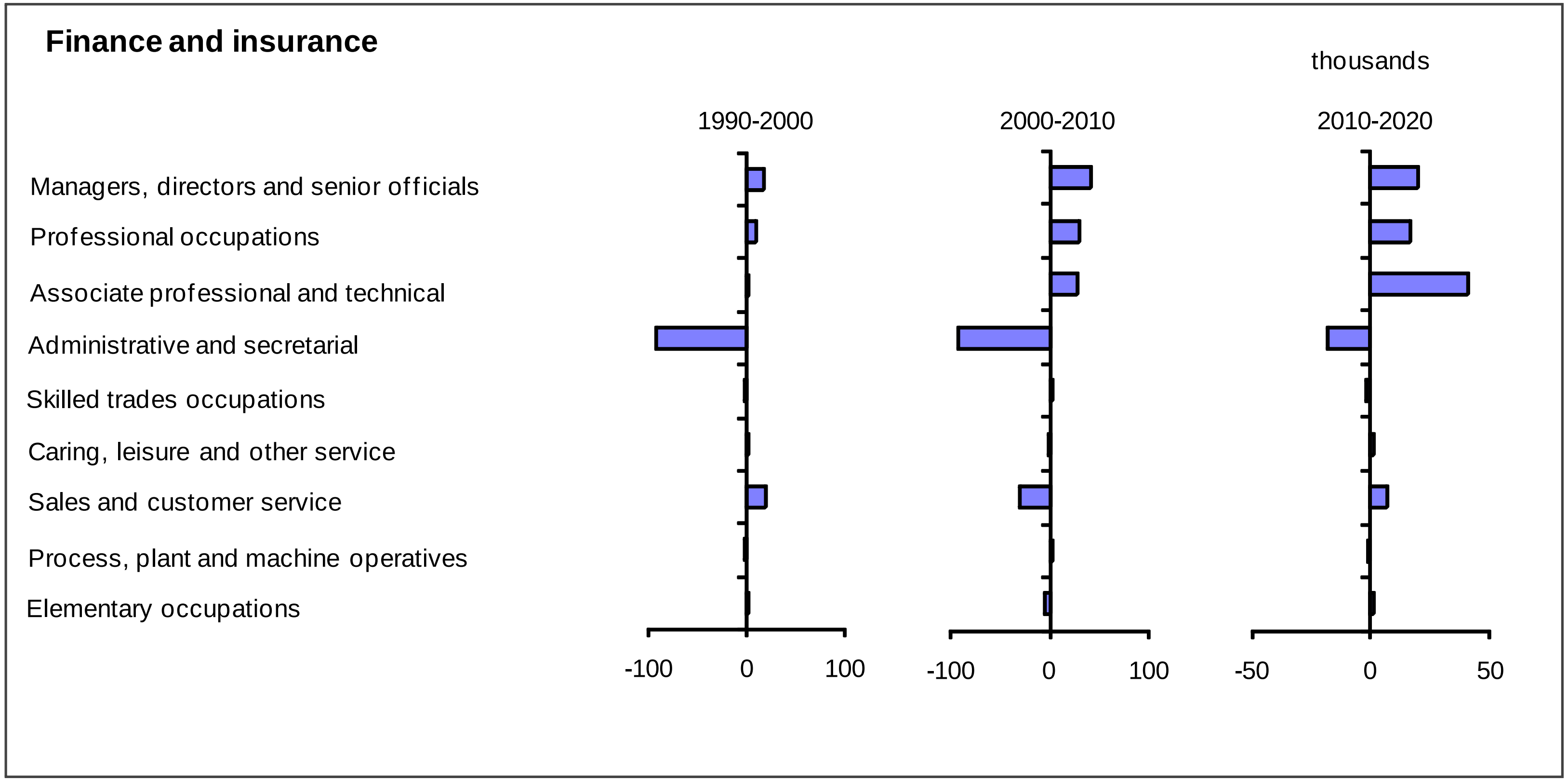
Figure 14.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 14.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	17	2	-6	21	42	6	-9	45	20	9	2	9
2. Professional occupations	10	2	-7	15	30	7	-10	33	17	9	2	5
3. Associate professional and technical	1	4	-14	11	28	12	-18	35	41	15	3	23
4. Administrative and secretarial	-92	7	-25	-73	-92	17	-27	-83	-18	16	3	-37
5. Skilled trades occupations	0	0	-1	0	1	1	-1	1	-2	1	0	-3
6. Caring, leisure and other service	1	0	0	1	-1	0	0	-1	1	0	0	1
7. Sales and customer service	20	1	-5	24	-30	5	-8	-27	7	4	1	2
8. Process, plant and machine operatives	-1	0	0	0	1	0	0	1	0	0	0	-1
9. Elementary occupations	1	0	-1	2	-5	1	-1	-4	2	1	0	1
Total	-43	17	-60	0	-26	48	-75	0	67	56	12	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	14.4	1.5	-5.2	18.0	31.7	4.3	-6.7	34.0	11.2	5.1	1.1	5.0
2. Professional occupations	6.7	1.5	-5.2	10.3	19.2	4.3	-6.7	21.6	9.1	5.1	1.1	2.9
3. Associate professional and technical	0.4	1.5	-5.2	4.1	10.5	4.3	-6.7	12.9	13.8	5.1	1.1	7.7
4. Administrative and secretarial	-18.6	1.5	-5.2	-14.9	-23.0	4.3	-6.7	-20.7	-5.8	5.1	1.1	-11.9
5. Skilled trades occupations	-2.4	1.5	-5.2	1.3	3.1	4.3	-6.7	5.5	-9.3	5.1	1.1	-15.4
6. Caring, leisure and other service	14.7	1.5	-5.2	18.4	-15.8	4.3	-6.7	-13.4	21.2	5.1	1.1	15.0
7. Sales and customer service	21.3	1.5	-5.2	25.0	-25.5	4.3	-6.7	-23.1	7.9	5.1	1.1	1.8
8. Process, plant and machine operatives	-7.9	1.5	-5.2	-4.2	8.2	4.3	-6.7	10.5	-1.6	5.1	1.1	-7.8
9. Elementary occupations	8.6	1.5	-5.2	12.3	-30.7	4.3	-6.7	-28.3	14.9	5.1	1.1	8.8
Total	-3.7	1.5	-5.2	0.0	-2.4	4.3	-6.7	0.0	6.1	5.1	1.1	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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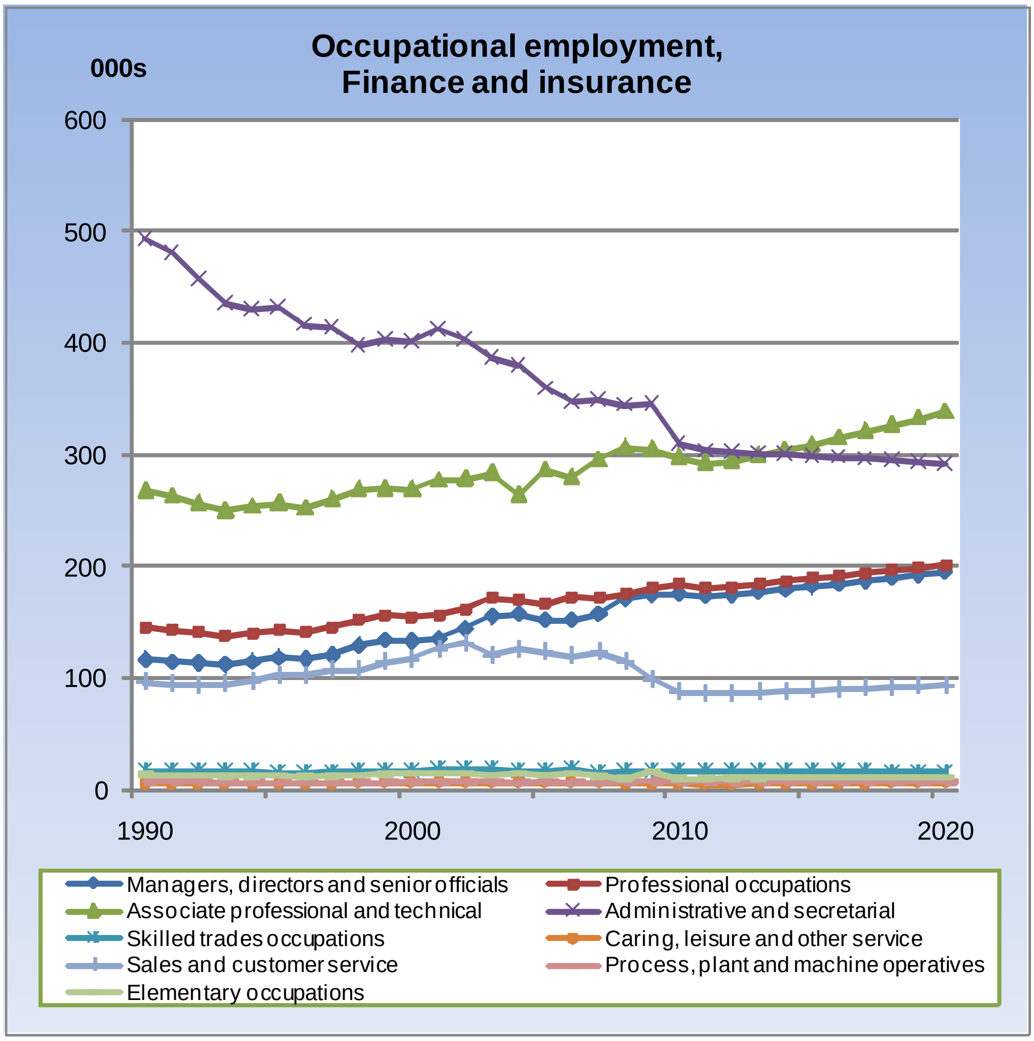
Figure 14.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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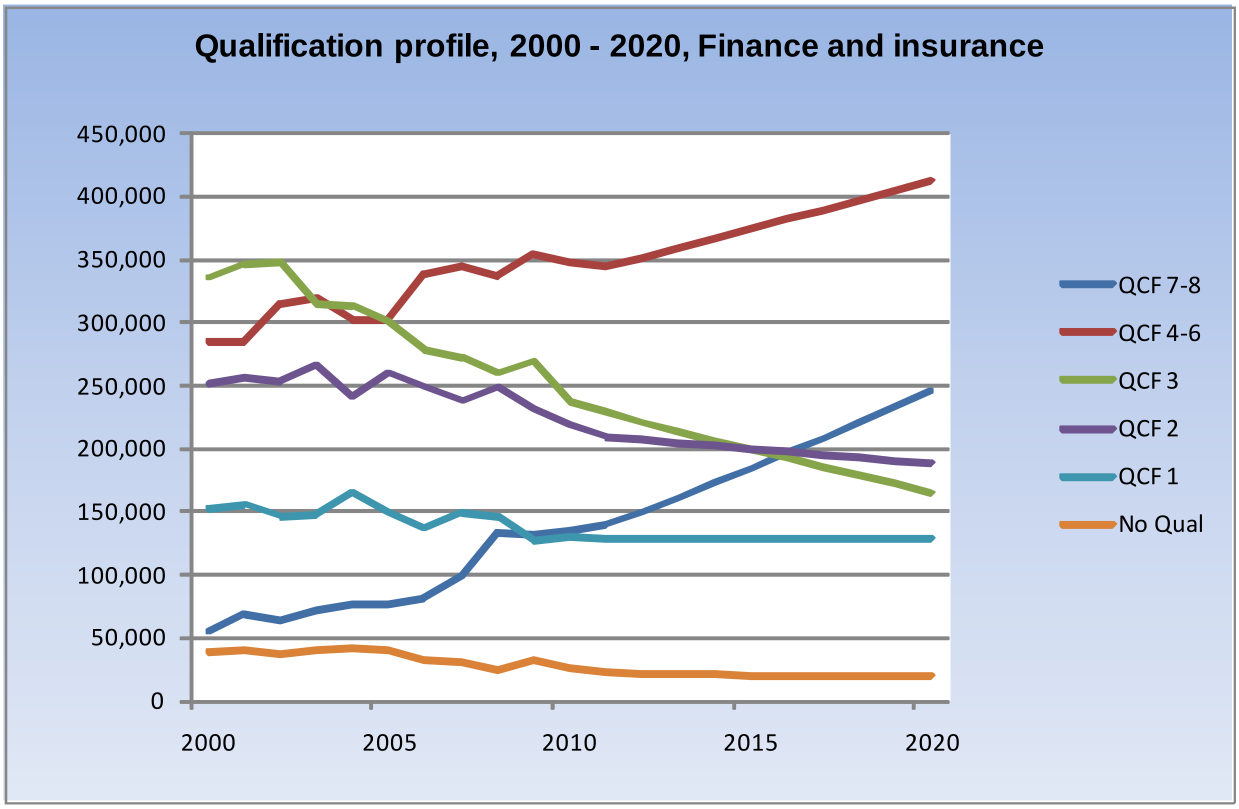
Figure 14.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 14.5: Implications for employment by qualification

United Kingdom : Finance and insurance			000s		
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	134	111	245	54	165
QCF 4-6	347	64	412	139	203
QCF 3	237	-71	166	95	24
QCF 2	218	-30	188	87	58
QCF 1	130	-2	128	52	50
No Qual	25	-6	19	10	4
Total	1,092	67	1,159	437	504
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	12.3	82.6	21.2	12.3	122.6
QCF 4-6	31.8	18.6	35.5	31.8	58.6
QCF 3	21.7	-30.1	14.3	21.7	10.0
QCF 2	20.0	-13.5	16.3	20.0	26.5
QCF 1	11.9	-1.3	11.1	11.9	38.8
No Qual	2.3	-23.0	1.7	2.3	17.0
Total	100.0	6.1	100.0	100.0	46.2

CE/IER estimates based on ONS data(MDM revision 7146).
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15 Real estate

15.1 Description of the industry

INDUSTRY 15: REAL ESTATE
SIC2007 headings: 68

68: Real estate activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	2.2	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	435,709	30,458,094
Share of total employment (% 2010):	1.4	100.0
Gender split (male:female) (% 2010):	48:52	53:47
Part-time share (% 2010):	25.9	27.9
Self-employment share (% 2010):	14.1	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

15.2 Industry Commentary

Background

This industry is another that was affected significantly by the financial crisis and subsequent recession.

It comprises a range of different activities related to real estate, including development, buying and selling, letting and management of property. The residential housing market weakened significantly in 2008 and the industry has faced a period of declining property prices and uncertain demand for its services.

15.3 Productivity and Output Trends

Output: The industry accounts for around 2¼ per cent of total output.

As the UK property market flourished over the last decade output in this sector grew strongly.

For the next ten years, growth prospects are rather less optimistic.

Positive output growth is projected, but at a slower rate than previously.

On average, increases of around 3 per cent per annum are projected.

Productivity: Productivity as measured by output per head has been flat over the past decade.

This pattern is projected to continue over the coming decade, although this disguises a decline followed by recovery.

Employment: The industry's share of total employment is currently about 1½ per cent (around 440,000 jobs).

Employment has risen steadily since the early 1990s.

This trend is expected to continue over the coming decade as the industry recovers from the impact of the recession.

15.4 Employment by Status and Gender

Accounting for just over half the jobs, females are now in the majority in this industry in terms of numbers employed.

Part-time work is also important, accounting for about a ¼ of all jobs. These are predominantly held by females.

Self-employment currently accounts for around three in every 20 jobs, but in this case it is males that predominate in terms of numbers.

Females are projected to slightly increase their share of the total number of jobs in this industry.

The importance of part-time employment over the projection period is expected to rise slightly, approaching a third of the total by 2020.

15.5 Projections of Employment by Occupation

Key aspects of occupational structure

Five occupational groups are important numerically:

- Managers, directors & senior officials and administrative & secretarial occupations each account for 1 in 5 of all jobs.
- Professional occupations, associate professional & technical occupations and sales & customer service occupations each also account for at least 1 in 10 jobs.
- As in other industries, the managerial, professional and associate professional groups have seen a rising share of employment.

Again as in other industries, administrative & secretarial occupations have experienced a declining share in recent years, as the effects of information and communication technologies on routine clerical work have hit home.

Future changes

Generally, occupational structure in this industry is not expected to change radically over the coming decade.

The same five occupations highlighted above are all projected to see employment growth.

Administrative & secretarial occupations are expected to see declining employment shares but a small increase in numbers employed.

15.6 Replacement demands

Table 15.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Over the coming decade expansion demands are projected to be 100,000.

Replacement needs will add almost twice as many job openings, bringing the total requirements for the coming decade to around 300,000.

Replacement needs affect all occupations, but are especially important for managers, professionals, associate professional, administrative & secretarial and sales & customer service occupations.

15.7 Shift share analysis

Table 15.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure *within* the industry.

The industry effect has played a major part in expanding employment in the past decade.

Over the coming decade, the industry effect is projected to remain positive but at a more modest level.

Occupational effects are generally positive for white collar occupations other than administrative & secretarial occupations.

Negative effects are also observed for skilled trades and elementary occupations.

15.8 Implications for qualifications

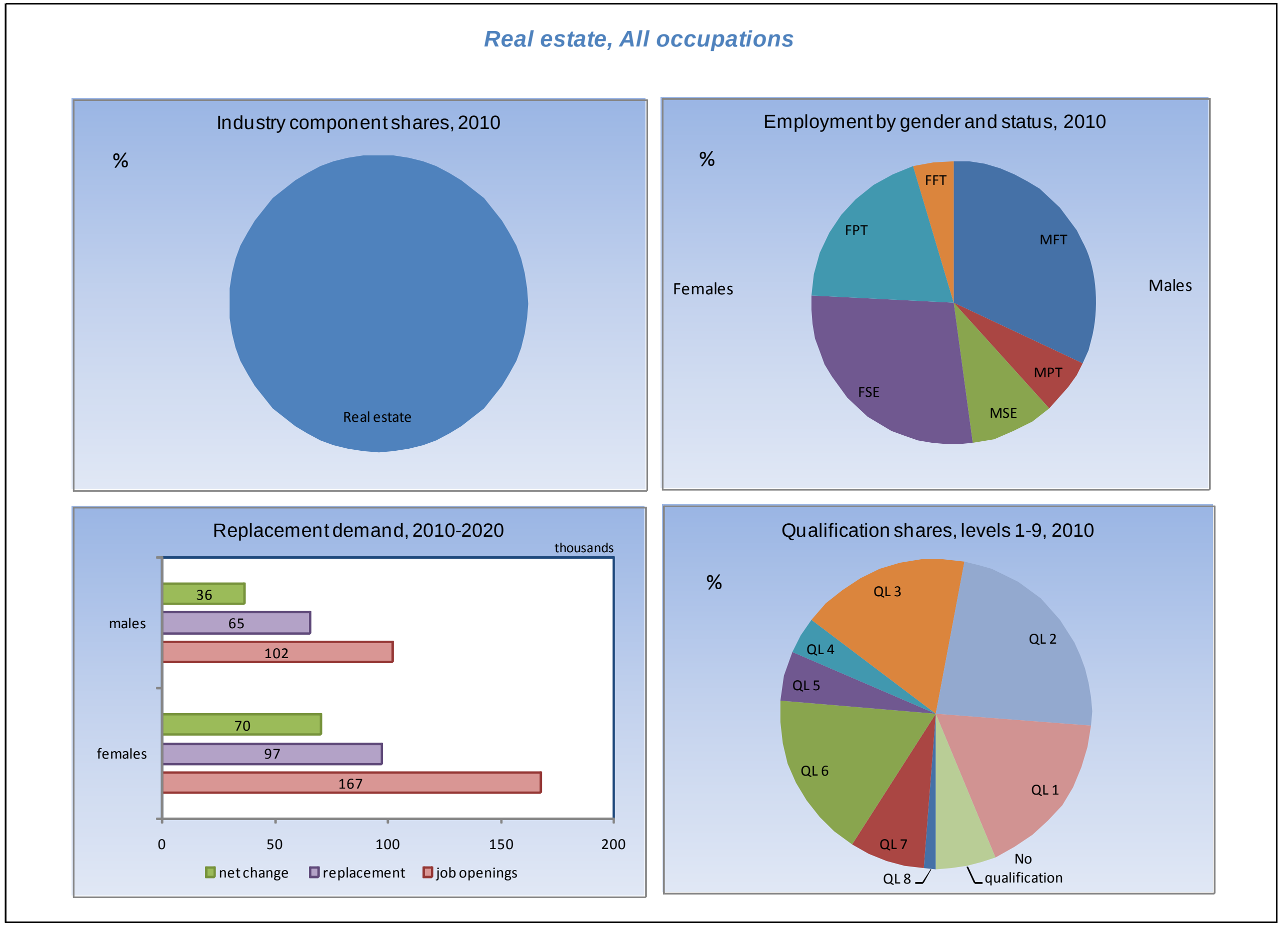
The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure for Real estate favours those qualified at intermediate and higher levels and the pattern of qualification changes during the period 2010 to 2020 is expected to be fairly small. Around 40 per cent of employment was accounted for by those with intermediate qualifications (QCF2 and 3) in 2010 and a similar proportion had higher qualifications (QCF 4-8).

The proportions in 2020 are projected to be broadly similar.

Figure 15.1: Real estate – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 15.1: Trends in Output, Productivity and Employment

Average change in the period

Real estate Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	4.9	3.7	2.3	3.5
Employment (% pa)	4.5	4.9	2.6	1.8
(000s)	68	93	60	47
Productivity (% pa)	0.4	-1.2	-0.3	1.6

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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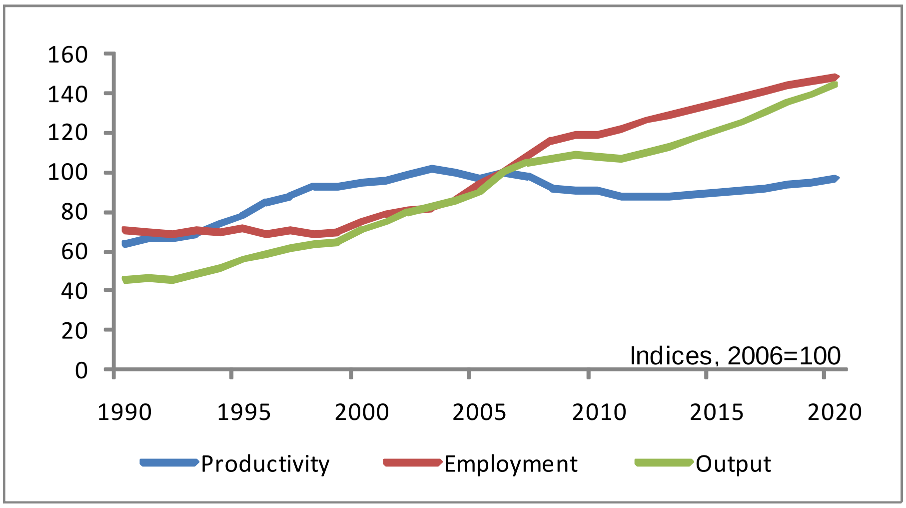
Figure 15.2: Output, productivity and employment in Real estate



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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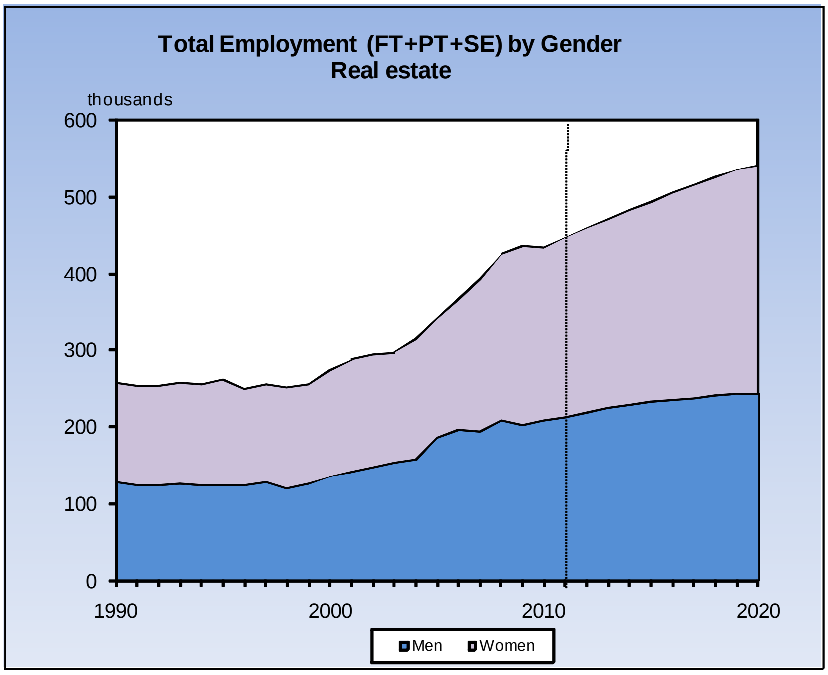
Figure 15.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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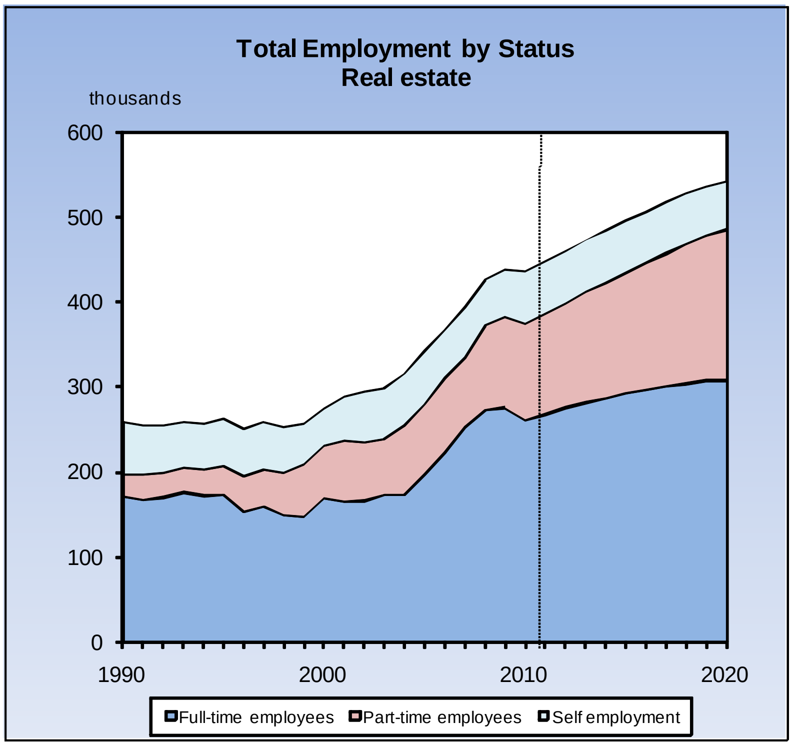
Figure 15.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 15.2: Employment by gender and status

Employment Status		Real estate										
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	139	(32)	27	(6.3)	42	(9.6)	209	(47.9)	16	10	0	26
Female employment	122	(27.9)	86	(19.6)	20	(4.6)	227	(52.1)	15	19	-1	34
Total employment	261	(59.9)	113	(25.9)	62	(14.1)	436	(100)	32	29	-1	60
2015									**2015-2020**			
Male employment	156	(31.5)	37	(7.5)	41	(8.3)	235	(47.4)	3	10	-3	11
Female employment	137	(27.7)	105	(21.1)	19	(3.9)	261	(52.6)	13	25	0	37
Total employment	293	(59.1)	142	(28.6)	60	(12.2)	495	(100)	16	35	-3	47
2020									**2010-2020**			
Male employment	159	(29.3)	47	(8.7)	39	(7.1)	245	(45.2)	19	20	-3	36
Female employment	150	(27.6)	129	(23.8)	19	(3.4)	297	(54.8)	28	44	-1	70
Total employment	309	(56.9)	177	(32.6)	57	(10.6)	543	(100)	47	64	-4	107

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 15.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Real estate						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	54	54	92	107	118	26	42	68
2. Professional occupations	37	44	63	72	81	19	25	44
3. Associate professional and technical	35	42	74	87	99	25	29	53
4. Administrative and secretarial	74	65	94	104	109	16	45	60
5. Skilled trades occupations	20	22	37	38	38	1	15	16
6. Caring, leisure and other service	9	13	11	15	18	6	5	11
7. Sales and customer service	17	20	43	49	55	12	16	27
8. Process, plant and machine operatives	3	3	7	7	7	1	3	3
9. Elementary occupations	10	13	15	16	17	2	6	8
Total	259	275	436	495	543	107	185	292
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	20.9	19.6	21.2	21.6	21.8	28.2	45.1	73.3
2. Professional occupations	14.2	15.9	14.4	14.6	15.0	30.0	40.6	70.7
3. Associate professional and technical	13.5	15.1	17.1	17.6	18.2	32.9	38.3	71.3
4. Administrative and secretarial	28.7	23.7	21.5	21.0	20.2	16.6	47.7	64.3
5. Skilled trades occupations	7.6	7.9	8.4	7.7	7.0	4.0	39.8	43.8
6. Caring, leisure and other service	3.4	4.7	2.6	2.9	3.2	56.3	43.4	99.7
7. Sales and customer service	6.5	7.5	9.9	9.9	10.1	26.8	36.9	63.7
8. Process, plant and machine operatives	1.2	1.1	1.5	1.4	1.3	8.3	43.5	51.9
9. Elementary occupations	4.0	4.6	3.4	3.2	3.1	13.6	40.4	53.9
Total	100.0	100.0	100.0	100.0	100.0	24.5	42.4	66.9

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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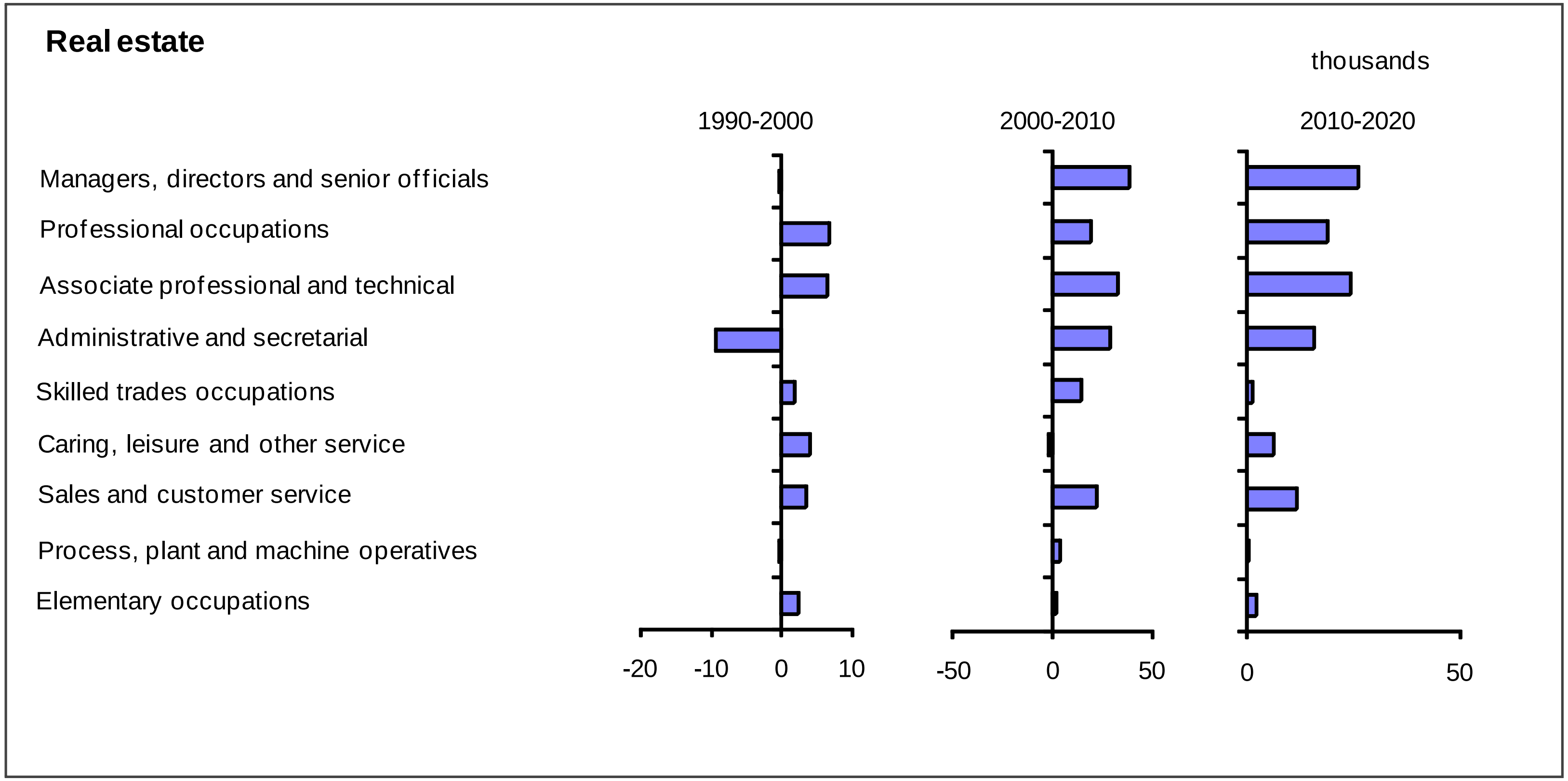
Figure 15.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 15.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	0	1	2	-4	38	2	29	7	26	5	18	3
2. Professional occupations	7	1	2	5	19	2	24	-7	19	3	12	3
3. Associate professional and technical	7	1	2	5	33	2	23	9	25	4	14	6
4. Administrative and secretarial	-9	1	3	-14	29	3	35	-9	16	5	18	-7
5. Skilled trades occupations	2	0	1	1	15	1	12	2	1	2	7	-8
6. Caring, leisure and other service	4	0	0	4	-2	1	7	-9	6	1	2	4
7. Sales and customer service	4	0	1	3	23	1	11	11	12	2	8	1
8. Process, plant and machine operatives	0	0	0	0	4	0	2	2	1	0	1	-1
9. Elementary occupations	2	0	0	2	2	1	7	-5	2	1	3	-2
Total	16	4	12	0	161	12	149	0	107	22	85	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	-0.6	1.5	4.5	-6.6	71.1	4.3	54.3	12.4	28.2	5.1	19.4	3.7
2. Professional occupations	18.5	1.5	4.5	12.5	43.7	4.3	54.3	-14.9	30.0	5.1	19.4	5.5
3. Associate professional and technical	18.9	1.5	4.5	12.9	79.2	4.3	54.3	20.5	32.9	5.1	19.4	8.4
4. Administrative and secretarial	-12.6	1.5	4.5	-18.6	44.3	4.3	54.3	-14.4	16.6	5.1	19.4	-7.9
5. Skilled trades occupations	10.1	1.5	4.5	4.1	68.6	4.3	54.3	9.9	4.0	5.1	19.4	-20.5
6. Caring, leisure and other service	47.0	1.5	4.5	41.0	-12.5	4.3	54.3	-71.1	56.3	5.1	19.4	31.8
7. Sales and customer service	20.8	1.5	4.5	14.8	110.2	4.3	54.3	51.5	26.8	5.1	19.4	2.3
8. Process, plant and machine operatives	-2.2	1.5	4.5	-8.2	128.1	4.3	54.3	69.4	8.3	5.1	19.4	-16.2
9. Elementary occupations	22.2	1.5	4.5	16.2	19.1	4.3	54.3	-39.6	13.6	5.1	19.4	-11.0
Total	6.0	1.5	4.5	0.0	58.7	4.3	54.3	0.0	24.5	5.1	19.4	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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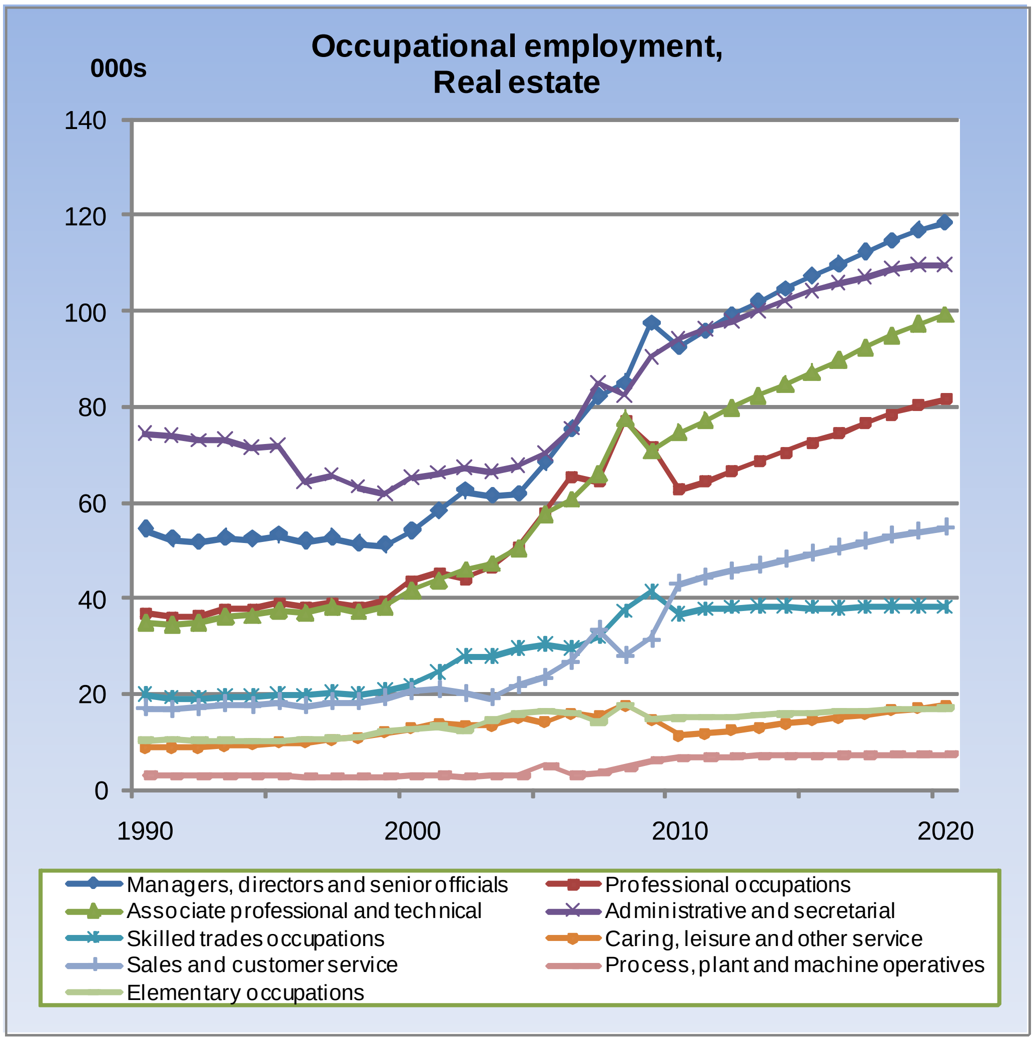
Figure 15.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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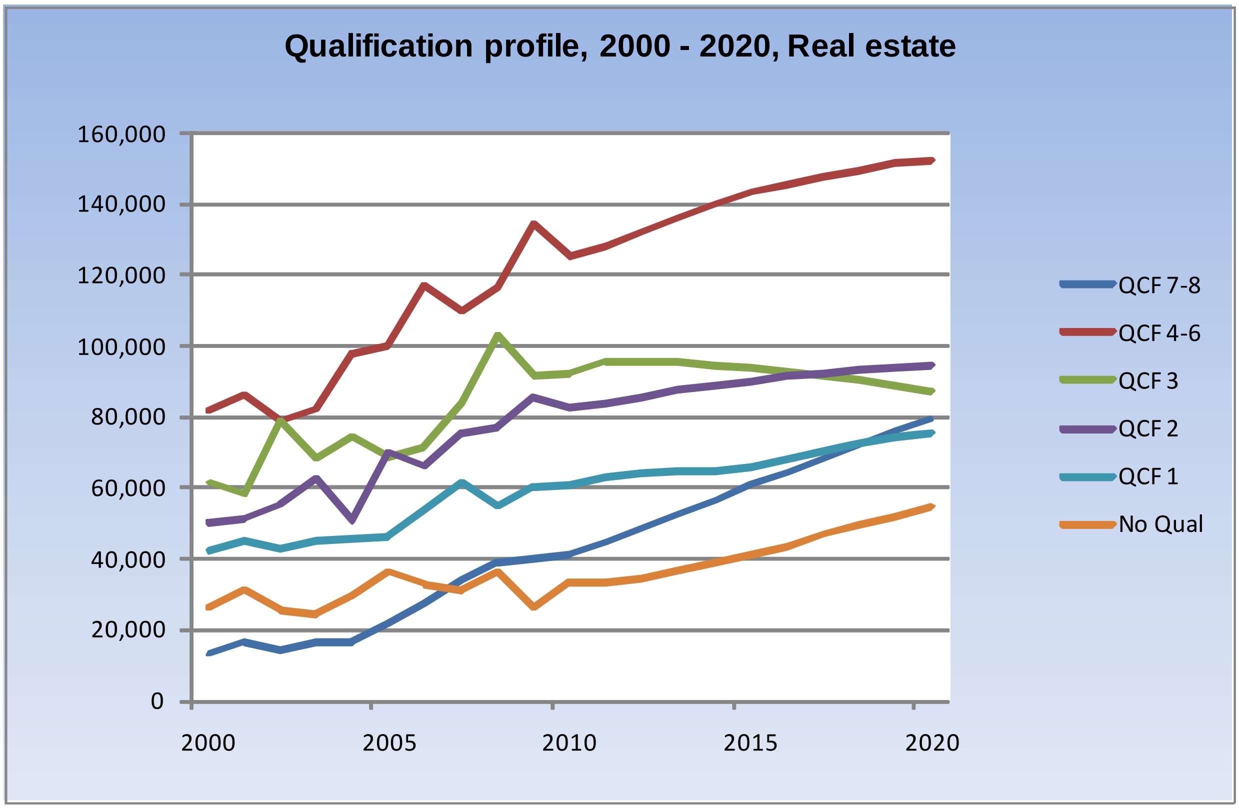
Figure 15.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 15.5: Implications for employment by qualification

United Kingdom : Real estate				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	41	38	79	17	55
QCF 4-6	125	27	152	53	80
QCF 3	92	-5	87	39	34
QCF 2	83	12	94	35	47
QCF 1	61	14	75	26	40
No Qual	34	21	55	14	35
Total	436	107	543	185	291
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	9.5	91.7	14.6	9.5	134.1
QCF 4-6	28.7	21.5	28.0	28.7	63.9
QCF 3	21.1	-5.5	16.0	21.1	36.9
QCF 2	18.9	14.1	17.4	18.9	56.5
QCF 1	14.0	23.5	13.9	14.0	65.8
No Qual	7.7	62.7	10.1	7.7	105.1
Total	100.0	24.5	100.0	100.0	66.9

CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

16 Professional services

16.1 Description of the industry

INDUSTRY 16: PROFESSIONAL SERVICES
SIC2007 headings: 69-75

69: Legal and accounting activities

70: Activities of head offices; management consultancy activities

71: Architectural and engineering activities

72: Scientific research and development

73: Advertising and market research

74: Other professional, scientific and technical activities

75: Veterinary activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	9.2	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	2,279,843	30,458,094
Share of total employment (% 2010):	7.5	100.0
Gender split (male:female) (% 2010):	56:44	53:47
Part-time share (% 2010):	15.2	27.9
Self-employment share (% 2010):	22.5	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

16.2 Industry Commentary

Background

This industry comprises a very varied range of activities including: legal and accounting activities; activities associated with head offices; management consultancy activities; architectural and engineering activities; scientific research and development; advertising and market research; other professional, scientific and technical activities ; and veterinary activities. Some (architectural and legal activities) are closely tied to the fortunes of the property market. Others are concerned with providing more general services to business as well as consumers.

The professional services industry generally has seen growth as a result of spending on research and development and consultancy services, as firms have sought to raise productivity levels.

Much of this increase is attributable to high-tech industries, but many more traditional industries, such as retailing, have also been investing more in R&D and consultancy to improve their performance.

16.3 Productivity and Output Trends

Output: The industry accounts for around nine per cent of total output.

As the UK property market flourished over the last decade output in this sector grew modestly, but slowed somewhat in the second half of the decade.

For the next ten years, growth prospects are expected to pick up significantly. Positive output growth is projected at around 3½ per cent per annum.

Productivity: Productivity growth, as measured by output per head, has been fairly flat over the past decade.

This is projected to pick up gradually over the coming decade.

Employment: The industry's share of total employment is about 7½ per cent (almost 2.3 million jobs).

Employment has risen steadily since the early 1990s.

It increased by over a half a million over the past decade.

Somewhat slower growth is expected in the coming decade.

16.4 Employment by Status and Gender

Accounting for well over half the jobs, males dominate employment in this industry in terms of numbers employed.

Part-time workers account for 3 in every 20 jobs. These are predominantly held by females.

Self-employment accounts for around just over 1 in 5 of all jobs, but in this case it is males that predominate in terms of numbers.

Males are projected to maintain their share of the total number of jobs in this industry at just under 60 per cent. The importance of part-time employment over the projection period is expected to rise slightly.

Self-employment will also increase its share slightly.

16.5 Projections of Employment by Occupation

Key aspects of occupational structure

Not surprisingly, professional occupations account for the largest share of employment, currently well over a third of the total.

They are supported by associate professionals and administrative & secretarial occupations, each of which accounts for about a further 1 in 5 jobs.

Managers account for just over 1 in 10 of all jobs.

Future changes

These patterns are not projected to alter radically.

As in other industries the administrative & secretarial group is projected to see a further decline in its share of employment and this is also reflected in some job losses.

The other occupations mentioned all see projected employment growth.

16.6 Replacement demands

Table 16.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Over the coming decade expansion demands are projected to be around 400,000.

Replacement needs will add almost twice as many job openings, bringing the total requirements for the coming decade to around 1.3 million.

Replacement needs affect all occupations, but are especially important for professional, associate professional, administrative & secretarial and managerial occupations.

16.7 Shift share analysis

Table 16.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect has played a major part in expanding employment in the past decade, accounting for an additional half a million jobs.

Over the coming decade, the industry effect is projected to remain positive but at a slightly more modest level.

Occupational effects are generally positive for white collar occupations other than for administrative & secretarial occupations.

Much smaller negative effects occur for skilled trades and elementary occupations.

16.8 Implications for qualifications

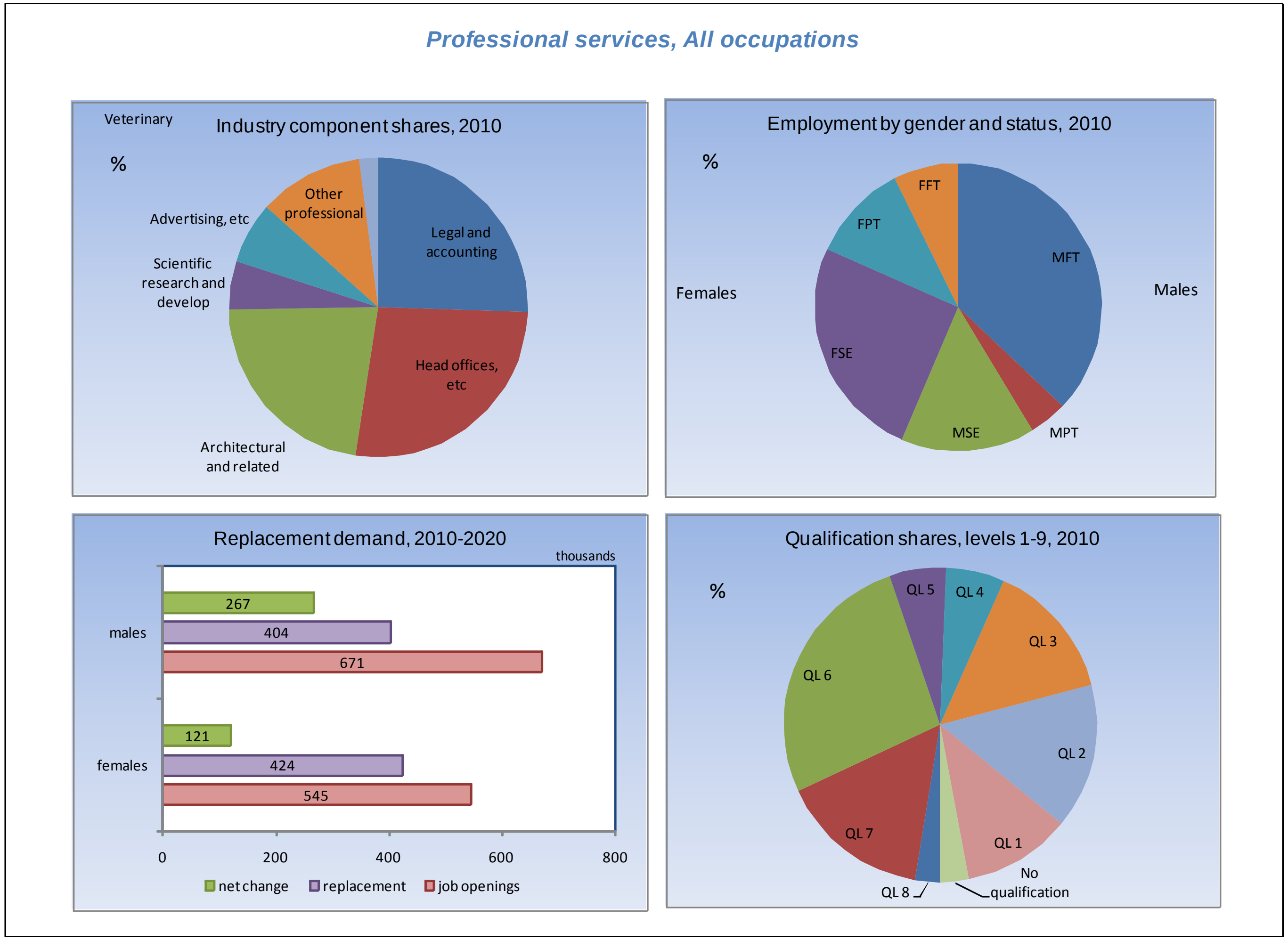
The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in the Professional services sector favours those qualified at higher levels (QCF 4-8) and the pattern of qualification changes during the period 2010 to 2020 is expected to continue to favour this category. Just under 30 per cent of employment was accounted for by those with intermediate qualifications (QCF2 and 3) in 2010 while those with higher qualifications (QCF 4-8) accounted for nearly 60 per cent. The higher qualifications are projected to rise to around 70 per cent by 2020. During the same period the shares of intermediate qualifications will fall a little.

Low level qualification shares are expected to remain static below 15 per cent.

Figure 16.1: Professional services – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 16.1: Trends in Output, Productivity and Employment

Average change in the period

Professional services				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	3.1	2.7	3.3	4.2
Employment (% pa)	3.2	2.4	1.7	1.5
(000s)	294	251	195	194
Productivity (% pa)	-0.1	0.3	1.6	2.6

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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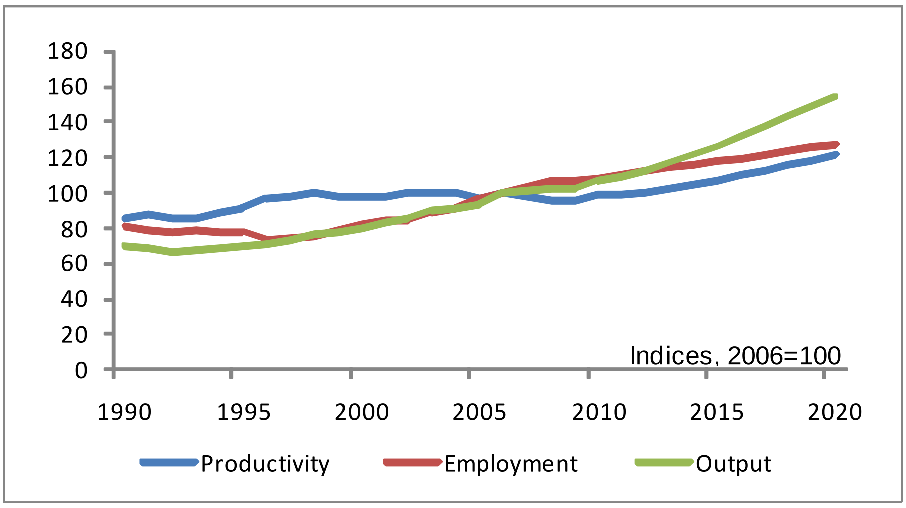
Figure 16.2: Output, productivity and employment in Professional services



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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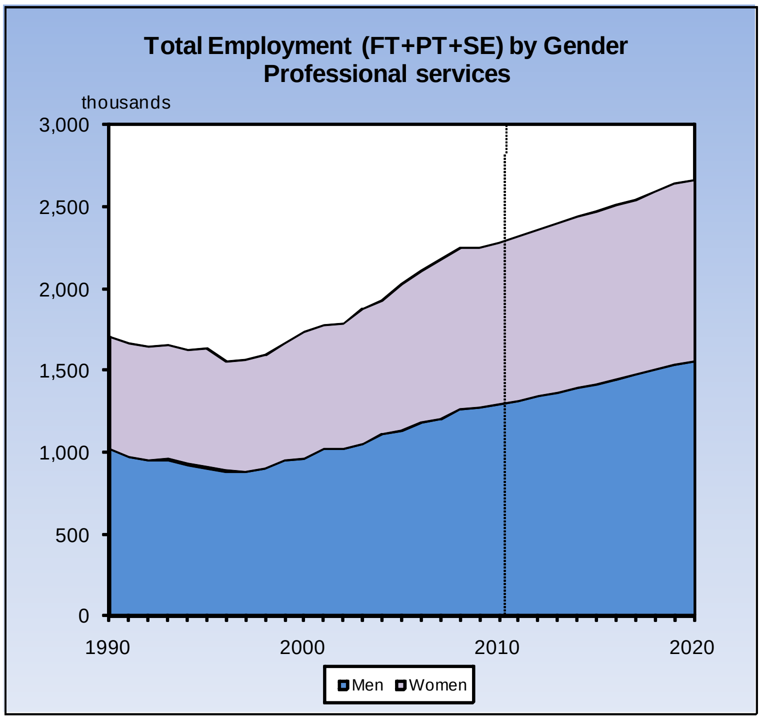
Figure 16.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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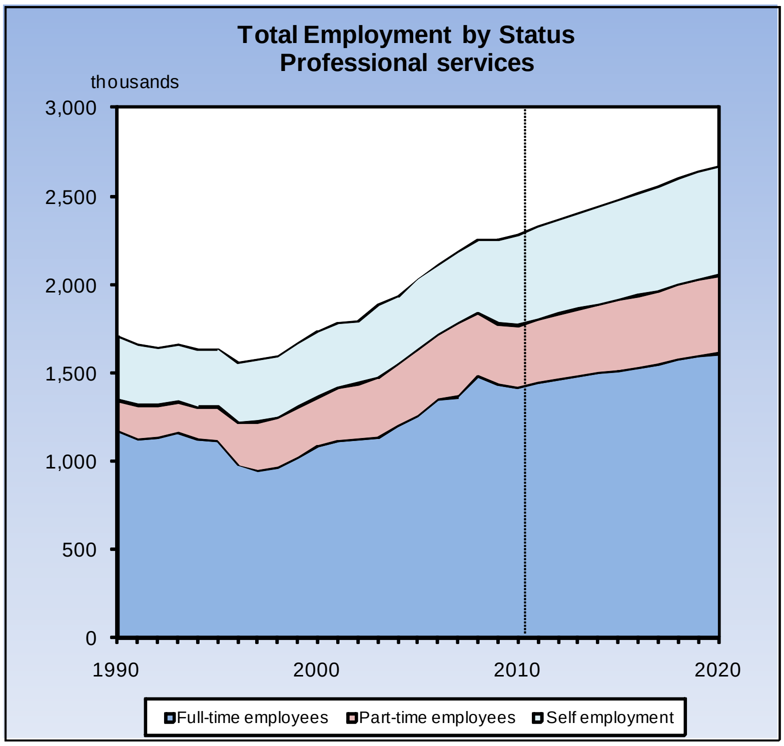
Figure 16.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 16.2: Employment by gender and status

Employment Status			Professional services									
									Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	845	(37.1)	96	(4.2)	345	(15.1)	1,287	(56.4)	75	27	27	129
Female employment	574	(25.2)	251	(11)	168	(7.4)	993	(43.6)	21	21	25	66
Total employment	1,419	(62.2)	347	(15.2)	514	(22.5)	2,280	(100)	96	47	52	195
2015									**2015-2020**			
Male employment	920	(37.2)	123	(5)	372	(15)	1,415	(57.2)	83	28	27	139
Female employment	595	(24)	272	(11)	193	(7.8)	1,059	(42.8)	12	15	28	55
Total employment	1,515	(61.2)	395	(16)	565	(22.8)	2,475	(100)	95	43	56	194
2020									**2010-2020**			
Male employment	1,003	(37.6)	151	(5.7)	400	(15)	1,554	(58.2)	159	55	54	267
Female employment	606	(22.7)	287	(10.8)	221	(8.3)	1,114	(41.8)	32	36	53	121
Total employment	1,610	(60.3)	438	(16.4)	621	(23.3)	2,668	(100)	191	91	107	389

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 16.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Professional services						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	129	143	269	308	348	79	116	195
2. Professional occupations	628	637	860	959	1,062	202	338	540
3. Associate professional and technical	279	323	457	517	575	119	171	290
4. Administrative and secretarial	523	467	432	406	383	-49	201	152
5. Skilled trades occupations	46	43	76	78	80	4	30	34
6. Caring, leisure and other service	15	23	32	36	41	9	14	23
7. Sales and customer service	29	35	72	76	79	7	25	32
8. Process, plant and machine operatives	21	21	27	28	29	1	12	13
9. Elementary occupations	37	43	55	67	71	16	22	38
Total	1,706	1,734	2,280	2,475	2,668	389	928	1,317
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	7.6	8.2	11.8	12.5	13.1	29.4	43.0	72.4
2. Professional occupations	36.8	36.7	37.7	38.8	39.8	23.5	39.3	62.8
3. Associate professional and technical	16.3	18.6	20.0	20.9	21.6	26.0	37.5	63.4
4. Administrative and secretarial	30.6	26.9	18.9	16.4	14.4	-11.3	46.5	35.2
5. Skilled trades occupations	2.7	2.5	3.3	3.1	3.0	5.9	39.0	44.8
6. Caring, leisure and other service	0.9	1.3	1.4	1.4	1.5	29.0	43.2	72.2
7. Sales and customer service	1.7	2.0	3.2	3.1	3.0	9.7	35.2	44.9
8. Process, plant and machine operatives	1.2	1.2	1.2	1.1	1.1	5.2	42.5	47.7
9. Elementary occupations	2.1	2.5	2.4	2.7	2.7	28.2	40.0	68.2
Total	100.0	100.0	100.0	100.0	100.0	17.0	40.7	57.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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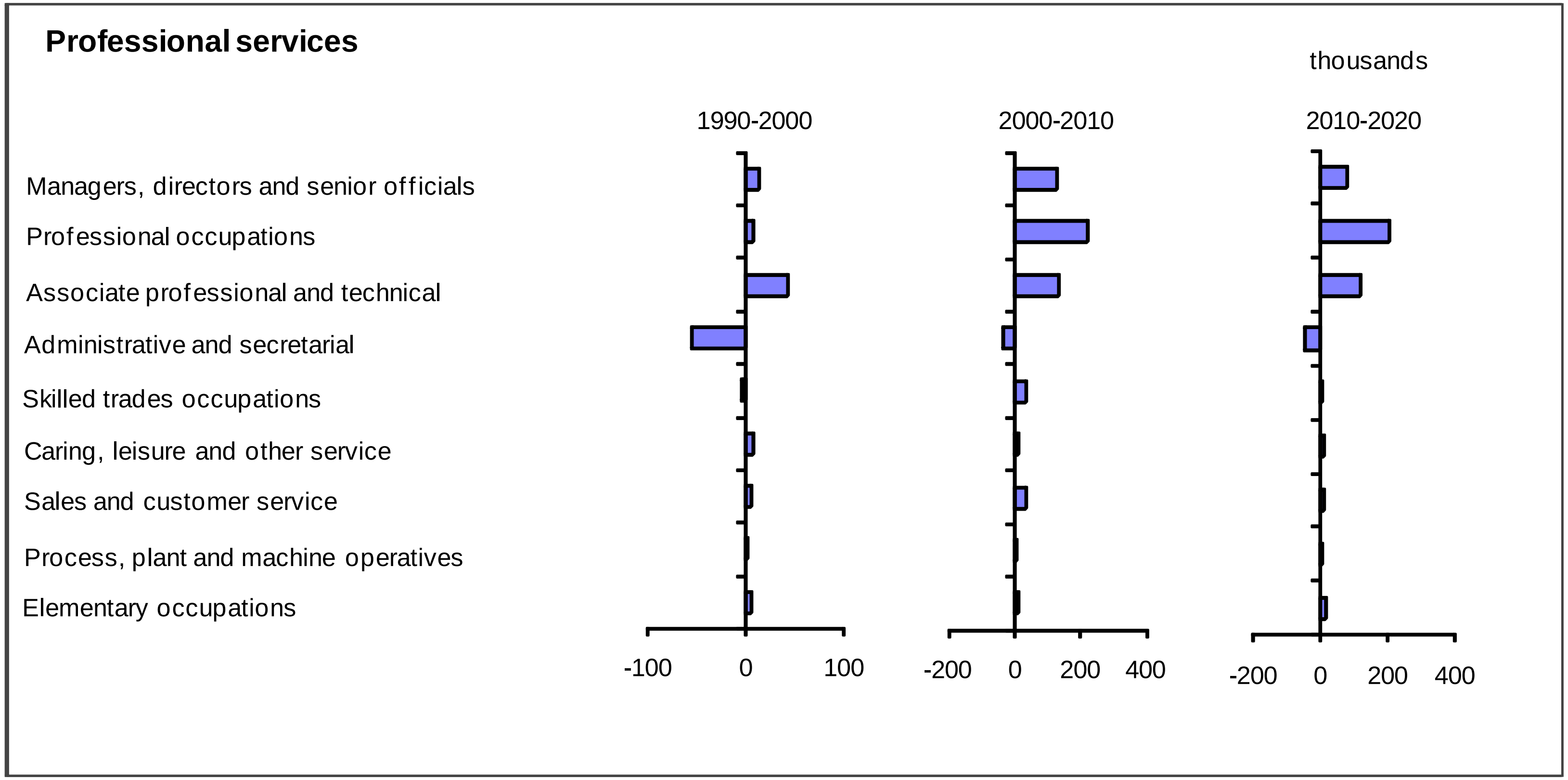
Figure 16.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 16.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	14	2	0	11	126	6	39	81	79	14	32	33
2. Professional occupations	9	9	1	-1	223	28	173	23	202	44	103	55
3. Associate professional and technical	44	4	0	39	134	14	88	32	119	23	55	41
4. Administrative and secretarial	-56	8	1	-64	-35	20	127	-182	-49	22	52	-122
5. Skilled trades occupations	-3	1	0	-4	33	2	12	19	4	4	9	-8
6. Caring, leisure and other service	8	0	0	7	9	1	6	2	9	2	4	4
7. Sales and customer service	6	0	0	5	37	2	9	26	7	4	9	-5
8. Process, plant and machine operatives	0	0	0	0	6	1	6	0	1	1	3	-3
9. Elementary occupations	7	1	0	6	12	2	12	-2	16	3	7	6
Total	28	25	3	0	546	75	470	0	389	116	273	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	10.5	1.5	0.2	8.9	88.4	4.3	27.1	57.0	29.4	5.1	12.0	12.3
2. Professional occupations	1.4	1.5	0.2	-0.2	35.1	4.3	27.1	3.6	23.5	5.1	12.0	6.4
3. Associate professional and technical	15.8	1.5	0.2	14.1	41.5	4.3	27.1	10.0	26.0	5.1	12.0	8.9
4. Administrative and secretarial	-10.6	1.5	0.2	-12.3	-7.6	4.3	27.1	-39.1	-11.3	5.1	12.0	-28.3
5. Skilled trades occupations	-6.7	1.5	0.2	-8.3	75.6	4.3	27.1	44.1	5.9	5.1	12.0	-11.2
6. Caring, leisure and other service	50.0	1.5	0.2	48.3	41.5	4.3	27.1	10.0	29.0	5.1	12.0	12.0
7. Sales and customer service	20.5	1.5	0.2	18.9	107.7	4.3	27.1	76.2	9.7	5.1	12.0	-7.4
8. Process, plant and machine operatives	0.8	1.5	0.2	-0.9	30.2	4.3	27.1	-1.3	5.2	5.1	12.0	-11.9
9. Elementary occupations	18.4	1.5	0.2	16.8	27.6	4.3	27.1	-3.9	28.2	5.1	12.0	11.2
Total	1.7	1.5	0.2	0.0	31.5	4.3	27.1	0.0	17.0	5.1	12.0	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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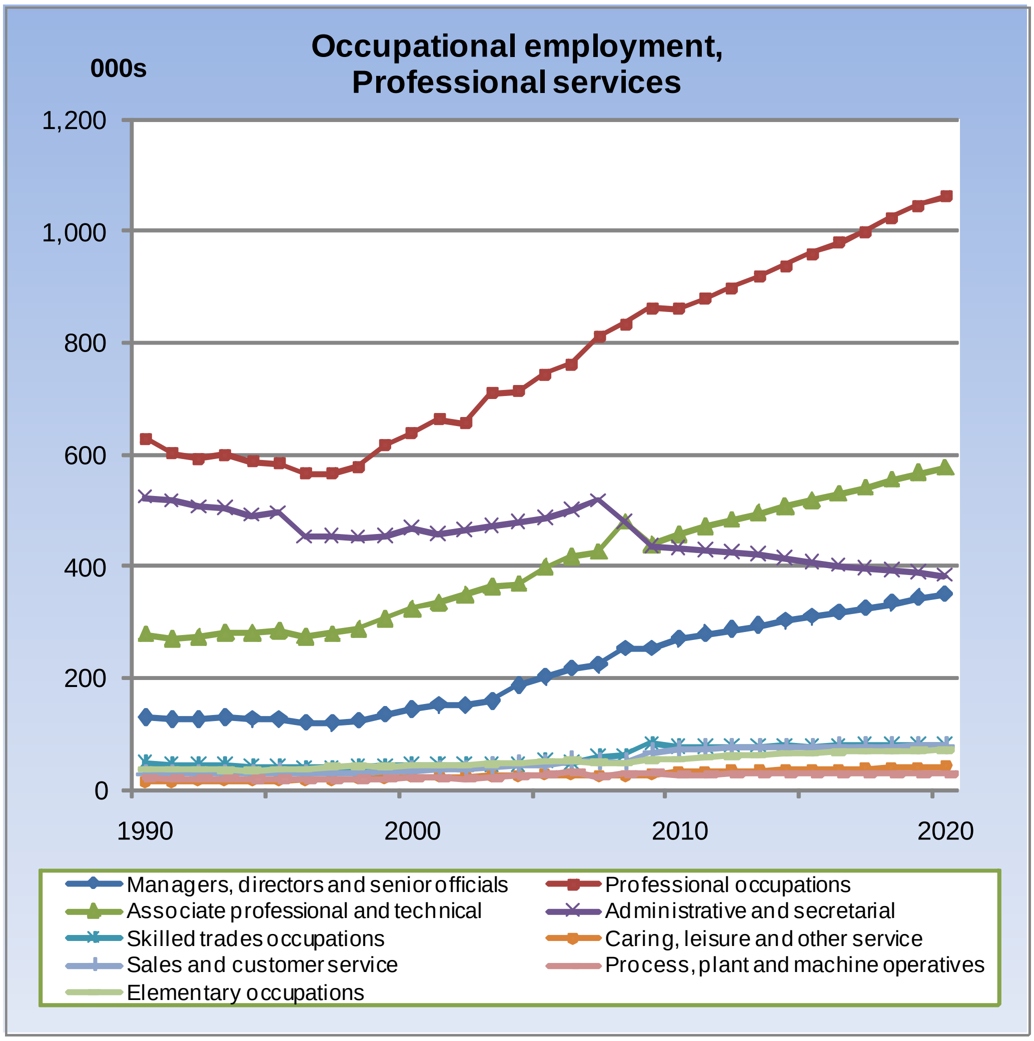
Figure 16.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Figure 16.7: Qualification trends

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 16.5: Implications for employment by qualification

United Kingdom : Professional services				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	446	332	778	182	513
QCF 4-6	933	115	1,048	380	495
QCF 3	314	-80	234	128	48
QCF 2	284	-24	260	116	92
QCF 1	223	38	260	91	128
No Qual	79	8	88	32	41
Total	2,280	389	2,668	928	1,316
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	19.6	74.4	29.2	19.6	115.1
QCF 4-6	40.9	12.3	39.3	40.9	53.0
QCF 3	13.8	-25.5	8.8	13.8	15.2
QCF 2	12.5	-8.5	9.7	12.5	32.2
QCF 1	9.8	16.9	9.8	9.8	57.6
No Qual	3.5	10.4	3.3	3.5	51.1
Total	100.0	17.0	100.0	100.0	57.7

CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

17 Support services

17.1 Description of the industry

INDUSTRY 17: SUPPORT SERVICES
SIC2007 headings: 77-82

77: Rental and leasing activities

78: Employment activities

79: Travel agency and tour operator activities

80: Security and investigation activities

81: Services to buildings and landscape activities

82: Office administrative, office support activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	5.4	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	2,353,343	30,458,094
Share of total employment (% 2010):	7.7	100.0
Gender split (male:female) (% 2010):	57:43	53:47
Part-time share (% 2010):	31.4	27.9
Self-employment share (% 2010):	12.6	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

17.2 Industry Commentary

Background

This sector contains a very varied group of activities, including: rental and leasing activities; employment agencies and related activities; travel agency and tour operator activities; security and investigation activities; various services to buildings and landscape activities; and office administrative and support activities.

Again a number of these activities are tied to the fortunes of the property market. Others provide services to businesses and consumers linked to tourism and leisure activities. A significant sub-group are focused on real estate issues, including development, buying and selling, letting and management of property. This part has been especially impacted by the recession and problems in property markets

17.3 Productivity and Output Trends

Output: The industry accounts for around 5½ per cent of total output.

As the UK property market flourished over the last decade output in this sector grew strongly. Demand from consumers for tourist and other leisure services was also a key factor.

For the next ten years, growth prospects are expected to be good as the economy recovers. Positive output growth is projected, albeit at a slightly lower rate than previously. Increases at or just above 3 per cent per annum are expected.

Productivity: Productivity growth has been modest over the past decade.

This is projected to improve slightly over the coming decade at a rate of around 2 per cent per annum.

Employment: The industry's share of total employment is about 7½ per cent (almost 2.4 million jobs).

Employment has risen steadily since the early 1990s.

Much slower growth occurred in the second half of the past decade, reflecting the impact of the recession.

Further job gains are expected as the economy recovers.

17.4 Employment by Status and Gender

Accounting for well over half the jobs, males dominate employment in this industry in terms of numbers employed.

Part-time workers account for around a third of all jobs, but these are predominantly held by females.

Self-employment accounts for just over 1 in 10 jobs, but in this case males predominate.

Females are projected to maintain their share of the total number of jobs in this industry at just over 40 per cent.

The importance of part-time employment over the projection period is expected to rise slightly.

17.5 Projections of Employment by Occupation

Key aspects of occupational structure

The most important occupational group in terms of numbers is elementary occupations which account for a third of all jobs. This includes low level security, gardeners and low level clerical and other support occupations.

Four other groups are also important:

- managers, directors & senior officials;
- professional occupations;
- associate professional & technical occupations;
- administrative & secretarial occupations.

Each accounts for around 1 in every 10 jobs.

As in other industries, the first three of the occupations in the list have seen a rising share of employment, while the last one has experienced a declining share in recent years, as the effects of information and communication technologies on routine clerical work have hit home.

Future changes

Generally occupational structure in this industry is not expected to change radically.

The same first three occupations along with elementary occupations are all projected to see employment growth.

Continued job losses will be seen in administrative & secretarial occupations and skilled trades.

Some increase in employment for personal service occupations (caring, leisure & other service and sales & customer service occupations) is also projected (both in terms of shares of total employment and the absolute number of jobs).

The largest group, elementary occupations is projected to benefit from some increase in employment, but a declining share of the total.

17.6 Replacement demands

Table 17.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Over the coming decade expansion demands are projected to be around 300,000.

Replacement needs will add more than three times as many job openings, bringing the total requirements for the coming decade to over 1.2 million.

Replacement needs affect all occupations, but are especially important for associate professional, administrative & secretarial and elementary occupations.

17.7 Shift share analysis

Table 17.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect has played a major part in expanding employment in the past twenty years, accounting for an increase of over 50 per cent in the 1990s falling back to 12½ per cent in the past decade.

Over the coming decade, the industry effect is projected to remain positive but at a more modest level.

Occupational effects are generally positive for white collar occupations other than administrative & secretarial occupations, which are strongly negative.

Negative occupational effects are also significant for skilled trades and elementary occupations.

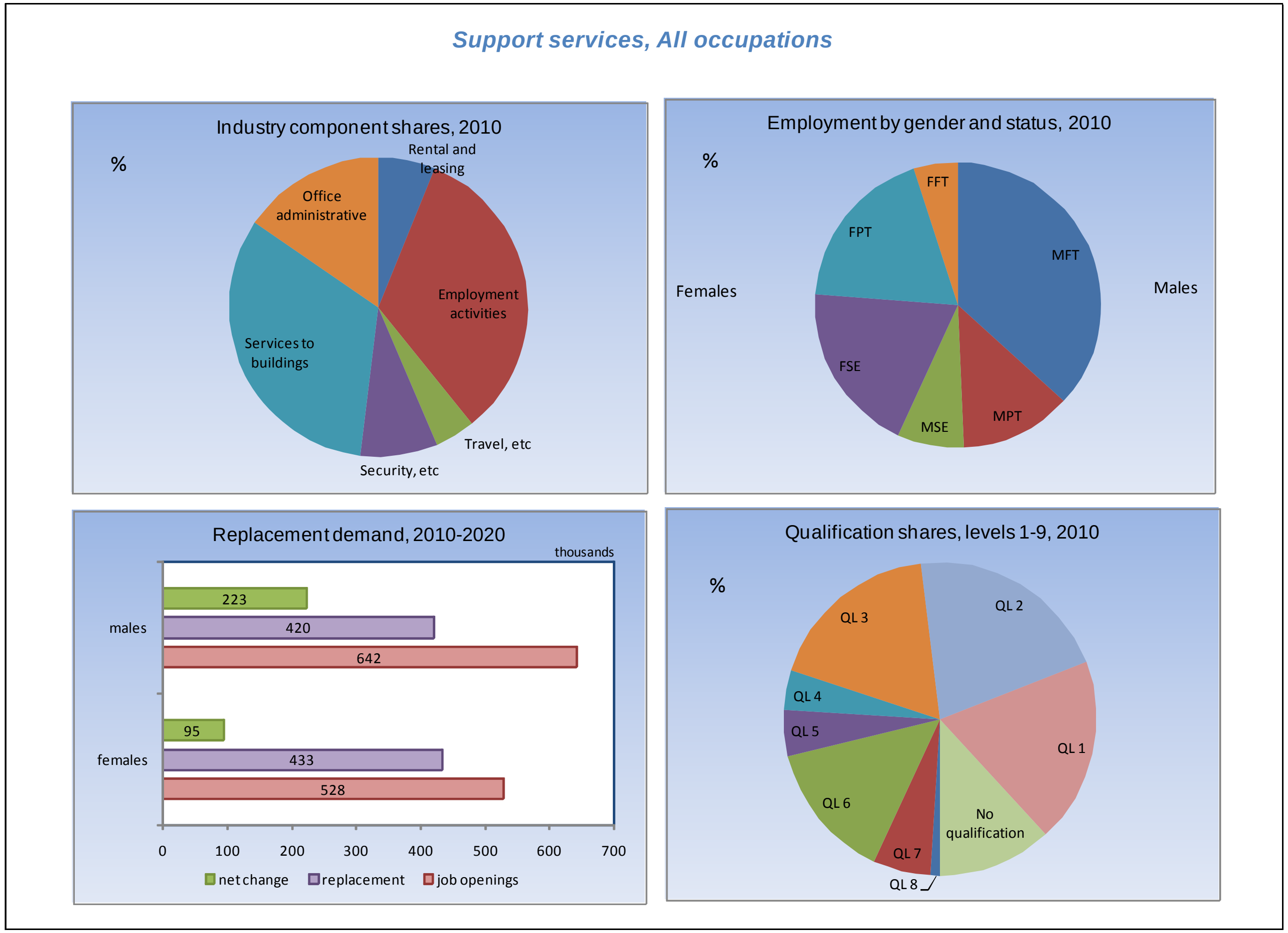
17.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The Support services occupational structure favours those qualified at lower and intermediate levels. The pattern of qualification changes during the period 2010 to 2020 is projected to follow the general trend but is expected to be modest. Just under 40 per cent of employment was accounted for by those with intermediate qualifications (QCF2 and 3) in 2010 while those with lower qualifications (QCF 0-1) accounted for around 35 per cent. The higher qualifications are projected to rise slightly from just over 25 per cent in 2010 to just above 30 per cent by 2020. During the same period the shares of those with intermediate and lower qualifications are expected to fall correspondingly.

Figure 17.1: Support services – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 17.1: Trends in Output, Productivity and Employment

Average change in the period

Support services				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	3.0	2.0	3.1	3.0
Employment (% pa)	2.4	0.7	1.8	0.7
(000s)	258	80	226	92
Productivity (% pa)	0.5	1.3	1.3	2.3

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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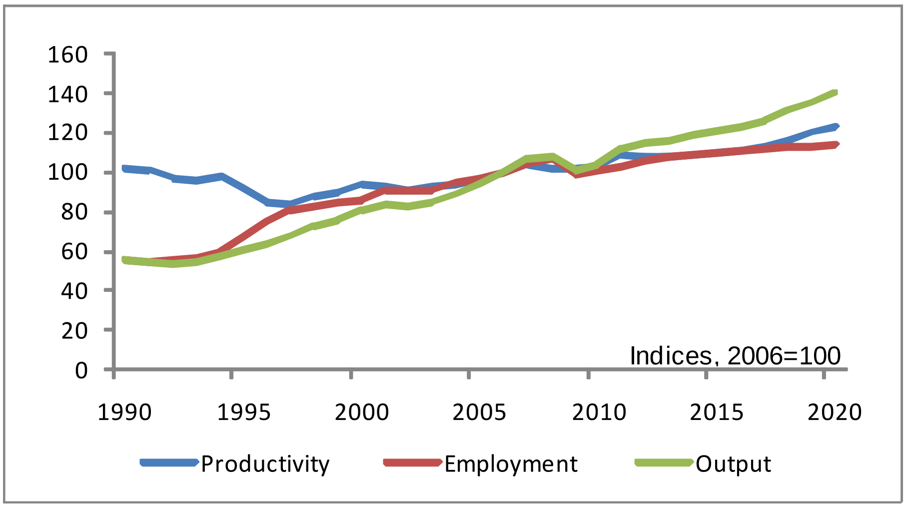
Figure 17.2: Output, productivity and employment in Support services



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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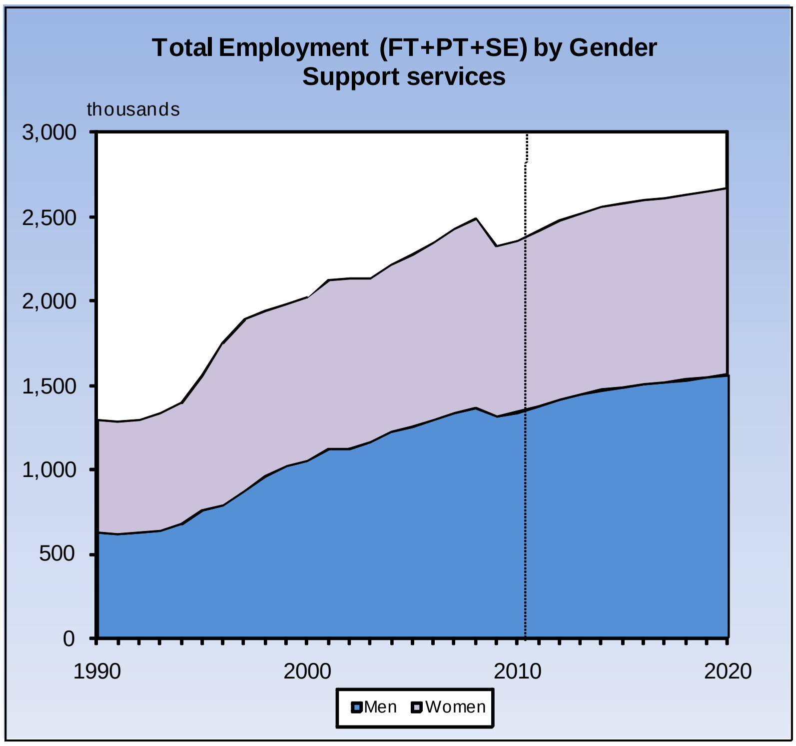
Figure 17.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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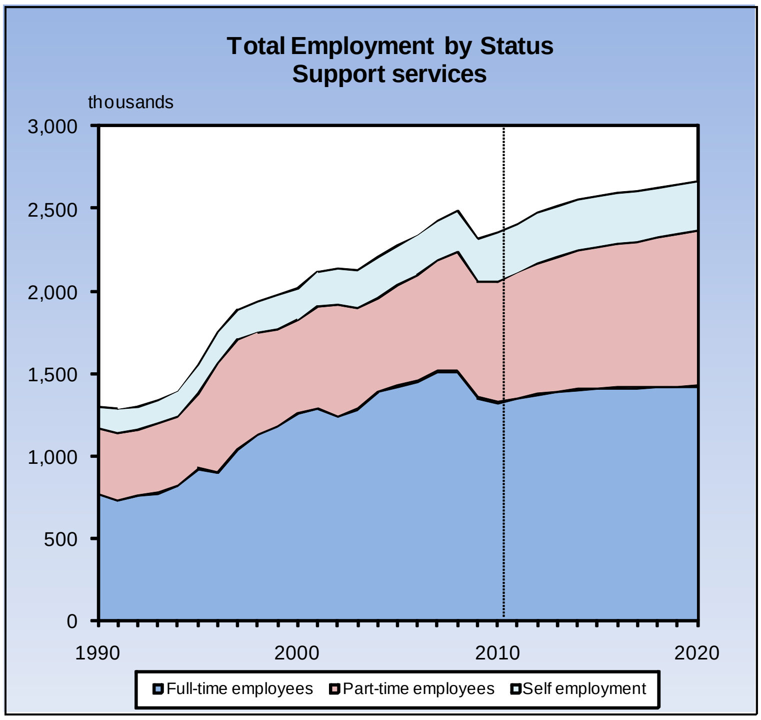
Figure 17.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 17.2: Employment by gender and status

	Employment Status				Support services					Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**			**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**		**2010-2015**			
Male employment	865	(36.7)	295	(12.5)	178	(7.6)	1,338	(56.9)		63	76	11	149
Female employment	455	(19.3)	443	(18.8)	117	(5)	1,015	(43.1)		26	47	4	76
Total employment	1,320	(56.1)	738	(31.4)	295	(12.6)	2,353	(100)		89	123	14	226
2015										**2015-2020**			
Male employment	927	(36)	371	(14.4)	189	(7.3)	1,487	(57.7)		12	63	-2	73
Female employment	481	(18.7)	489	(19)	121	(4.7)	1,092	(42.3)		2	22	-5	19
Total employment	1,409	(54.6)	861	(33.4)	310	(12)	2,579	(100)		14	85	-7	92
2020										**2010-2020**			
Male employment	939	(35.2)	435	(16.3)	187	(7)	1,561	(58.4)		75	139	9	223
Female employment	483	(18.1)	511	(19.1)	116	(4.3)	1,110	(41.6)		28	68	-2	95
Total employment	1,423	(53.3)	946	(35.4)	303	(11.3)	2,671	(100)		103	208	7	318

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 17.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Support services						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	110	190	256	292	310	54	113	167
2. Professional occupations	87	153	225	258	283	58	89	146
3. Associate professional and technical	152	308	371	413	441	71	139	210
4. Administrative and secretarial	249	314	309	323	301	-9	142	133
5. Skilled trades occupations	79	108	110	109	103	-7	43	36
6. Caring, leisure and other service	63	107	151	184	206	55	65	120
7. Sales and customer service	59	105	169	185	190	22	53	75
8. Process, plant and machine operatives	75	115	100	105	105	4	46	51
9. Elementary occupations	418	616	663	709	732	69	255	324
Total	1,292	2,015	2,353	2,579	2,671	318	945	1,262
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	8.5	9.4	10.9	11.3	11.6	21.3	44.2	65.4
2. Professional occupations	6.7	7.6	9.6	10.0	10.6	25.7	39.4	65.0
3. Associate professional and technical	11.8	15.3	15.7	16.0	16.5	19.1	37.4	56.6
4. Administrative and secretarial	19.3	15.6	13.1	12.5	11.3	-2.7	45.9	43.1
5. Skilled trades occupations	6.1	5.3	4.7	4.2	3.9	-6.3	39.2	32.9
6. Caring, leisure and other service	4.9	5.3	6.4	7.1	7.7	36.5	43.0	79.5
7. Sales and customer service	4.6	5.2	7.2	7.2	7.1	12.8	31.5	44.3
8. Process, plant and machine operatives	5.8	5.7	4.3	4.1	3.9	4.4	46.2	50.6
9. Elementary occupations	32.3	30.6	28.2	27.5	27.4	10.5	38.4	48.9
Total	100.0	100.0	100.0	100.0	100.0	13.5	40.1	53.6

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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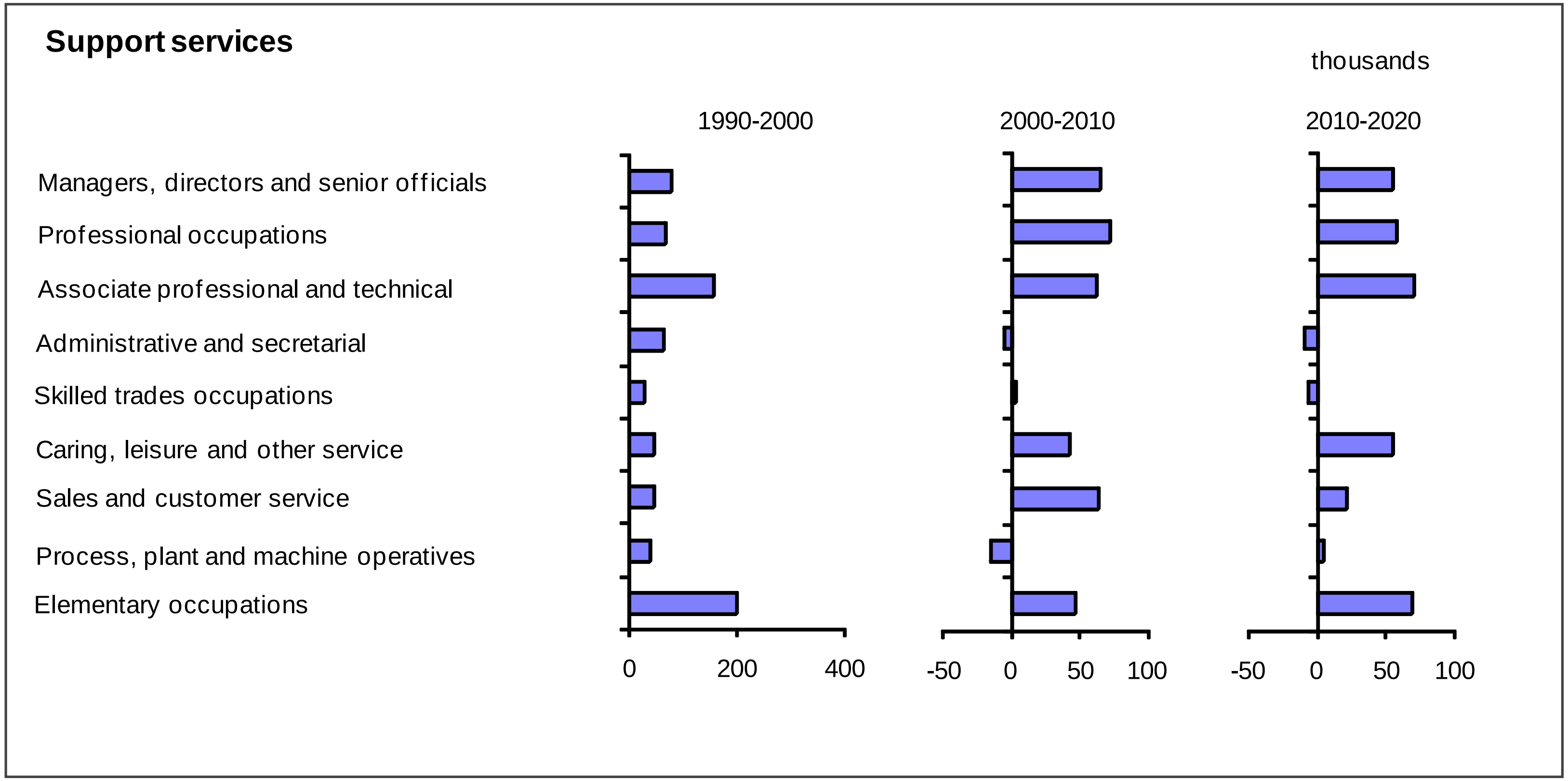
Figure 17.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 17.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	80	2	60	18	66	8	24	34	54	13	22	20
2. Professional occupations	67	1	47	18	72	7	19	46	58	11	19	27
3. Associate professional and technical	155	2	83	70	63	13	38	11	71	19	31	21
4. Administrative and secretarial	65	4	136	-75	-5	14	39	-57	-9	16	26	-50
5. Skilled trades occupations	29	1	43	-16	3	5	13	-15	-7	6	9	-22
6. Caring, leisure and other service	45	1	34	10	43	5	13	25	55	8	13	35
7. Sales and customer service	45	1	32	12	64	5	13	46	22	9	14	-1
8. Process, plant and machine operatives	39	1	41	-3	-15	5	14	-34	4	5	8	-9
9. Elementary occupations	198	6	227	-35	47	27	77	-57	69	34	56	-20
Total	723	19	704	0	339	87	251	0	318	120	198	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	72.3	1.5	54.4	16.4	34.8	4.3	12.5	18.0	21.3	5.1	8.4	7.8
2. Professional occupations	76.8	1.5	54.4	20.9	47.0	4.3	12.5	30.2	25.7	5.1	8.4	12.2
3. Associate professional and technical	102.1	1.5	54.4	46.2	20.4	4.3	12.5	3.6	19.1	5.1	8.4	5.6
4. Administrative and secretarial	25.9	1.5	54.4	-30.0	-1.4	4.3	12.5	-18.2	-2.7	5.1	8.4	-16.2
5. Skilled trades occupations	36.1	1.5	54.4	-19.8	2.8	4.3	12.5	-14.0	-6.3	5.1	8.4	-19.8
6. Caring, leisure and other service	71.2	1.5	54.4	15.3	40.2	4.3	12.5	23.4	36.5	5.1	8.4	23.0
7. Sales and customer service	76.5	1.5	54.4	20.5	61.0	4.3	12.5	44.2	12.8	5.1	8.4	-0.7
8. Process, plant and machine operatives	52.1	1.5	54.4	-3.8	-12.7	4.3	12.5	-29.5	4.4	5.1	8.4	-9.1
9. Elementary occupations	47.5	1.5	54.4	-8.4	7.6	4.3	12.5	-9.2	10.5	5.1	8.4	-3.0
Total	55.9	1.5	54.4	0.0	16.8	4.3	12.5	0.0	13.5	5.1	8.4	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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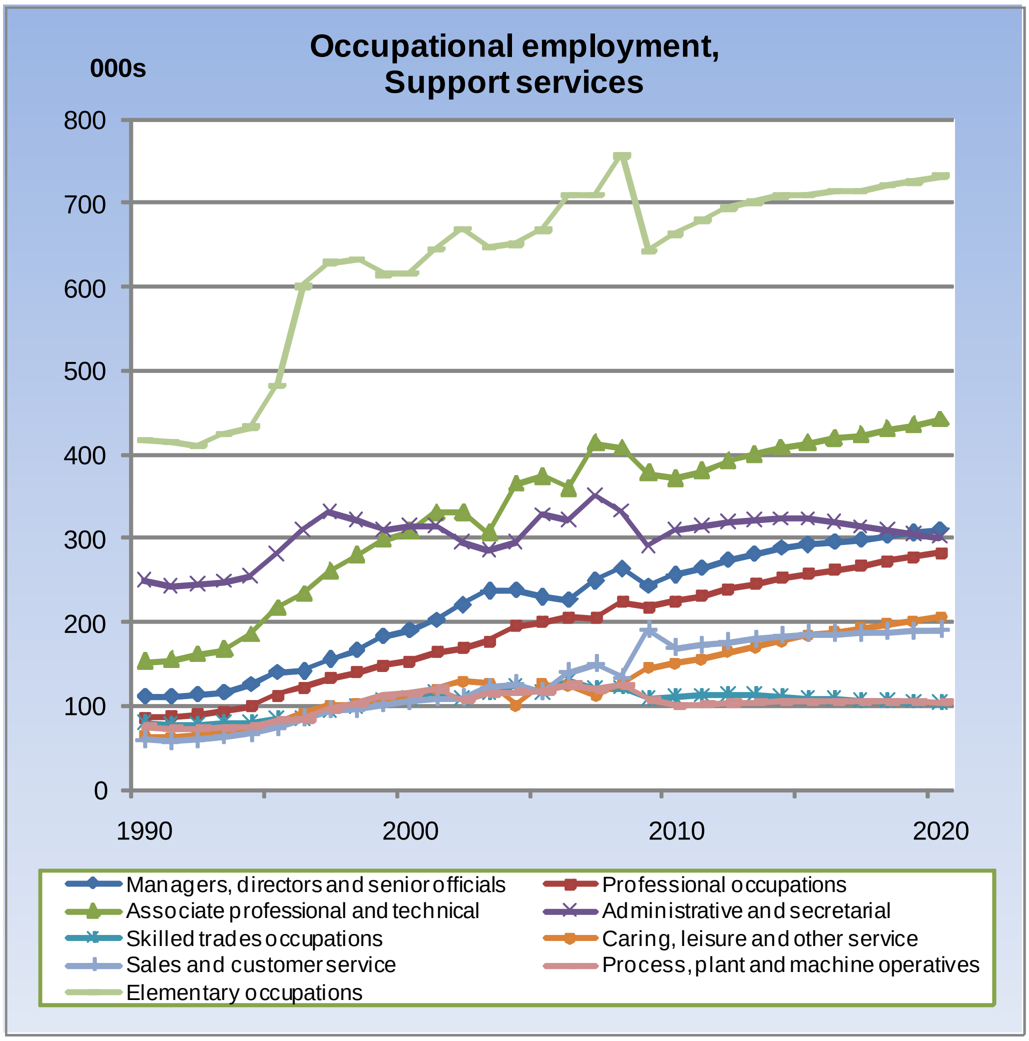
Figure 17.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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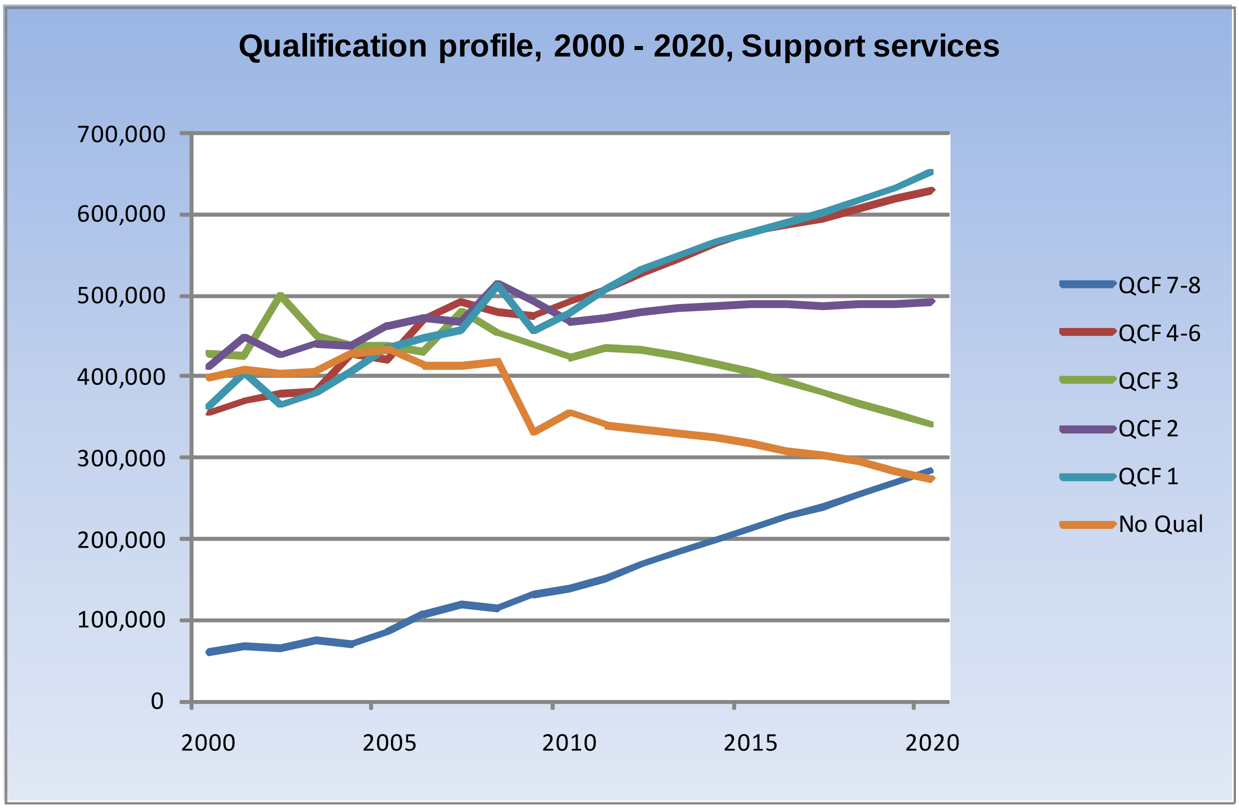
Figure 17.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 17.5: Implications for employment by qualification

United Kingdom : Support services				000s	
QCF group	Base year level 2010	Change 2010 - 2020	Projected level 2020	Replacement Demand	Total requirement 2010 - 2020
QCF 7-8	139	145	284	56	201
QCF 4-6	492	137	630	198	335
QCF 3	424	-83	341	170	87
QCF 2	467	26	492	187	213
QCF 1	478	172	650	192	364
No Qual	354	-80	274	142	62
Total	2,353	318	2,671	944	1,262
	% share	% change	% share	% share	% of base year level
QCF 7-8	5.9	104.9	10.6	5.9	145.0
QCF 4-6	20.9	27.9	23.6	20.9	68.0
QCF 3	18.0	-19.7	12.7	18.0	20.5
QCF 2	19.8	5.5	18.4	19.8	45.6
QCF 1	20.3	36.1	24.3	20.3	76.2
No Qual	15.0	-22.5	10.3	15.0	17.6
Total	100.0	13.5	100.0	100.0	53.6

CE/IER estimates based on ONS data(MDM revision 7146).
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18 Public administration and defence

18.1 Description of the industry

INDUSTRY 18: PUBLIC ADMINISTRATION AND DEFENCE
SIC2007 headings: 84

84: Public administration and defence; compulsory social security

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	5.6	100.0
Exposure to International Trade:	zero	average
Concentration (market share of largest employers):	high	average
Total employment (2010):	1,544,102	30,458,094
Share of total employment (% 2010):	5.1	100.0
Gender split (male:female) (% 2010):	44:56	53:47
Part-time share (% 2010):	29.3	27.9
Self-employment share (% 2010):	2.2	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

18.2 Industry Commentary

Background

The government is set on reducing employment in Public Administration & Defence as part of its aim of reducing public expenditure and the public sector deficit.

Employment in this part of the public sector has in fact been on a downward trend for most of the last 30 years. Until the late 1980s productivity was increasing, albeit slowly; but thereafter there has been little change in the level of productivity.

18.3 Productivity and Output Trends

Output: The industry accounts for around 5½ per cent of total output.

Output in this industry is measured by public expenditure on such services.

This has seen modest growth in real terms, in recent years, but the recession resulted in severe cutbacks, which have reduced growth to zero in the second half of the last decade.

Even greater cutbacks as part of the Comprehensive Spending Review will result in negative growth in the first half of the coming decade, but things are expected to pick up in the second half.

Productivity: Productivity is difficult to measure in this sector. Trends in productivity have been flat over much of the last decade.

As policies to modernise and restructure a number of public services take effect, some modest improvement in productivity is expected over the coming decade.

Employment: The industry's share of total employment is about 5 per cent (over 1½ million jobs).

Employment levels are expected to fall sharply in the first half of the decade, but with some growth in the second half.

18.4 Employment by Status and Gender

Employment in this industry is divided fairly equally between men and women, although the latter are in the majority.

A much greater proportion of female workers are part-time. Part-timers account for about three in 10 jobs in total.

Self-employment is insignificant numerically.

Females are expected to continue to slowly increase their share of total employment in this industry.

This sector is a source of jobs for many women, particularly those looking for part-time employment, as conditions are favourable to such working arrangements.

Part-time working is projected to maintain its share of total employment.

Self-employment is projected to remain insignificant in numerical terms, although increasing its share slightly.

18.5 Projections of Employment by Occupation

Key aspects of occupational structure

Administrative & secretarial occupations are currently still the largest occupational group, accounting for around a third of all jobs. However, employment in this occupation is on a rapidly declining trend.

Also accounting for almost 3 in 10 of all jobs, the associate professional & technical group is the next most significant category numerically.

Professional occupations are also significant sources of employment, accounting for around 1 in 5 of all jobs.

Future Changes

Occupational structures are generally only projected to evolve slowly.

Further significant declines in the employment share for the administrative & secretarial group are projected.

These losses are projected to be offset by small increases for managers, professional and associate professional occupations, as well as caring, leisure and other service occupations.

18.6 Replacement demands

Table 18.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Replacement demand for this industry will be substantial, much more than offsetting the decline in expansion demands.

Well over half a million members of the current workforce will need to be replaced over the next decade.

The bulk of these replacement demands fall in the administrative & secretarial occupations category, and to a lesser extent amongst associate professional & technical occupations.

However, there will also be significant replacement needs for people in most other non-manual occupations.

18.7 Shift share analysis

Table 18.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect was negative in the 1990s but turned positive in the last decade, reflecting different trends in public expenditure over these periods.

The industry effect is projected to return to a significant negative value over the projection period, resulting in the loss of almost 200,000 jobs across all occupations as pressures to restrain government expenditure and cut costs continue.

Over the coming decade this is reinforced by negative occupational effects for administrative & secretarial occupations.

For the majority of other occupations, positive occupational effects offset the negative industry effect (at least in part).

18.8 Implications for qualifications

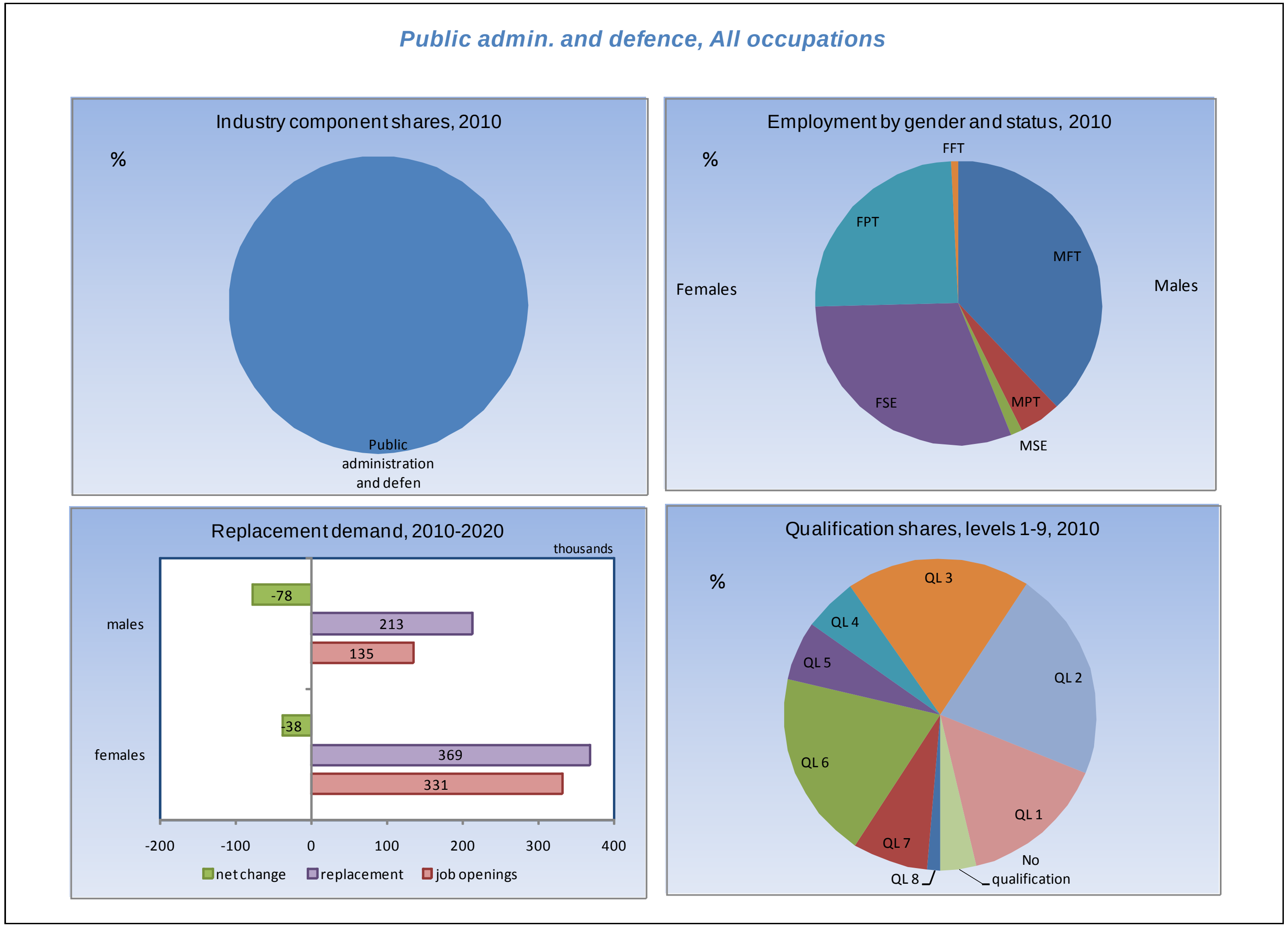
The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Public administration and defence favours those qualified at intermediate and higher levels.

Over 40 per cent of employment was accounted for by those with intermediate qualifications (QCF 3 and 4) in 2010 with a similar proportion having higher qualifications (QCF 4-8). Those with lower qualifications (QCF 0-1) accounted for just over 15 per cent. The higher qualifications are projected to show the largest increase from just over 40 per cent in 2010 to over 50 per cent by 2020. During the same period the shares of those with intermediate and lower qualifications are both expected to fall correspondingly.

Figure 18.1: Public admin – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 18.1: Trends in Output, Productivity and Employment

Average change in the period

Public admin. & defence				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	2.1	0.1	-2.4	1.5
Employment (% pa)	2.2	-0.5	-2.7	1.2
(000s)	160	-38	-198	82
Productivity (% pa)	0.0	0.6	0.4	0.3

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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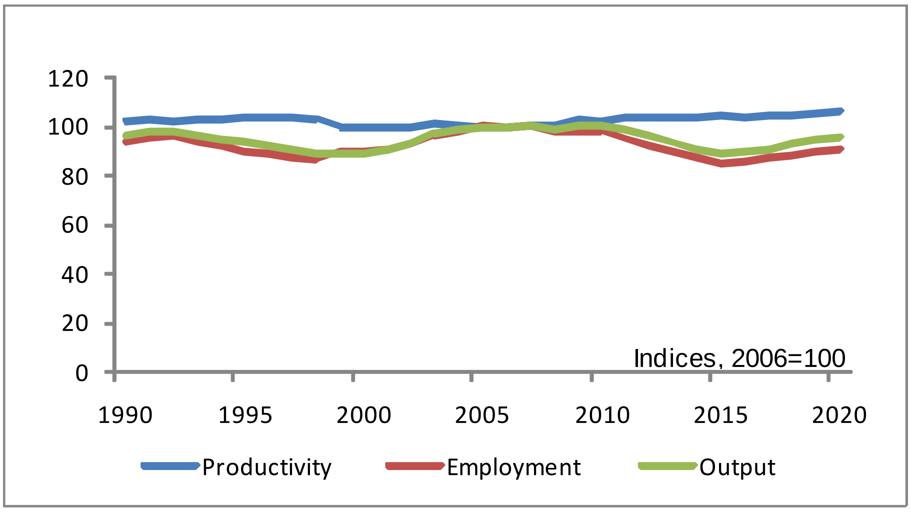
Figure 18.2: Output, productivity and employment in Public admin and defence



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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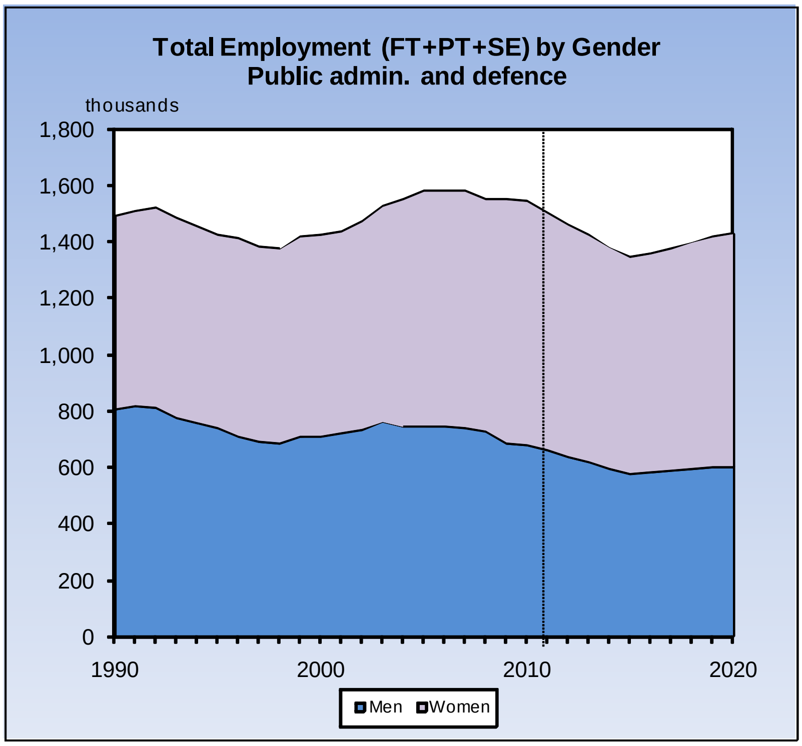
Figure 18.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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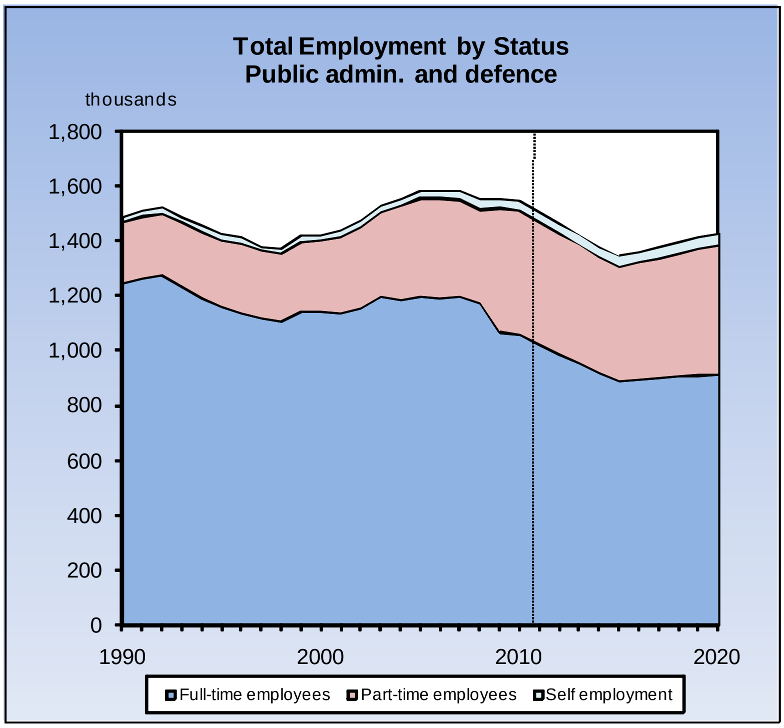
Figure 18.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 18.2: Employment by gender and status

Employment by Gender	Full time		Part time		Self employed		Total		Changes in Employment Status (000s) FT	PT	SE	Total
	Employment Status			Public admin. and defence								
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	586	(37.9)	73	(4.7)	22	(1.4)	680	(44)	-96	-6	2	-100
Female employment	471	(30.5)	380	(24.6)	13	(0.8)	864	(56)	-71	-27	0	-98
Total employment	1,057	(68.5)	453	(29.3)	34	(2.2)	1,544	(100)	-167	-33	2	-198
2015									**2015-2020**			
Male employment	490	(36.4)	66	(4.9)	24	(1.8)	580	(43.1)	8	7	6	22
Female employment	400	(29.7)	353	(26.2)	13	(0.9)	766	(56.9)	13	45	3	61
Total employment	890	(66.1)	420	(31.2)	36	(2.7)	1,346	(100)	21	52	10	82
2020									**2010-2020**			
Male employment	498	(34.9)	74	(5.2)	30	(2.1)	602	(42.1)	-88	1	8	-78
Female employment	413	(28.9)	398	(27.9)	16	(1.1)	826	(57.9)	-59	18	3	-38
Total employment	911	(63.8)	472	(33)	46	(3.2)	1,428	(100)	-146	19	12	-116

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 18.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Public admin. and defence						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	80	85	114	107	119	5	48	53
2. Professional occupations	204	213	270	253	292	22	106	128
3. Associate professional and technical	461	486	518	464	490	-28	171	143
4. Administrative and secretarial	539	442	468	364	355	-113	209	96
5. Skilled trades occupations	48	37	28	22	23	-5	11	6
6. Caring, leisure and other service	31	51	42	45	55	13	18	31
7. Sales and customer service	27	27	43	37	39	-3	15	11
8. Process, plant and machine operatives	28	21	18	14	15	-3	8	5
9. Elementary occupations	71	60	44	40	40	-4	17	13
Total	1,487	1,422	1,544	1,346	1,428	-116	603	487
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	5.3	6.0	7.4	7.9	8.3	4.7	42.1	46.8
2. Professional occupations	13.7	15.0	17.5	18.8	20.4	8.3	39.3	47.6
3. Associate professional and technical	31.0	34.2	33.5	34.5	34.3	-5.4	33.0	27.7
4. Administrative and secretarial	36.2	31.1	30.3	27.1	24.9	-24.2	44.7	20.5
5. Skilled trades occupations	3.2	2.6	1.8	1.7	1.6	-16.7	39.5	22.8
6. Caring, leisure and other service	2.1	3.6	2.7	3.3	3.9	30.9	42.2	73.0
7. Sales and customer service	1.8	1.9	2.8	2.7	2.8	-7.7	34.6	26.9
8. Process, plant and machine operatives	1.9	1.5	1.1	1.1	1.0	-17.1	43.7	26.6
9. Elementary occupations	4.8	4.2	2.9	2.9	2.8	-9.8	39.0	29.2
Total	100.0	100.0	100.0	100.0	100.0	-7.5	39.0	31.5

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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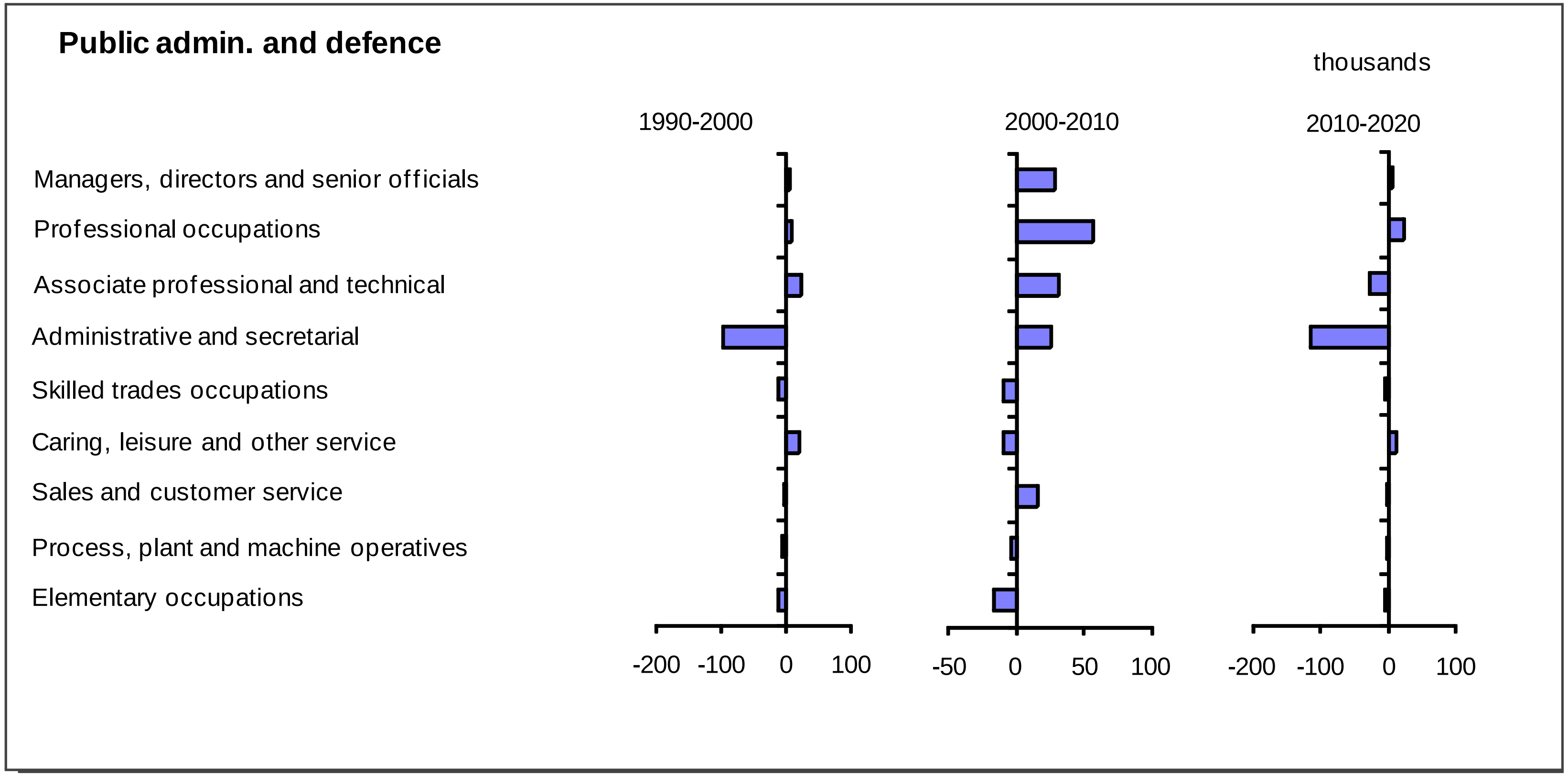
Figure 18.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 18.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**	**Total:**	**Scale**	**Industry**	**Occupation**
1. Managers, directors and senior officials	5	1	-5	9	29	4	4	22	5	6	-14	14
2. Professional occupations	9	3	-12	18	57	9	9	38	22	14	-34	43
3. Associate professional and technical	25	7	-27	45	32	21	21	-10	-28	26	-65	11
4. Administrative and secretarial	-97	8	-32	-74	27	19	19	-11	-113	24	-59	-78
5. Skilled trades occupations	-11	1	-3	-9	-10	2	2	-13	-5	1	-3	-3
6. Caring, leisure and other service	20	0	-2	21	-9	2	2	-13	13	2	-5	16
7. Sales and customer service	0	0	-2	1	15	1	1	13	-3	2	-5	0
8. Process, plant and machine operatives	-6	0	-2	-5	-4	1	1	-5	-3	1	-2	-2
9. Elementary occupations	-11	1	-4	-7	-16	3	3	-21	-4	2	-6	-1
Total	-65	22	-87	0	122	62	61	0	-116	79	-195	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	6.5	1.5	-5.9	10.9	34.3	4.3	4.3	25.7	4.7	5.1	-12.6	12.2
2. Professional occupations	4.5	1.5	-5.9	8.9	26.6	4.3	4.3	18.0	8.3	5.1	-12.6	15.8
3. Associate professional and technical	5.5	1.5	-5.9	9.8	6.6	4.3	4.3	-2.0	-5.4	5.1	-12.6	2.1
4. Administrative and secretarial	-18.0	1.5	-5.9	-13.7	6.0	4.3	4.3	-2.6	-24.2	5.1	-12.6	-16.7
5. Skilled trades occupations	-22.4	1.5	-5.9	-18.0	-25.9	4.3	4.3	-34.5	-16.7	5.1	-12.6	-9.2
6. Caring, leisure and other service	65.6	1.5	-5.9	69.9	-16.8	4.3	4.3	-25.4	30.9	5.1	-12.6	38.4
7. Sales and customer service	0.0	1.5	-5.9	4.4	56.5	4.3	4.3	47.9	-7.7	5.1	-12.6	-0.2
8. Process, plant and machine operatives	-22.7	1.5	-5.9	-18.3	-16.7	4.3	4.3	-25.3	-17.1	5.1	-12.6	-9.6
9. Elementary occupations	-14.9	1.5	-5.9	-10.5	-26.5	4.3	4.3	-35.1	-9.8	5.1	-12.6	-2.3
Total	-4.4	1.5	-5.9	0.0	8.6	4.3	4.3	0.0	-7.5	5.1	-12.6	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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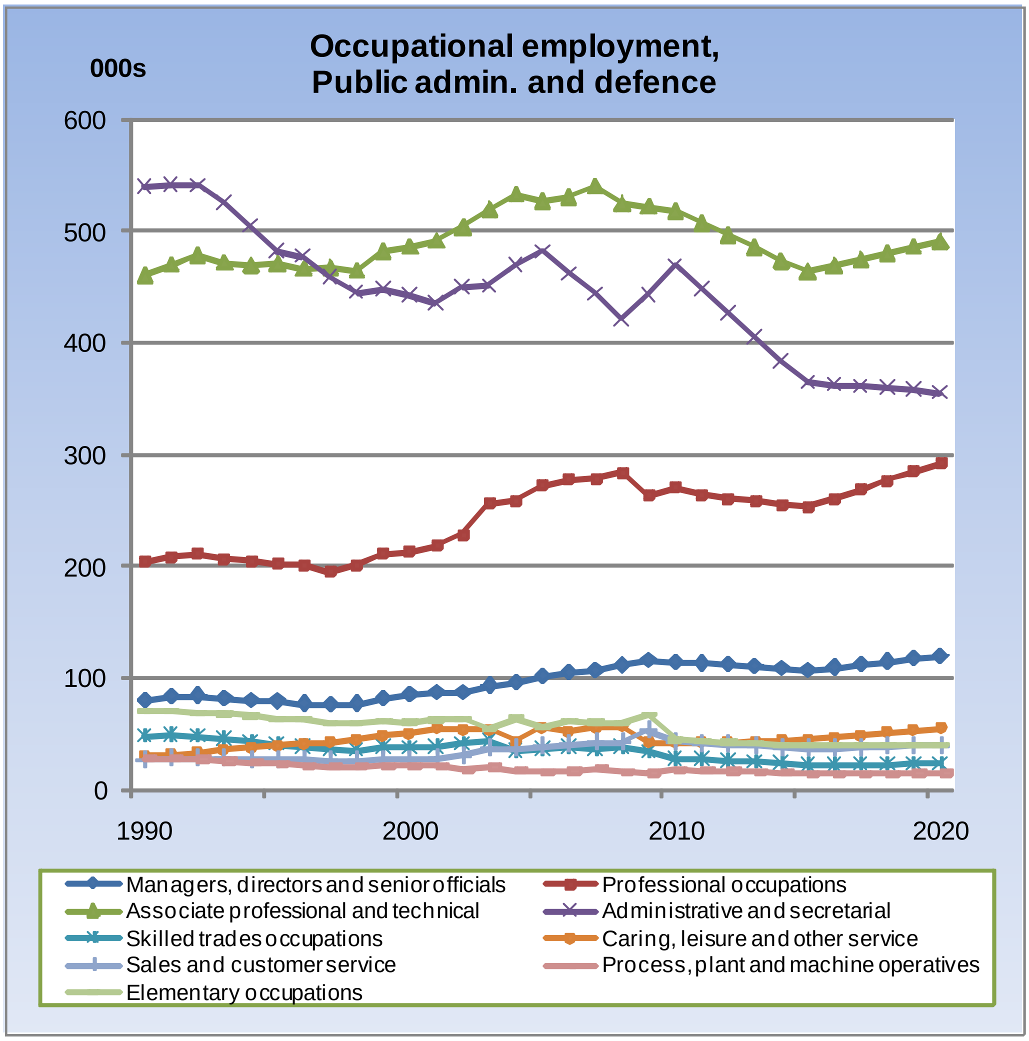
Figure 18.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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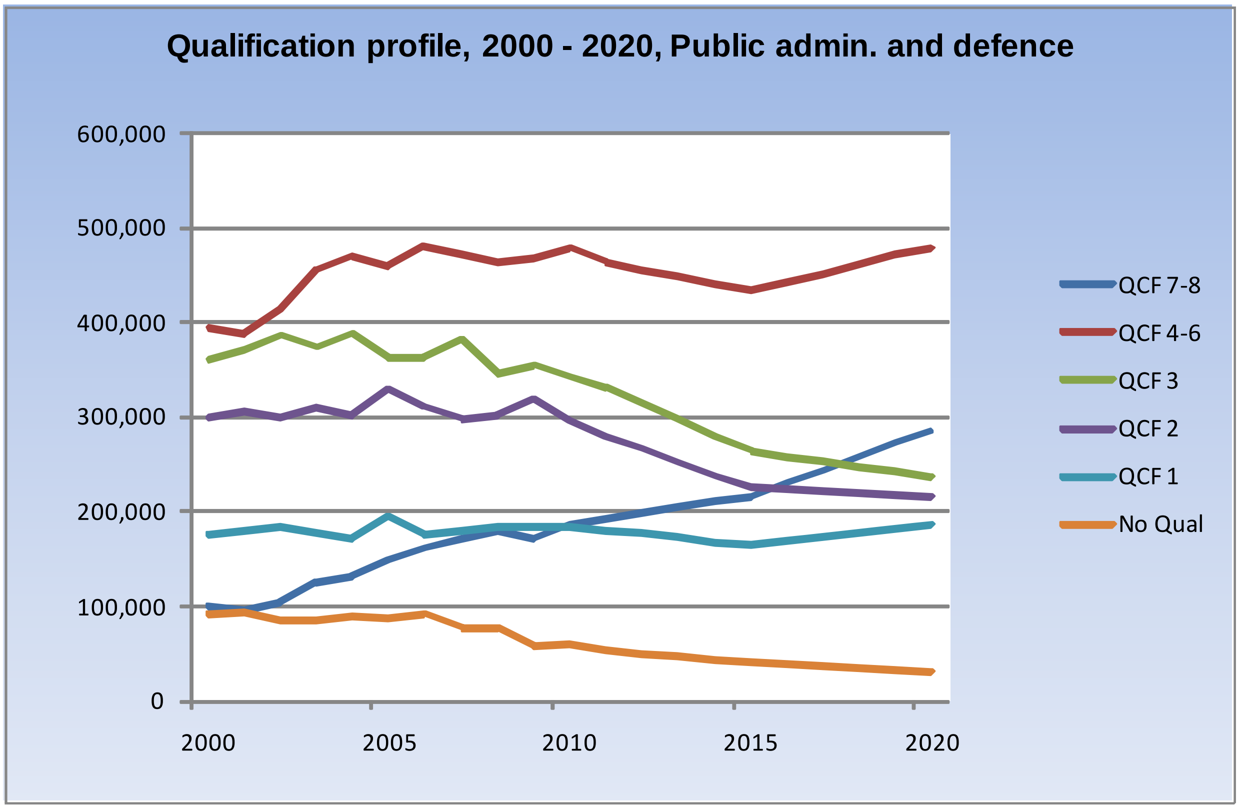
Figure 18.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 18.5: Implications for employment by qualification

United Kingdom : Public admin. and defence				000s	
QCF group	Base year level 2010	Change 2010 - 2020	Projected level 2020	Replacement Demand	Total requirement 2010 - 2020
QCF 7-8	187	98	284	73	170
QCF 4-6	478	0	477	186	186
QCF 3	341	-105	236	133	28
QCF 2	296	-81	215	115	34
QCF 1	184	2	185	72	74
No Qual	59	-29	30	23	-6
Total	1,544	-116	1,428	602	486
	% share	% change	% share	% share	% of base year level
QCF 7-8	12.1	52.3	19.9	12.1	91.3
QCF 4-6	30.9	-0.1	33.4	30.9	39.0
QCF 3	22.1	-30.7	16.6	22.1	8.3
QCF 2	19.2	-27.4	15.0	19.2	11.6
QCF 1	11.9	1.0	13.0	11.9	40.0
No Qual	3.8	-49.2	2.1	3.8	-10.2
Total	100.0	-7.5	100.0	100.0	31.5

CE/IER estimates based on ONS data(MDM revision 7146).
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19 Education

19.1 Description of the industry

INDUSTRY 19: EDUCATION
SIC2007 headings: 85

85: Education (ranging from infant and primary schools through to universities).

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	6.5	100.0
Exposure to International Trade:	zero	average
Concentration (market share of largest employers):	high	average
Total employment (2010):	2,702,602	30,458,094
Share of total employment (% 2010):	8.9	100.0
Gender split (male:female) (% 2010):	31:69	53:47
Part-time share (% 2010):	43.3	27.9
Self-employment share (% 2010):	8.9	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

19.2 Industry Commentary

Background

Employment in Education has been rising for many years. However, despite the steadily increased activity, there have been continuing concerns that the UK still lags behind some of its main economic competitors in terms of its educational attainment.

Public expenditure on schools is one of the areas "ring fenced" to protect it against the impact of cuts in public spending. Universities and other educational establishments face a less positive funding situation.

UK government funding for education rose in real terms to 2010/11. The UK government has created a new departmental structure to oversee education policy.

19.3 Productivity and Output Trends

Output: The industry accounted for around 6½ per cent of total output in 2010.

Output in this industry is dominated by the public sector and is mainly measured by public expenditure.

This is an area that has been quite hard hit by the public expenditure cuts, despite the "ring fence" around spending on schools.

Output grew modestly over the past decade and was restrained following the recession.

Following continued restraint and some cutbacks in the next few years, growth is expected to be restored in the second half of the decade, as the government continues to invest in education. This will be reinforced by private sector demand

Productivity: During the past decade productivity, as measured by output per head, has fallen. More teachers have been employed and class sizes have declined, as well as more class room assistants, etc, being deployed.

There is therefore an issue about how best to measure productivity in this sector in a meaningful way.

Over the next decade the projections assume that there will be some positive productivity improvements using the crude measure adopted here, averaging around ½ per cent per annum.

Employment: The industry's share of total employment is about 9 per cent (over 2½ million jobs).

Employment has grown rapidly in recent years, although much of this increase has been for part-time workers.

Over the coming decade the combination of much restrained output growth and modest productivity gains will result in a slight fall in the number of jobs.

19.4 Employment by Status and Gender

In this industry, females dominate employment, especially in the primary and secondary educational sectors. They currently account for around 70 per cent of all jobs.

Accounting for over 40 per cent of all jobs, part-time employment is also very important.

Although self-employment currently accounts for around 240,000 jobs, it remains a minor share of the total.

Female jobs are expected to maintain a more or less a constant share of total employment in the industry.

Part-time employment will also maintain its current share.

19.5 Projections of Employment by Occupation

Key aspects of occupational structure

Professional occupations account for over 1 in every 2 jobs in the industry. Teachers and lecturers are the major occupations within the professional occupational group.

The share of this group is on a rising trend.

These occupations are increasingly being supported by associate professionals, personal service and managerial occupations.

Caring, leisure and other service occupations now accounts for over 1 in 5 jobs.

In contrast, there has been a decline in the importance in this industry of administrative & secretarial and especially elementary occupations.

Future changes

With over 140,000 additional jobs, the professional group will be the main beneficiary of limited job growth.

Caring, leisure and other service occupations are also expected to benefit, albeit much more modestly.

Administrative & secretarial and elementary occupations are projected to see further job losses. The practice of sub-contracting out of many tasks, such as cleaning and catering, has impacted adversely on elementary occupations as private sector companies strive to cut costs. The use of the Private Finance Initiative, in school construction and maintenance will also continue to transfer jobs out of this industry and into construction.

19.6 Replacement demands

Table 19.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

As in most other industries, replacement demands far outweigh any change due to expansion demands.

Replacement demand in this industry is almost a million jobs over the coming decade.

Almost half this figure relates to professional occupations.

Caring, leisure and other service occupations will also require substantial replacements.

19.7 Shift share analysis

Table 19.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure *within* the industry.

The industry effect was positive over the past two decades.

This is expected to turn into a significant negative effect over the coming decade, reflecting the impact of cuts in public expenditure.

This negative industry effect is offset by positive occupational effects for professionals and caring, leisure and other service occupations..

There are significant negative occupational effects for administrative & secretarial, skilled trades and elementary occupations over the projection period.

For most occupations these patterns by occupation broadly follow those for the previous two decades.

19.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

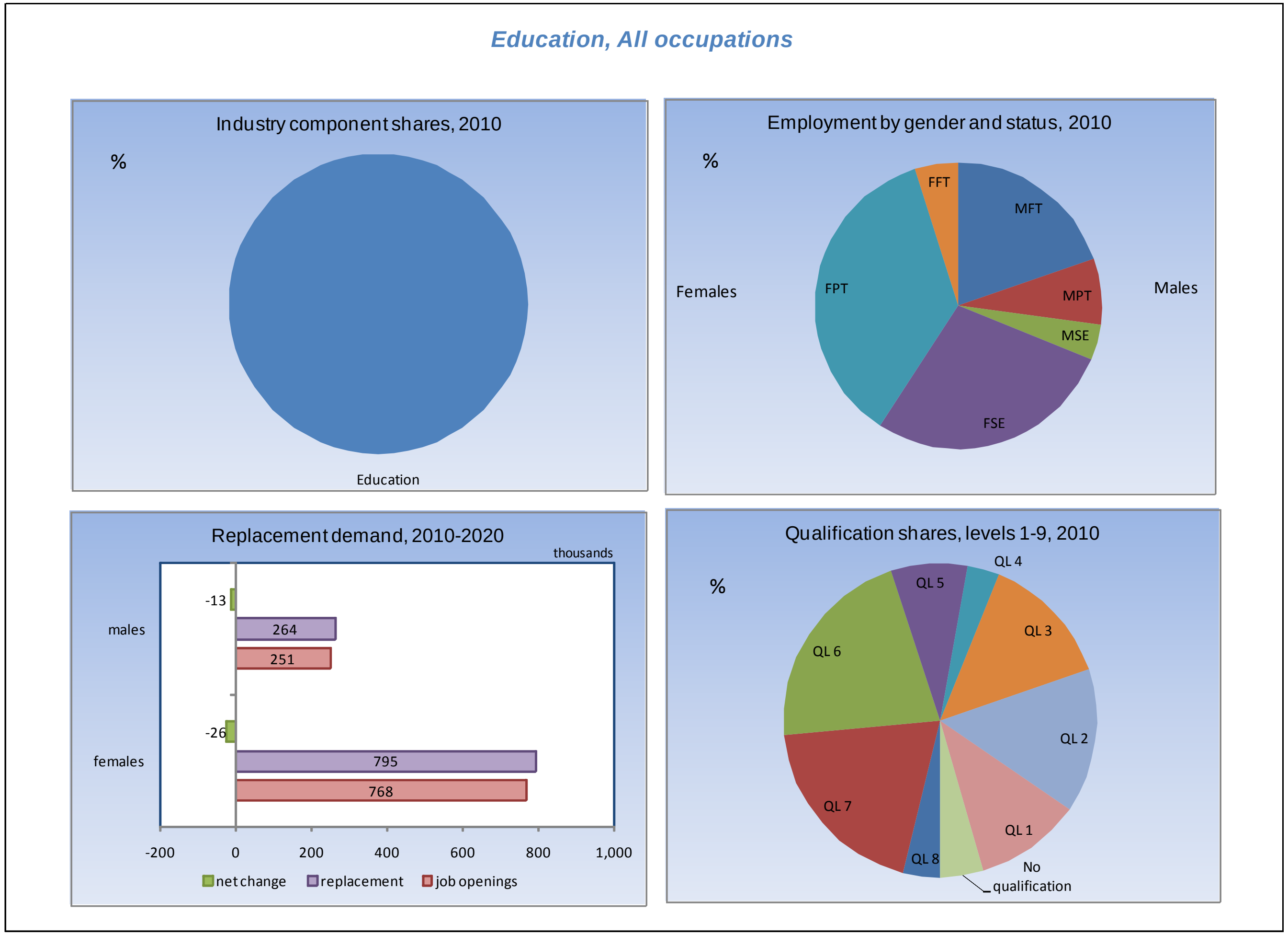
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Education strongly favours those qualified at higher levels and the pattern of projected qualification changes is expected to follow the general trend.

In 2010, just below 60 per cent of employment was accounted for by those with higher qualifications (QCF 4-8) with intermediate qualifications accounting for a further 25 per cent.

The 15 per cent of those with low or no formal qualifications (QCF 0-1) in 2010 is expected to fall closer to 10 per cent by 2020 while higher qualifications (QCF4-8) are expected to reach nearly 65 per cent by 2020. The shares of those with intermediate qualifications are likely to remain fairly static.

Figure 19.1: Education – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 19.1: Trends in Output, Productivity and Employment

Average change in the period

Education				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	0.8	0.2	-0.9	1.6
Employment (% pa)	2.4	1.6	-0.6	0.3
(000s)	279	206	-80	40
Productivity (% pa)	-1.5	-1.4	-0.3	1.3

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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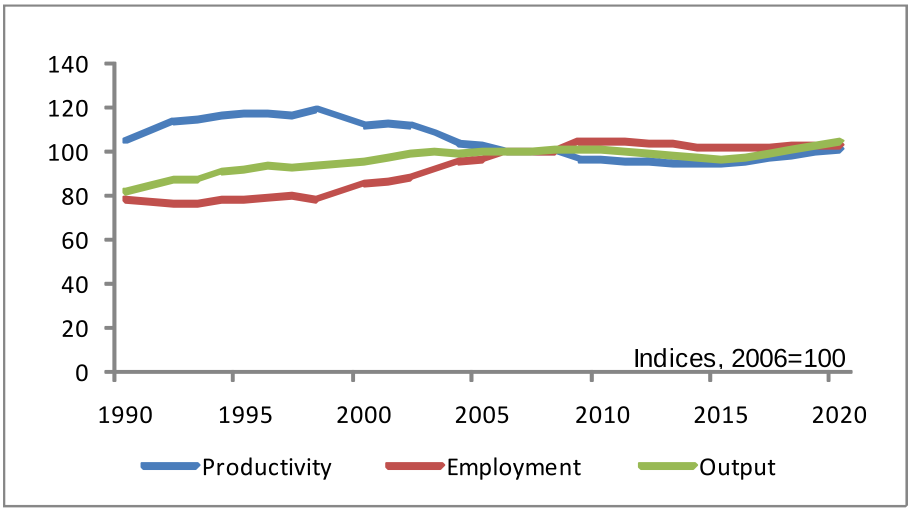
Figure 19.2: Output, productivity and employment in Education



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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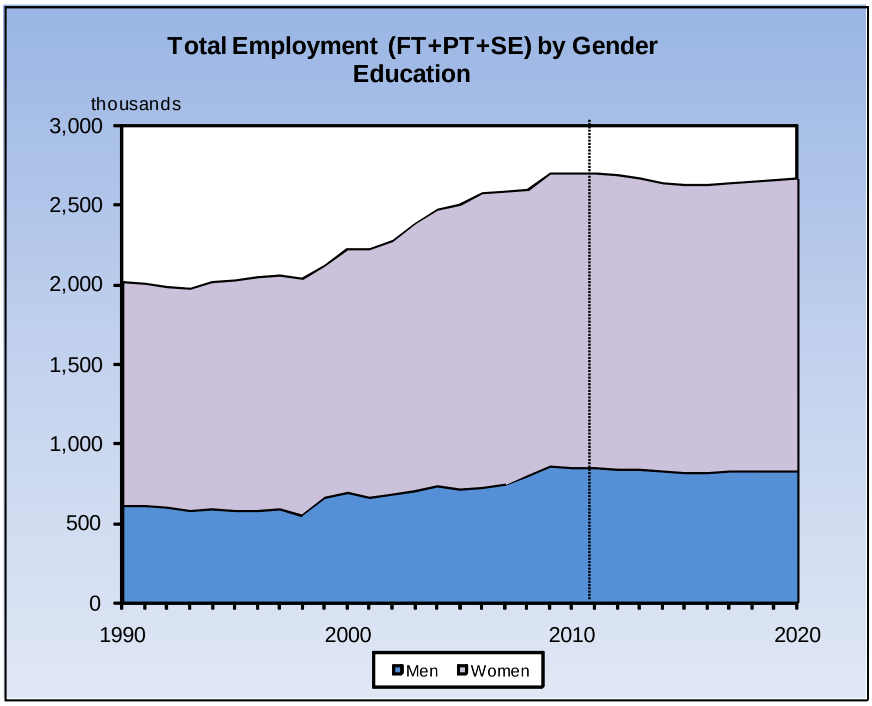
Figure 19.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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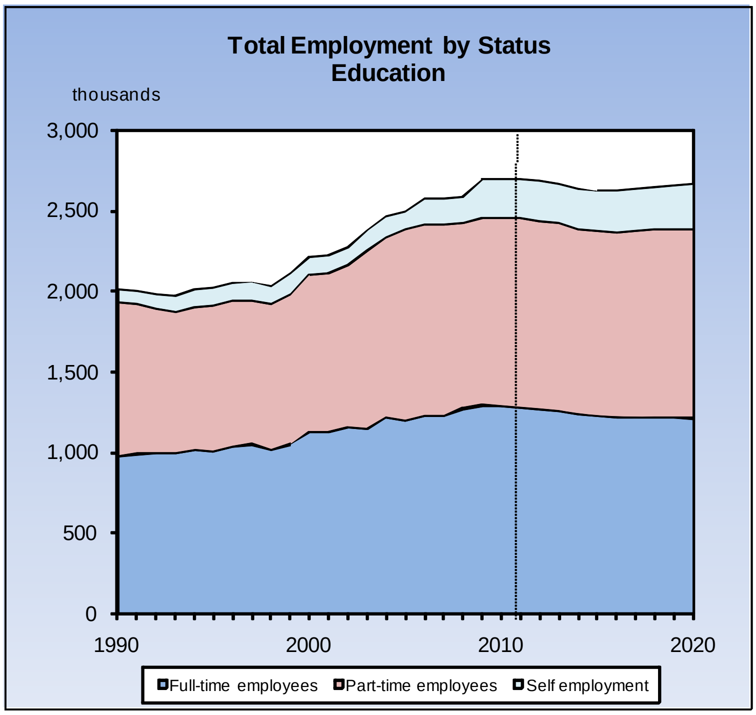
Figure 19.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 19.2: Employment by gender and status

	Employment Status				Education							
									Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**		**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	533	(19.7)	200	(7.4)	109	(4)	841	(31.1)	-41	9	7	-25
Female employment	757	(28)	971	(35.9)	133	(4.9)	1,861	(68.9)	-26	-31	2	-55
Total employment	1,290	(47.7)	1,171	(43.3)	242	(8.9)	2,703	(100)	-67	-22	9	-80
2015									**2015-2020**			
Male employment	492	(18.8)	208	(7.9)	116	(4.4)	816	(31.1)	-18	18	12	12
Female employment	731	(27.9)	940	(35.8)	135	(5.2)	1,807	(68.9)	7	11	10	28
Total employment	1,223	(46.6)	1,149	(43.8)	251	(9.6)	2,623	(100)	-11	29	22	40
2020									**2010-2020**			
Male employment	474	(17.8)	226	(8.5)	127	(4.8)	828	(31.1)	-58	27	19	-13
Female employment	738	(27.7)	951	(35.7)	146	(5.5)	1,835	(68.9)	-20	-20	13	-26
Total employment	1,212	(45.5)	1,178	(44.2)	273	(10.3)	2,663	(100)	-78	7	31	-39

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 19.3: Employment by occupation

Changing Composition of Employment by Occupation

United Kingdom : Education Employment Levels (000s)	1990	2000	2010	2015	2020	2010-2020 Net Change	Replacement Demands	Total Requirement
1. Managers, directors and senior officials	26	36	68	66	64	-3	30	26
2. Professional occupations	949	1,135	1,356	1,405	1,490	134	577	712
3. Associate professional and technical	108	134	196	184	183	-13	72	59
4. Administrative and secretarial	225	188	214	170	135	-79	101	22
5. Skilled trades occupations	70	54	45	34	28	-17	20	3
6. Caring, leisure and other service	255	389	572	582	601	29	243	272
7. Sales and customer service	8	9	14	13	12	-3	5	3
8. Process, plant and machine operatives	33	36	53	49	49	-4	24	20
9. Elementary occupations	343	237	185	121	101	-84	81	-3
Total	2,016	2,218	2,703	2,623	2,663	-39	1,154	1,115
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	1.3	1.6	2.5	2.5	2.4	-4.9	43.7	38.8
2. Professional occupations	47.1	51.2	50.2	53.6	55.9	9.9	42.6	52.5
3. Associate professional and technical	5.4	6.0	7.3	7.0	6.9	-6.6	36.7	30.1
4. Administrative and secretarial	11.2	8.5	7.9	6.5	5.1	-37.0	47.2	10.2
5. Skilled trades occupations	3.5	2.4	1.7	1.3	1.0	-37.7	44.5	6.8
6. Caring, leisure and other service	12.6	17.6	21.2	22.2	22.6	5.1	42.5	47.6
7. Sales and customer service	0.4	0.4	0.5	0.5	0.4	-18.2	36.6	18.4
8. Process, plant and machine operatives	1.6	1.6	1.9	1.9	1.8	-7.1	46.0	38.9
9. Elementary occupations	17.0	10.7	6.8	4.6	3.8	-45.4	44.0	-1.4
Total	100.0	100.0	100.0	100.0	100.0	-1.5	42.7	41.2

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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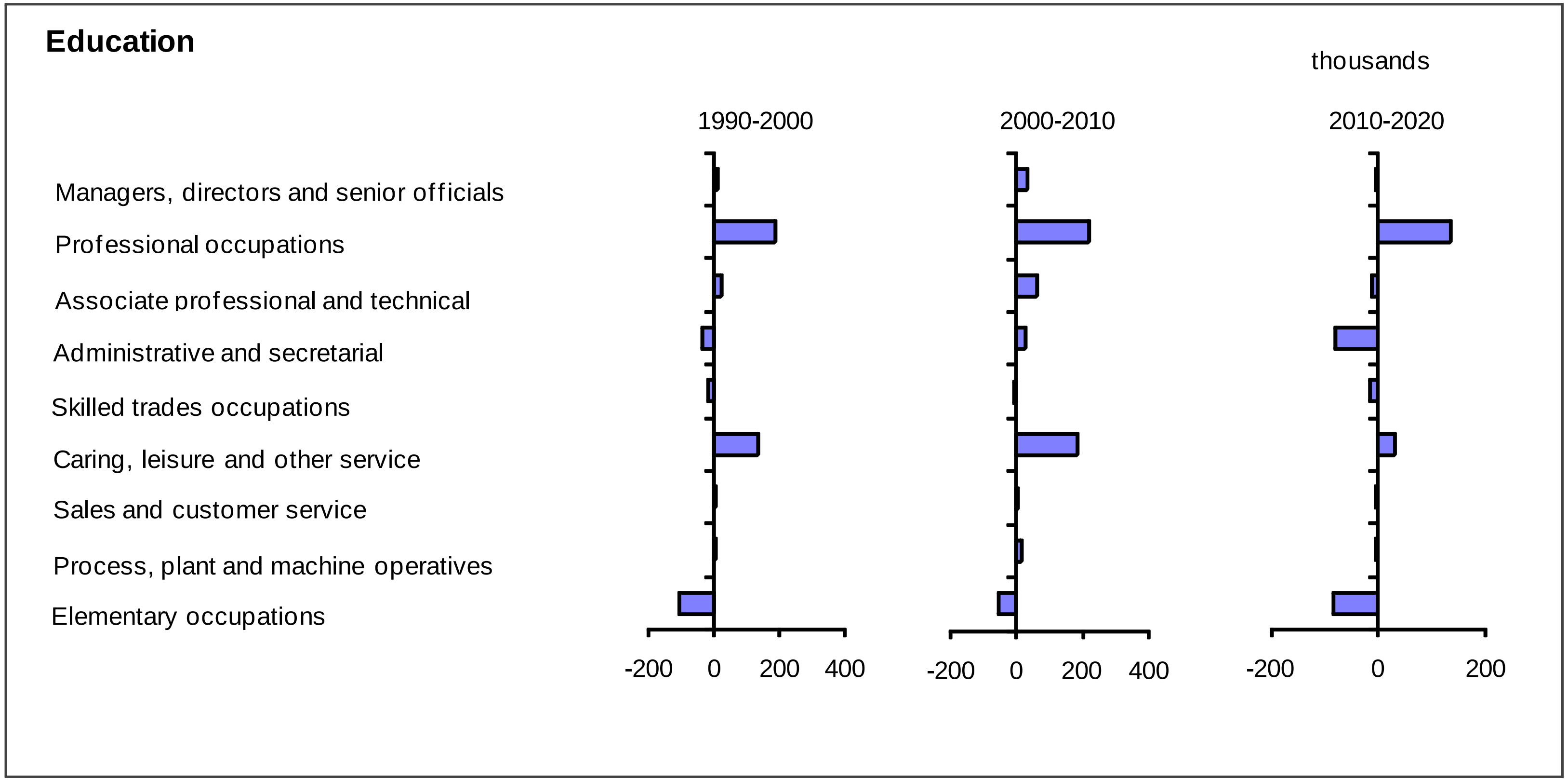
Figure 19.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 19.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	10	0	2	7	32	2	6	24	-3	3	-4	-2
2. Professional occupations	186	14	81	91	221	49	199	-27	134	69	-89	154
3. Associate professional and technical	26	2	9	15	63	6	23	33	-13	10	-13	-10
4. Administrative and secretarial	-37	3	19	-60	26	8	33	-15	-79	11	-14	-76
5. Skilled trades occupations	-17	1	6	-24	-9	2	9	-21	-17	2	-3	-16
6. Caring, leisure and other service	135	4	22	109	183	17	68	98	29	29	-37	37
7. Sales and customer service	1	0	1	0	6	0	2	4	-3	1	-1	-2
8. Process, plant and machine operatives	4	0	3	0	16	2	6	8	-4	3	-3	-3
9. Elementary occupations	-105	5	29	-140	-52	10	42	-104	-84	9	-12	-81
Total	202	30	172	0	485	96	388	0	-39	138	-177	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	38.2	1.5	8.5	28.2	89.0	4.3	17.5	67.2	-4.9	5.1	-6.5	-3.5
2. Professional occupations	19.6	1.5	8.5	9.6	19.4	4.3	17.5	-2.4	9.9	5.1	-6.5	11.4
3. Associate professional and technical	23.7	1.5	8.5	13.7	46.8	4.3	17.5	25.0	-6.6	5.1	-6.5	-5.2
4. Administrative and secretarial	-16.4	1.5	8.5	-26.4	13.7	4.3	17.5	-8.1	-37.0	5.1	-6.5	-35.5
5. Skilled trades occupations	-23.6	1.5	8.5	-33.6	-16.6	4.3	17.5	-38.4	-37.7	5.1	-6.5	-36.3
6. Caring, leisure and other service	52.9	1.5	8.5	42.8	47.0	4.3	17.5	25.1	5.1	5.1	-6.5	6.5
7. Sales and customer service	12.1	1.5	8.5	2.1	63.8	4.3	17.5	41.9	-18.2	5.1	-6.5	-16.7
8. Process, plant and machine operatives	10.9	1.5	8.5	0.9	45.0	4.3	17.5	23.2	-7.1	5.1	-6.5	-5.7
9. Elementary occupations	-30.8	1.5	8.5	-40.8	-22.1	4.3	17.5	-43.9	-45.4	5.1	-6.5	-44.0
Total	10.0	1.5	8.5	0.0	21.8	4.3	17.5	0.0	-1.5	5.1	-6.5	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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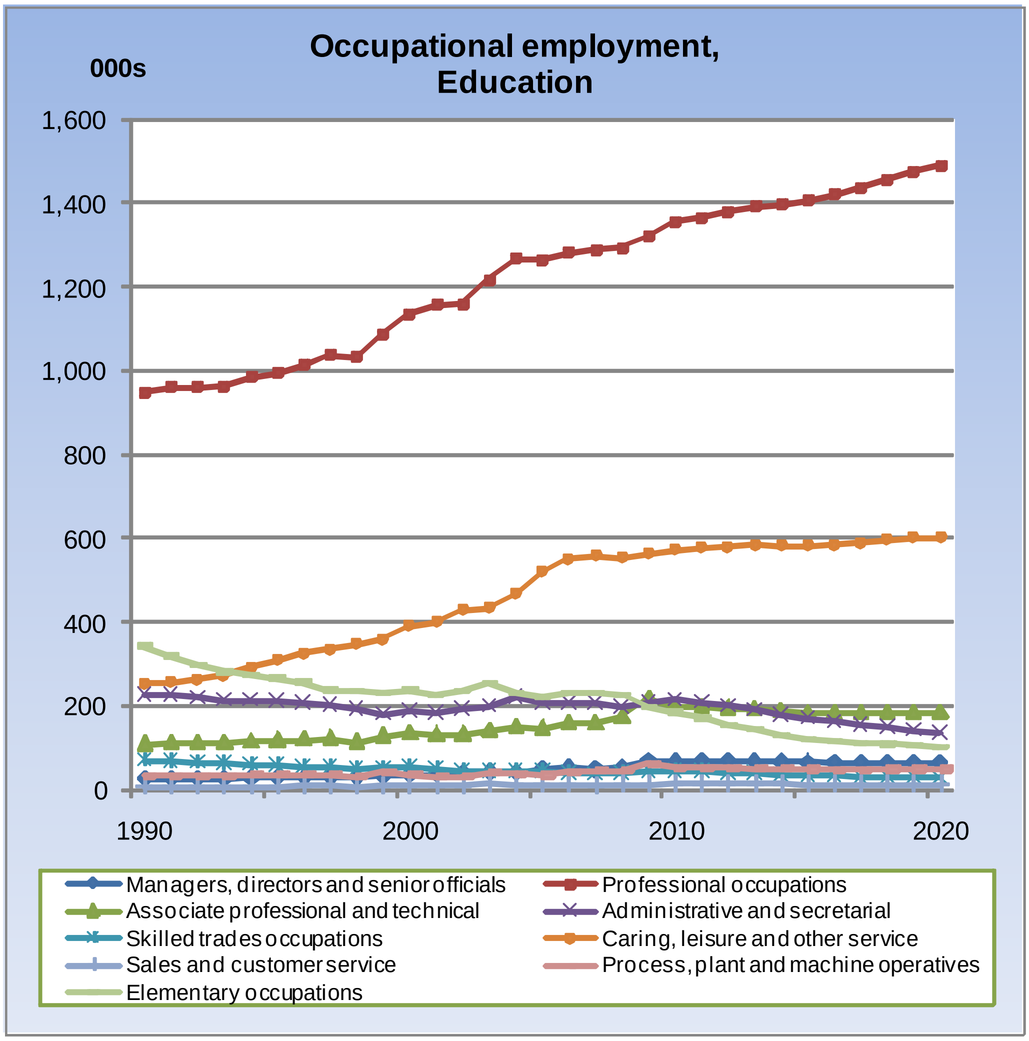
Figure 19.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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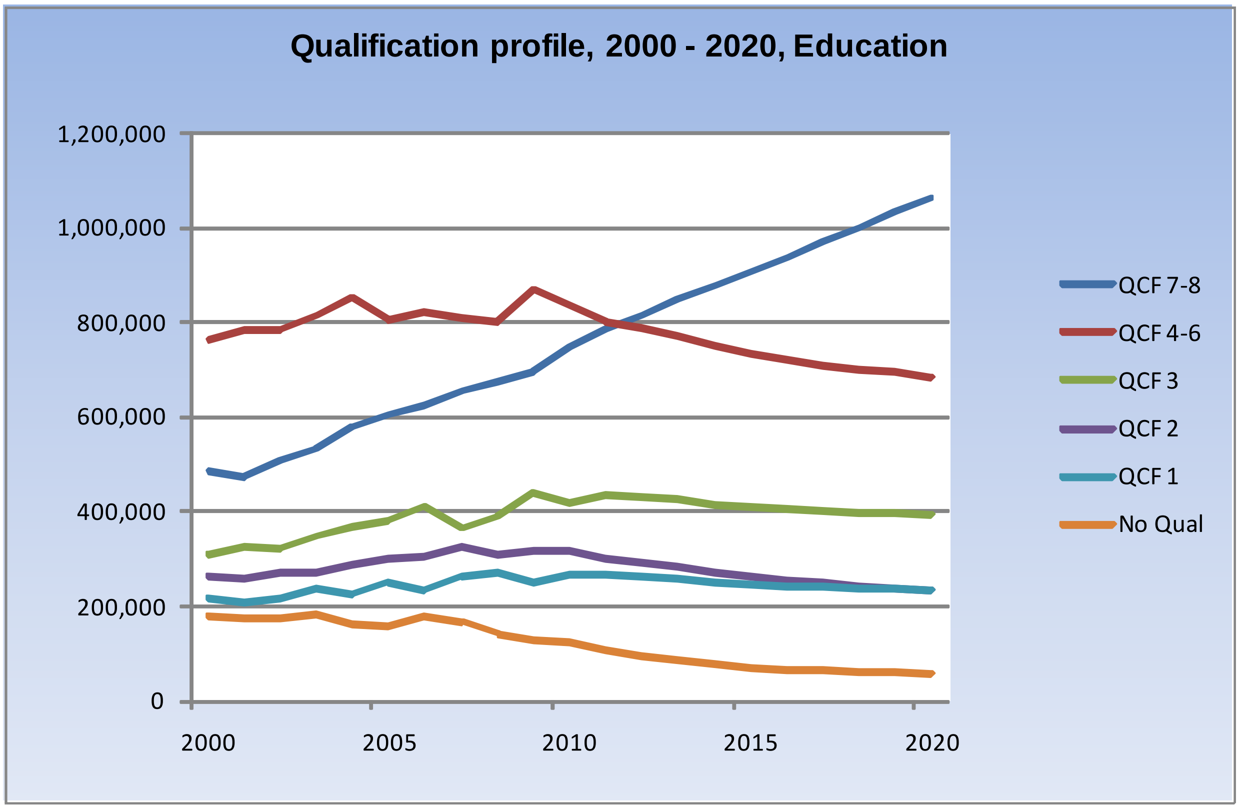
Figure 19.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 19.5: Implications for employment by qualification

United Kingdom : Education				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	747	315	1,062	319	634
QCF 4-6	833	-148	685	356	208
QCF 3	418	-25	392	178	153
QCF 2	316	-83	233	135	52
QCF 1	266	-34	232	114	79
No Qual	122	-64	58	52	-12
Total	2,703	-39	2,663	1,154	1,115
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	27.6	42.2	39.9	27.6	84.9
QCF 4-6	30.8	-17.8	25.7	30.8	24.9
QCF 3	15.5	-6.1	14.7	15.5	36.6
QCF 2	11.7	-26.2	8.8	11.7	16.5
QCF 1	9.9	-12.9	8.7	9.9	29.8
No Qual	4.5	-52.3	2.2	4.5	-9.6
Total	100.0	-1.5	100.0	100.0	41.2

CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

20 Health and social work

20.1 Description of the industry

INDUSTRY 20: HEALTH AND SOCIAL WORK

SIC2007 headings: 86-88

86: Human health activities

87: Residential care activities

88: Social work activities without accommodation

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	8.3	100.0
Exposure to International Trade:	zero	average
Concentration (market share of largest employers):	high	average
Total employment (2010):	3,948,406	30,458,094
Share of total employment (% 2010):	13.0	100.0
Gender split (male:female) (% 2010):	21:79	53:47
Part-time share (% 2010):	40.2	27.9
Self-employment share (% 2010):	8.4	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

20.2 Industry Commentary

Background

The health sector in the UK is dominated by the NHS which is one of Europe's largest employers.

The demand for health care has risen steadily as people have become richer, as the average age of the population has risen, and as technology has opened up new possibilities for treatments and care.

The government plans to maintain increases in spending on health over the next few years, but at the same time to reform the system to achieve improvements in performance and productivity.

The demand for health and social care will be driven by a number of long-term factors, such as the increase in the size of the elderly population, rising expectations about what health care should be available and increasing disposable incomes. The demographic trends will stimulate demand from both government and individuals and this is expected to lead to significant long-term output and employment growth in the industry.

Recent reviews have suggested that the service has made significant productivity gains due to increases in the quality of care. However, further significant improvements in productivity, through better use of resources, and progress in tackling unhealthy lifestyles are required in order to control the upward pressures on spending.

20.3 Productivity and Output Trends

Output: The industry accounts for around 8½ per cent of total output.

This industry's output is dominated by the public sector's expenditure on health care.

In recent years this has risen rapidly, as the government has committed an increasing proportion of public expenditure into the NHS.

As a consequence there has been a pattern of strong growth of around 3 per cent per annum.

Although the government has promised to "ring fence" spending in this area, some significant reduction in growth rates is inevitable, especially in the next few years.

Output growth is expected to pick up in the 2^{nd} half of the coming decade and returns to its historic trend.

Productivity: Over the last 10 years or so productivity has only increased modestly despite rapid advances in medical and surgical techniques (which have enabled more patients to be treated in a shorter time span).

Increases in support staff numbers, often working part time, have depressed measures of productivity such as output per head (as used here).

More substantial productivity improvements are expected for the coming decade as pressures to reduce costs by cutting staffing levels feature.

Employment: The industry's share of total employment is about 13 per cent (almost 4 million jobs).

Employment has also grown very rapidly in recent years.

As productivity improvements offset the expected output growth, future trends in employment are expected to remain fairly flat over the first half of the coming decade, before reverting to the previous positive trend.

Over the decade as a whole this results in a total rise of around 50,000 jobs by 2020.

20.4 Employment by Status and Gender

Females account for almost 4 in every 5 jobs in the industry. The health and social care industry employs more women than any other industry.

Many of these jobs are part-time.

Such employment is especially important for nursing and some assistant health care and support roles. Around 40 per cent of all jobs are part time. This part of the workforce is predominantly female.

Although a number of key personnel, such as GPs fall into the category of self-employment, it accounts for only around 1 in 12 of all jobs in this industry.

In total, there are currently around 300,000 self-employed in this industry.

These patterns are not expected to change very significantly over the coming decade.

The gender mix of employment is not projected to change radically. The sector will remain a key area of employment for women.

Over the next 10 years, the share of males in total employment is expected to rise slightly.

Whilst females will take the majority of the additional jobs, their job share will fall marginally.

Self-employment will remain a small part of total employment and is projected to broadly maintain its current share.

The share of part-time working is expected to fall slightly, although such ways of working are likely to remain important, providing flexibility for both employers and employees. Job sharing schemes are likely to remain important. Such jobs are vitally important for filling skill shortages in the sector.

20.5 Projections of Employment by Occupation

Key aspects of occupational structure

Employment in this industry is dominated in terms of numbers by two occupational groups:

- Professionals (which under SOC2010 now includes both doctors and most nurses); and
- Caring, leisure and other service occupations.

In recent years, the professional group has seen its employment share increase (mainly due to growth in numbers of nurses.

However, doctors, who are also classified in the professional group, have seen both their absolute numbers and their shares of employment rise.

Associate professional & technical occupations have also enjoyed rising employment shares.

Managers have also become more important in the NHS and their share of all jobs is still on a rising trend.

This has been offset by significant declines for administrative & secretarial occupations.

The caring, leisure and other service occupations group has grown most rapidly, especially in the 1990s. This growth has been partially offset by declines amongst the elementary occupations.

Future changes

The administrative & secretarial group and elementary occupations are projected to see further job losses.

This is offset by increases elsewhere. The managerial, professional and associate professional groups are all projected to see strong job gains.

However, the biggest beneficiaries in terms of additional jobs are expected to be amongst some of the less skilled, caring, leisure and other service occupations. Alone, these are projected to gain some 130,000 extra jobs over the coming decade.

20.6 Replacement demands

Table 20.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Total employment is now projected to increase only modestly as a result of the constraints on public expenditure.

This modest growth is expected to be reinforced many times over by replacement demands.

The expansion demand of just over 50,000 translates into a total requirement of almost 1½ million.

Filling these job openings is likely to be a difficult issue for the industry over the next decade.

Much of the growth is concentrated in just two main groups: professional occupations (which incorporates all qualified nurses); and caring, leisure and other service occupations (including many less skilled occupations such as home helps for the elderly).

Administrative & secretarial occupations will also see very large replacement demands.

20.7 Shift share analysis

Table 20.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

During the previous 2 decades there was a very strong positive industry effect.

This is projected to be more modest in the coming decade.

For most of the health care occupations highlighted above, positive occupational effects reinforce the positive industry effect.

There are some significant negative occupational effects for administrative & secretarial, skilled trades, and elementary occupations over the projection period.

20.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

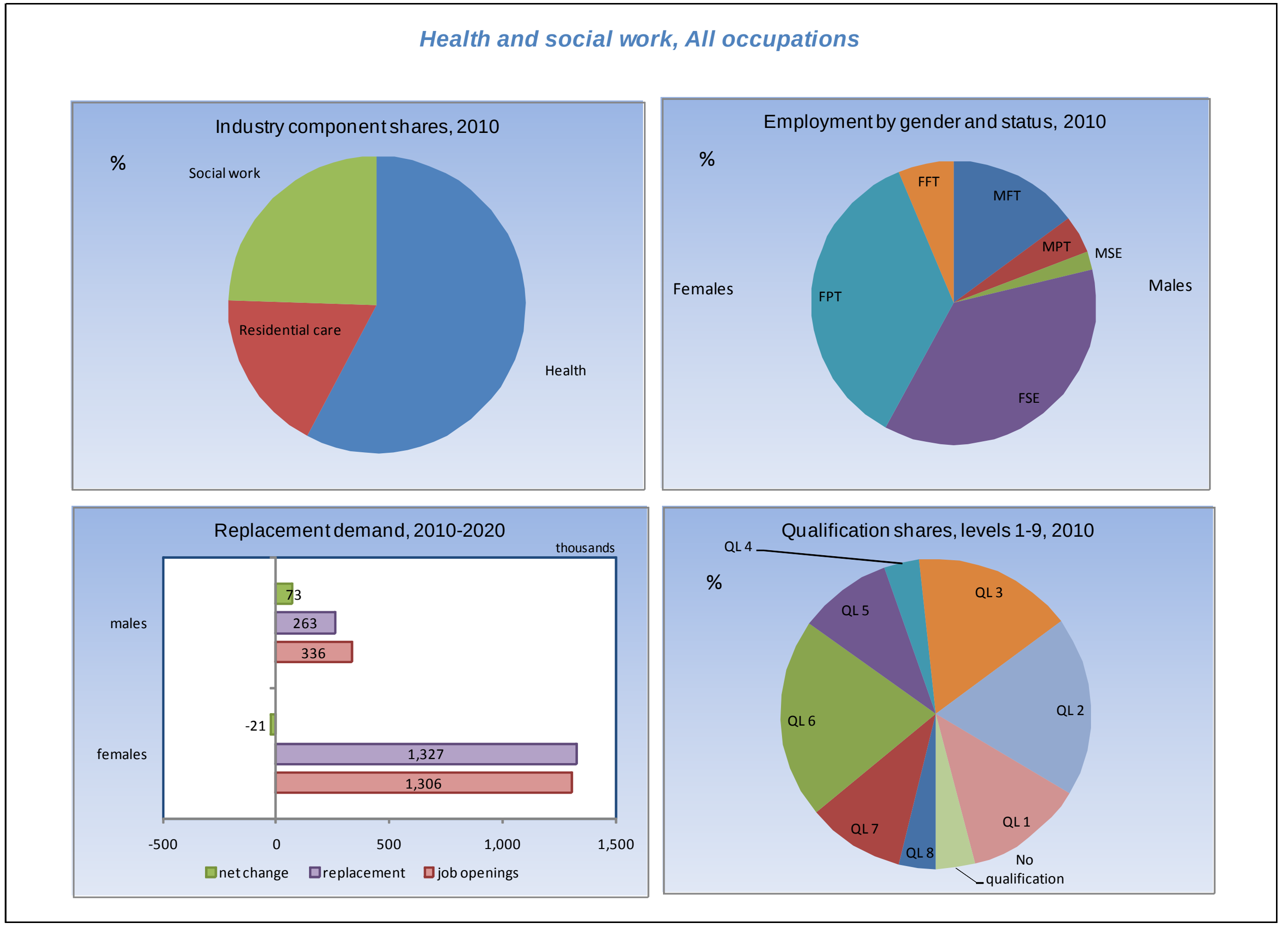
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Health and social work favours those qualified at intermediate and higher levels..

In 2010, just over 45 per cent of employment was accounted for by those with higher qualifications (QCF 4-8) with intermediate qualifications (QCF 2 and 3) accounting for a further 35 per cent.

The 15 per cent of those with low or no formal qualifications (QCF 0-1) in 2010 is expected to fall markedly, to below 10 per cent by 2020 while higher qualifications (QCF4-8) are expected to reach 50 per cent by 2020. The shares of those with intermediate qualifications are also projected to increase to over 40 per cent by 2020.

Figure 20.1: Health and social work – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 20.1: Trends in Output, Productivity and Employment

Average change in the period

Health & social work Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	3.4	2.6	0.6	2.6
Employment (% pa)	3.0	2.1	-0.7	1.0
(000s)	494	385	-135	187
Productivity (% pa)	0.3	0.5	1.3	1.6

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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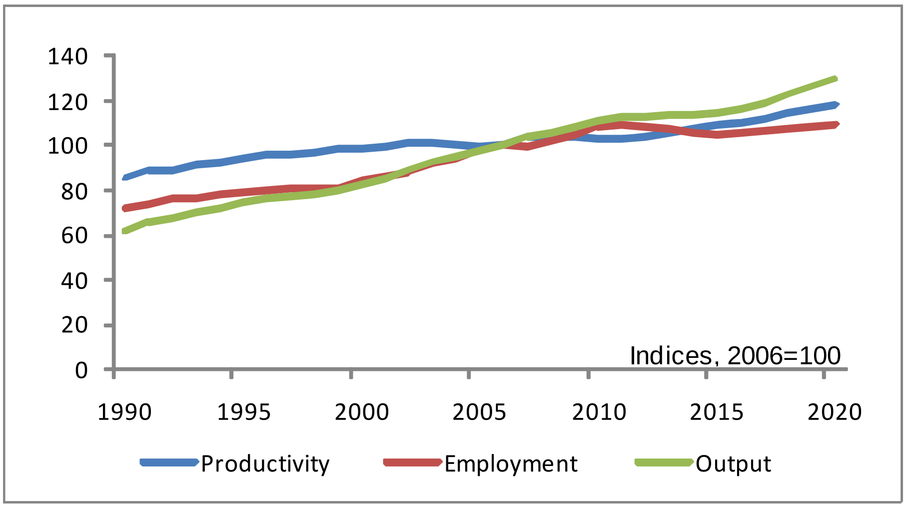
Figure 20.2: Output, productivity and employment in Health & social work



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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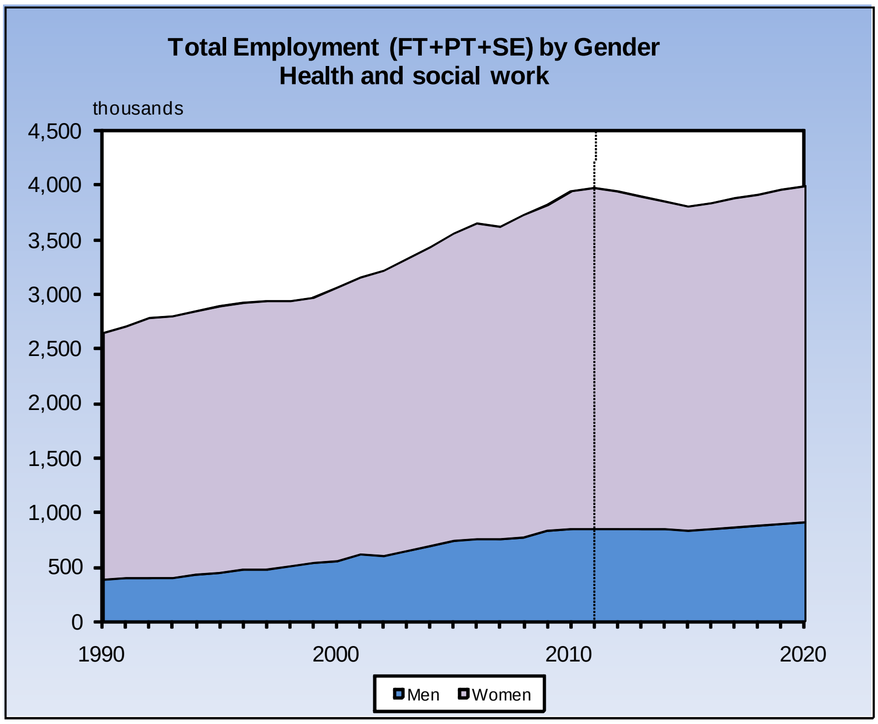
Figure 20.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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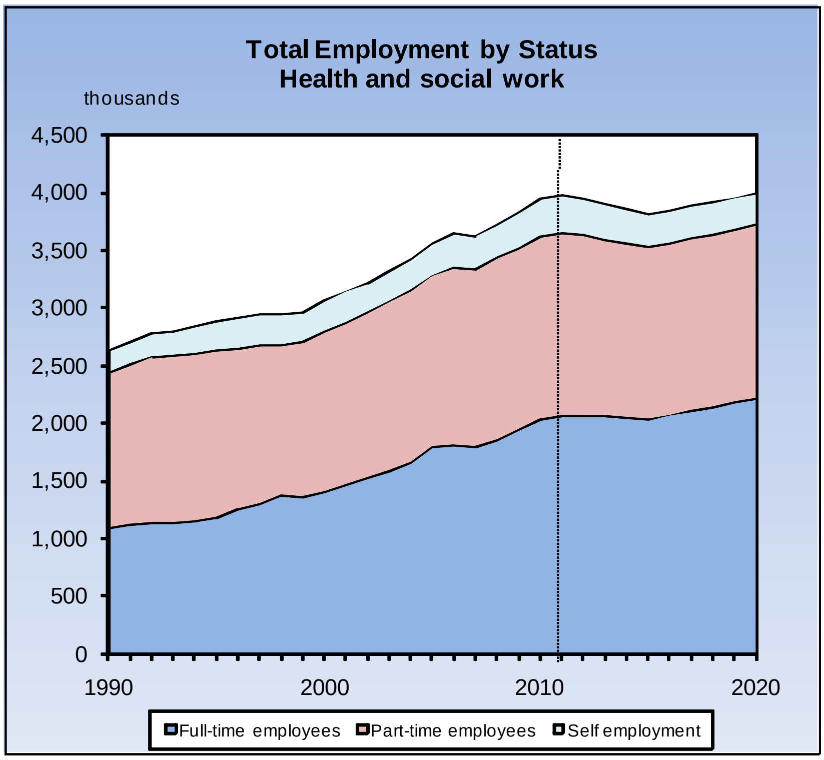
Figure 20.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 20.2: Employment by gender and status

Employment Status		Health and social work								Changes in Employment Status (000s)			
Employment by Gender	**Full time**		**Part time**		**Self employed**		**Total**			**FT**	**PT**	**SE**	**Total**
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**2010-2015**				
Male employment	585	(14.8)	170	(4.3)	84	(2.1)	840	(21.3)		28	-4	-27	-3
Female employment	1,445	(36.6)	1,416	(35.9)	248	(6.3)	3,109	(78.7)		-18	-94	-20	-132
Total employment	2,031	(51.4)	1,586	(40.2)	332	(8.4)	3,948	(100)		10	-98	-47	-135
2015									**2015-2020**				
Male employment	613	(16.1)	166	(4.4)	57	(1.5)	837	(21.9)		78	10	-12	76
Female employment	1,427	(37.4)	1,321	(34.7)	228	(6)	2,976	(78.1)		97	17	-3	111
Total employment	2,041	(53.5)	1,488	(39)	285	(7.5)	3,813	(100)		175	26	-14	187
2020									**2010-2020**				
Male employment	691	(17.3)	176	(4.4)	46	(1.1)	912	(22.8)		106	5	-38	73
Female employment	1,524	(38.1)	1,338	(33.5)	225	(5.6)	3,088	(77.2)		79	-77	-23	-21
Total employment	2,216	(55.4)	1,514	(37.9)	271	(6.8)	4,000	(100)		185	-72	-61	52

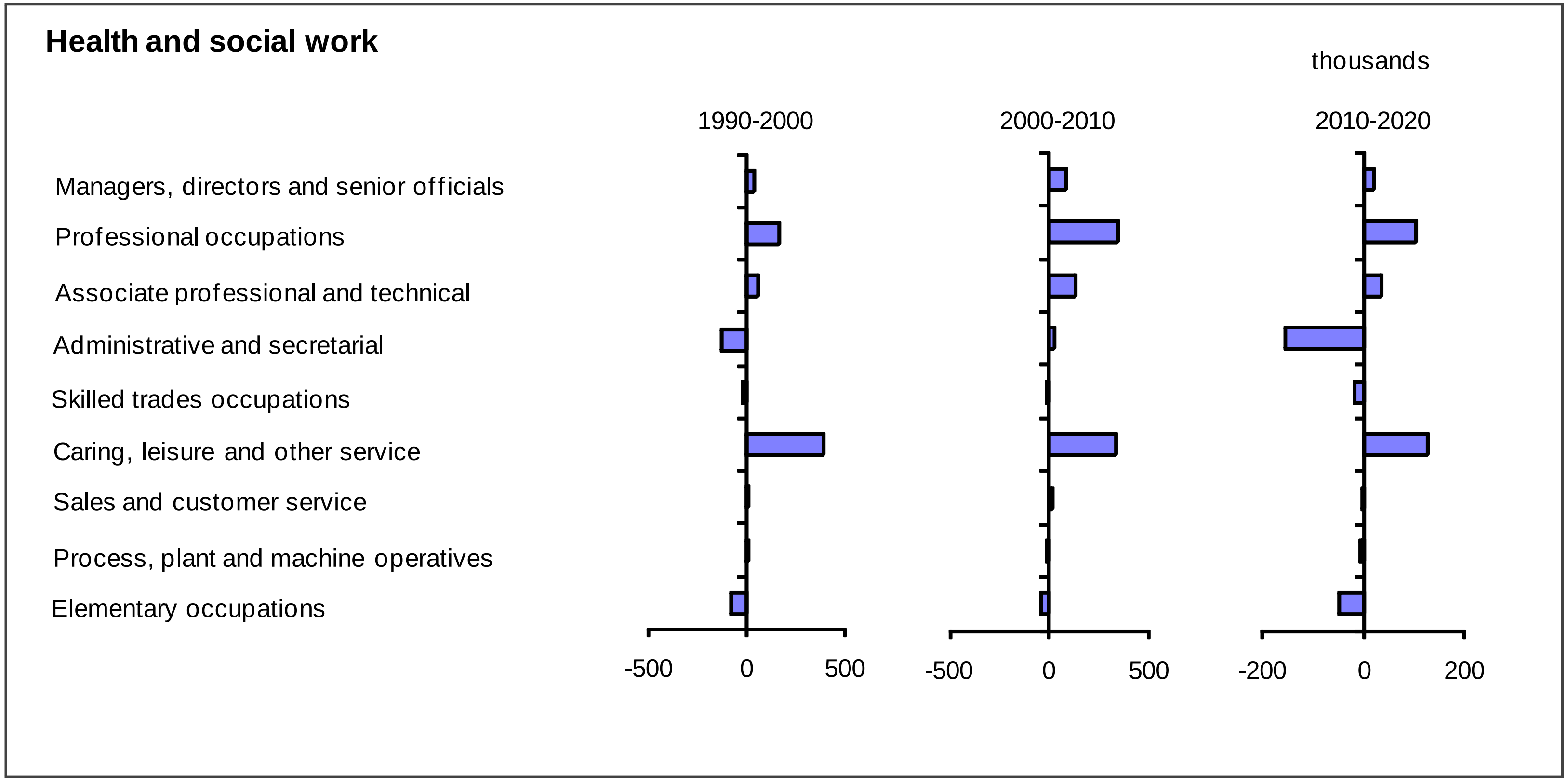
Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.2, forecast C111

Table 20.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Health and social work						Net	Replacement	Total
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	66	104	184	188	203	19	80	100
2. Professional occupations	731	902	1,247	1,260	1,351	104	502	606
3. Associate professional and technical	230	286	414	419	451	37	165	202
4. Administrative and secretarial	600	469	497	406	344	-154	236	82
5. Skilled trades occupations	88	69	55	41	37	-18	24	6
6. Caring, leisure and other service	615	1,008	1,340	1,341	1,466	125	558	684
7. Sales and customer service	32	36	55	50	50	-5	21	16
8. Process, plant and machine operatives	24	26	25	19	18	-7	11	4
9. Elementary occupations	253	171	131	90	82	-49	54	5
Total	2,638	3,069	3,948	3,813	4,000	52	1,652	1,704
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	2.5	3.4	4.7	4.9	5.1	10.5	43.7	54.1
2. Professional occupations	27.7	29.4	31.6	33.0	33.8	8.3	40.3	48.6
3. Associate professional and technical	8.7	9.3	10.5	11.0	11.3	8.8	39.9	48.8
4. Administrative and secretarial	22.7	15.3	12.6	10.6	8.6	-30.9	47.4	16.4
5. Skilled trades occupations	3.3	2.2	1.4	1.1	0.9	-32.8	43.4	10.6
6. Caring, leisure and other service	23.3	32.8	33.9	35.2	36.6	9.3	41.7	51.0
7. Sales and customer service	1.2	1.2	1.4	1.3	1.2	-9.3	38.2	28.9
8. Process, plant and machine operatives	0.9	0.8	0.6	0.5	0.4	-28.5	43.7	15.2
9. Elementary occupations	9.6	5.6	3.3	2.4	2.0	-37.5	41.5	4.0
Total	100.0	100.0	100.0	100.0	100.0	1.3	41.8	43.1

Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Table 6.x.3, forecast C111

Figure 20.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 20.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	38	1	10	27	80	5	25	50	19	9	-7	17
2. Professional occupations	171	11	109	51	346	39	219	87	104	63	-47	87
3. Associate professional and technical	56	3	34	18	128	12	69	46	37	21	-16	31
4. Administrative and secretarial	-131	9	89	-229	29	20	114	-106	-154	25	-19	-160
5. Skilled trades occupations	-19	1	13	-33	-14	3	17	-34	-18	3	-2	-19
6. Caring, leisure and other service	393	9	91	292	333	44	245	44	125	68	-51	108
7. Sales and customer service	4	0	5	-1	19	2	9	9	-5	3	-2	-6
8. Process, plant and machine operatives	1	0	4	-3	-1	1	6	-8	-7	1	-1	-7
9. Elementary occupations	-82	4	38	-124	-40	7	42	-89	-49	7	-5	-51
Total	431	39	392	0	879	133	746	0	52	201	-149	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	57.4	1.5	14.9	41.1	76.6	4.3	24.3	48.0	10.5	5.1	-3.8	9.2
2. Professional occupations	23.4	1.5	14.9	7.0	38.3	4.3	24.3	9.7	8.3	5.1	-3.8	7.0
3. Associate professional and technical	24.3	1.5	14.9	8.0	44.9	4.3	24.3	16.2	8.8	5.1	-3.8	7.5
4. Administrative and secretarial	-21.8	1.5	14.9	-38.2	6.1	4.3	24.3	-22.5	-30.9	5.1	-3.8	-32.2
5. Skilled trades occupations	-21.5	1.5	14.9	-37.8	-20.4	4.3	24.3	-49.1	-32.8	5.1	-3.8	-34.1
6. Caring, leisure and other service	63.9	1.5	14.9	47.5	33.0	4.3	24.3	4.4	9.3	5.1	-3.8	8.0
7. Sales and customer service	13.5	1.5	14.9	-2.8	53.9	4.3	24.3	25.2	-9.3	5.1	-3.8	-10.6
8. Process, plant and machine operatives	4.7	1.5	14.9	-11.6	-3.4	4.3	24.3	-32.0	-28.5	5.1	-3.8	-29.9
9. Elementary occupations	-32.5	1.5	14.9	-48.8	-23.5	4.3	24.3	-52.2	-37.5	5.1	-3.8	-38.8
Total	16.3	1.5	14.9	0.0	28.6	4.3	24.3	0.0	1.3	5.1	-3.8	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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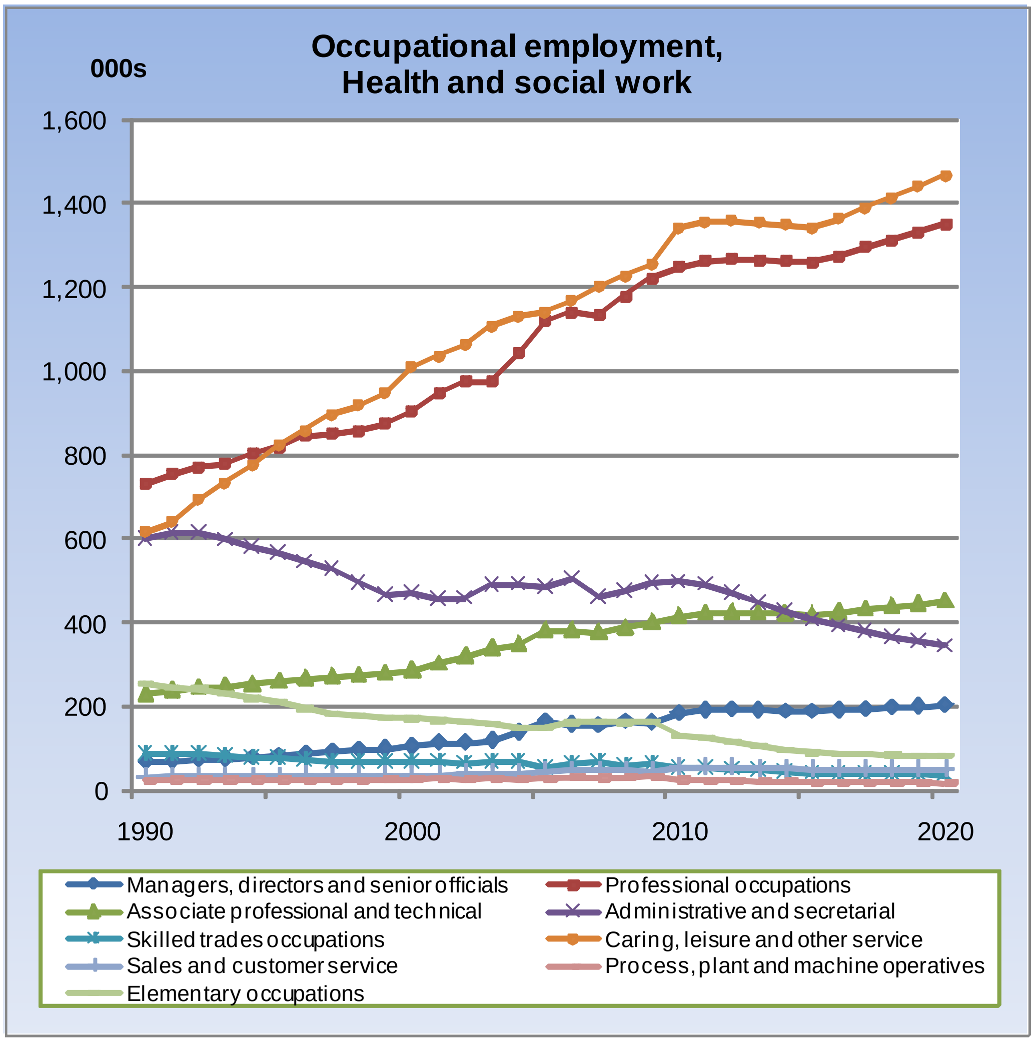
Figure 20.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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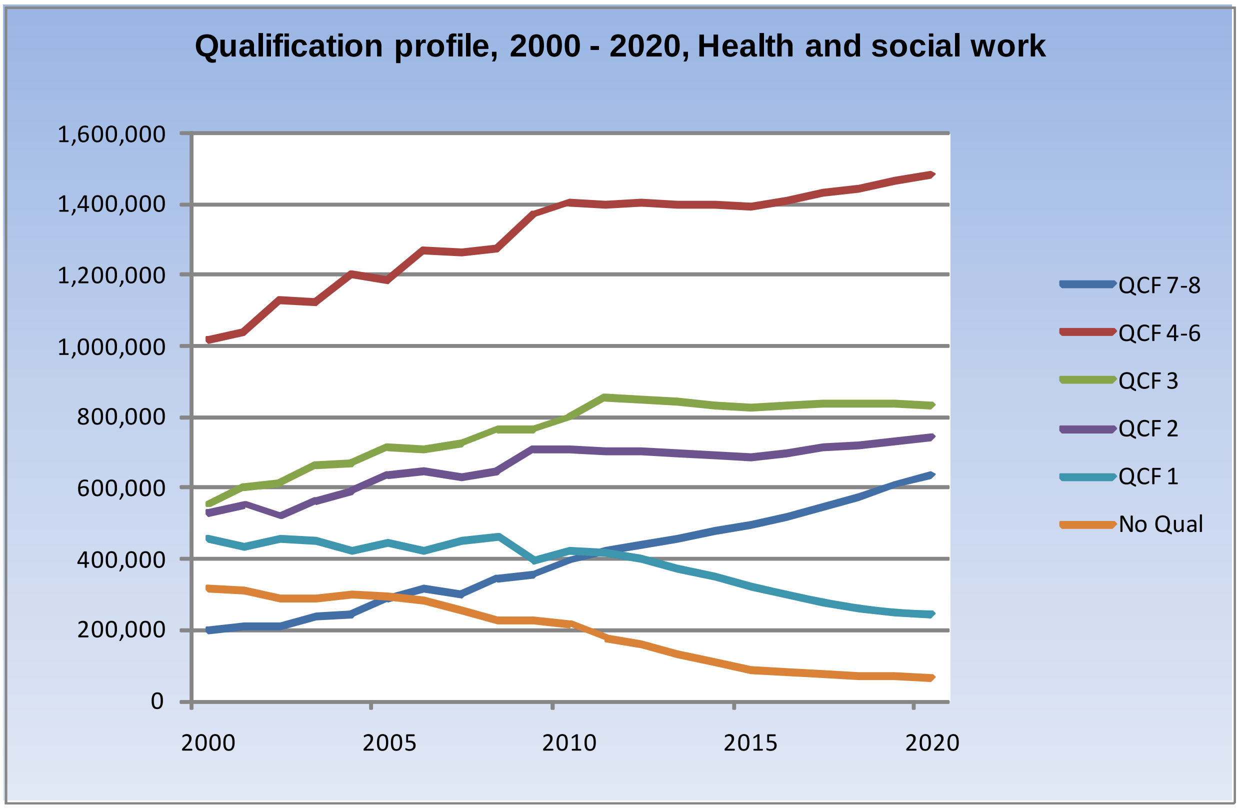
Figure 20.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 20.5: Implications for employment by qualification

United Kingdom : Health and social work			000s		
QCF group	Base year level 2010	Change 2010 - 2020	Projected level 2020	Replacement Demand	Total requirement 2010 - 2020
QCF 7-8	396	240	636	166	405
QCF 4-6	1,402	80	1,481	586	666
QCF 3	802	30	831	335	365
QCF 2	709	32	741	297	328
QCF 1	426	-180	246	178	-2
No Qual	214	-149	65	89	-59
Total	3,948	52	4,000	1,651	1,703
	% share	% change	% share	% share	% of base year level
QCF 7-8	10.0	60.6	15.9	10.0	102.4
QCF 4-6	35.5	5.7	37.0	35.5	47.5
QCF 3	20.3	3.7	20.8	20.3	45.5
QCF 2	18.0	4.5	18.5	18.0	46.3
QCF 1	10.8	-42.3	6.1	10.8	-0.5
No Qual	5.4	-69.5	1.6	5.4	-27.7
Total	100.0	1.3	100.0	100.0	43.1

CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

21 Arts and entertainment

21.1 Description of the industry

INDUSTRY 21: ARTS AND ENTERTAINMENT
SIC2007 headings: 90-93

90: Creative, arts and entertainment activities

91: Library, archives, museums and other cultural activities

92: Gambling and betting activities

93: Sport activities, amusement and recreational activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	2.1	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	856,484	30,458,094
Share of total employment (% 2010):	2.8	100.0
Gender split (male:female) (% 2010):	51:49	53:47
Part-time share (% 2010):	40.2	27.9
Self-employment share (% 2010):	23.3	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

21.2 Industry Commentary

Background

This industry includes a quite diverse range of activities, including: creative, arts and entertainment activities; library, archives, museums and other cultural activities; gambling and betting activities; sport; and various other amusement and recreational activities.

In recent years, the main developments in the industry have included the very strong growth in the betting and gaming industry following its deregulation.

21.3 Productivity and Output Trends

Output: The industry accounts for around 2 per cent of total output.

Output levels in this group of industries fell slightly during the second part of the past decade as the economy turned down.

Growth is expected to be restored, accelerating in the second half of the coming decade.

Productivity: Productivity growth is expected to show a slight fall over the next few years followed by an improvement in the second half of the next decade.

Increasing use of part-time employment reduces output per head (which is the measure of productivity used here).

Employment: The industry's share of total employment is almost 3 per cent (around 860,000 jobs).

As a result of output growth well ahead of productivity growth, employment is projected to grow significantly, with around 200,000 extra jobs being created over the coming decade.

21.4 Employment by Status and Gender

Employment in this industry is currently evenly divided between men and women in terms of numbers of jobs.

However, accounting for 4 in every 10 jobs, part-time working is very important and these jobs are predominantly taken by women.

Self-employment is also very significant in certain parts of this industry, accounting for around one in four jobs across the whole industry.

The projected rise in employment in this industry over the coming decade is expected to benefit both men and women, but it is the latter that see the greatest job gains.

An increase in the share of part-time working is projected.

A slight fall in employment share is projected for self-employment.

The net result of this is the share of full-time jobs will decrease slightly

21.5 Projections of Employment by Occupation

Key aspects of occupational structure

Associate professional & technical occupations is the largest occupational group, accounting for well over a ¼ of all jobs in this industry.

Other significant occupational groups, but with smaller job shares, are managers, professionals, administrative, clerical & secretarial occupations, caring, leisure and other service occupations and elementary occupations.

Future changes

With around 200,000 additional jobs being created, the associate professional & technical group is expected to benefit most from the projected employment increase.

All of the other groups mentioned above are also expected to see job growth.

21.6 Replacement demands

Table 21.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Replacement demands are once again expected to add considerably to the required employment levels in this industry over the next decade.

Total replacement demands for the industry are around 1½ times as large as the scale of expansion demands.

Associate professionals and administrative & clerical occupations are projected to have the largest replacement demands.

Each of these groups is projected to require replacements of 50,000 or more.

Many of the other groups highlighted above are also likely to show significant replacement needs.

The largest total requirement is projected for associate professional & technical occupations, which alone accounts for around a ¼ of a million job openings.

Total requirements across all occupations are projected to be over ½ a million jobs.

21.7 Shift share analysis

Table 21.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

This group of industries has benefited from strong positive industry effects over the past two decades.

The industry effect moderated over the last decade but is expected to pick up again as the economy recovers.

This positive effect is offset by negative occupational effects in some occupations, most notably skilled trades and elementary occupations.

For other occupations positive occupational effects reinforce the positive industry effect. These occupational patterns broadly follow those for the previous two decades.

21.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

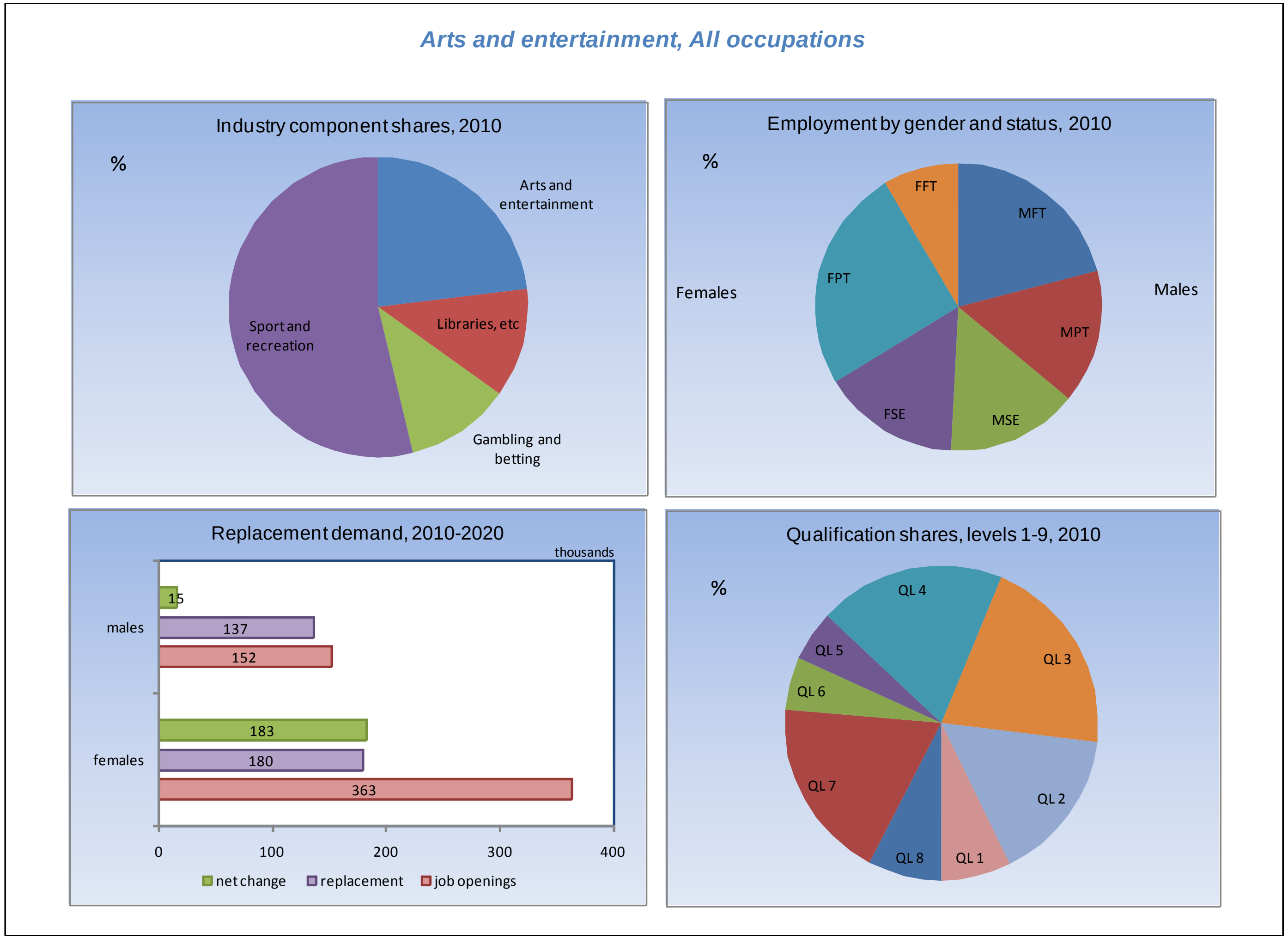
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Arts and entertainment currently favours those qualified at intermediate and higher levels. The pattern of projected qualification change is expected to follow the general trend with shares of higher qualifications rising, lower qualifications falling and intermediate qualifications remaining fairly stable.

In 2010, just below 40 per cent of employment was accounted for by those with higher qualifications (QCF 4-8) with intermediate qualifications (QCF 2 and 3) accounting for a similar amount.

The 20 per cent of those with low or no formal qualifications (QCF 0-1) in 2010 is expected to fall to around 15 per cent by 2020 while higher qualifications are expected to exceed 40 per cent by 2020. The shares of those with intermediate qualifications are projected to fall a little.

Figure 21.1: Arts and entertainment – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 21.1: Trends in Output, Productivity and Employment

Average change in the period

Arts & entertainment				UK
Indicator	2000-2005	2005-2010	2010-2015	2015-2020
Output (% pa)	3.5	-0.3	1.5	2.5
Employment (% pa)	2.9	0.1	2.0	2.2
(000s)	112	5	91	107
Productivity (% pa)	0.7	-0.5	-0.6	0.3

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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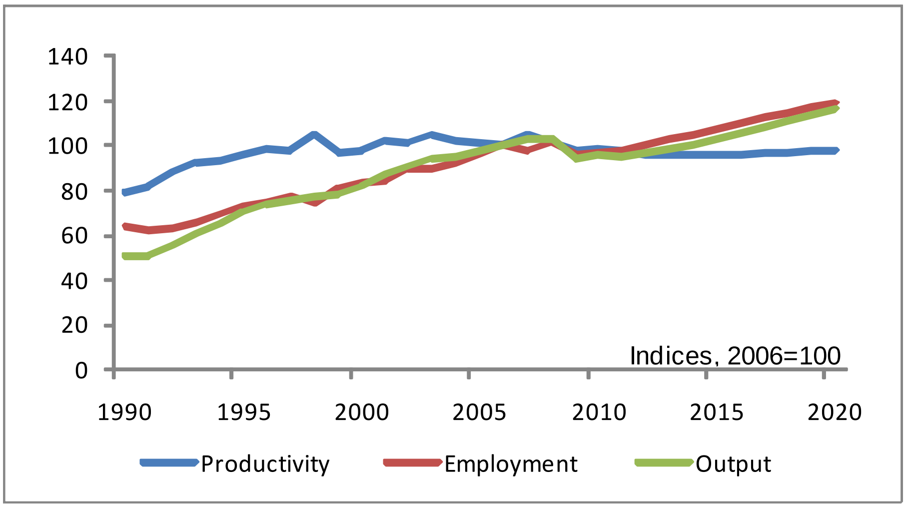
Figure 21.2: Output, productivity and employment in Arts and entertainment



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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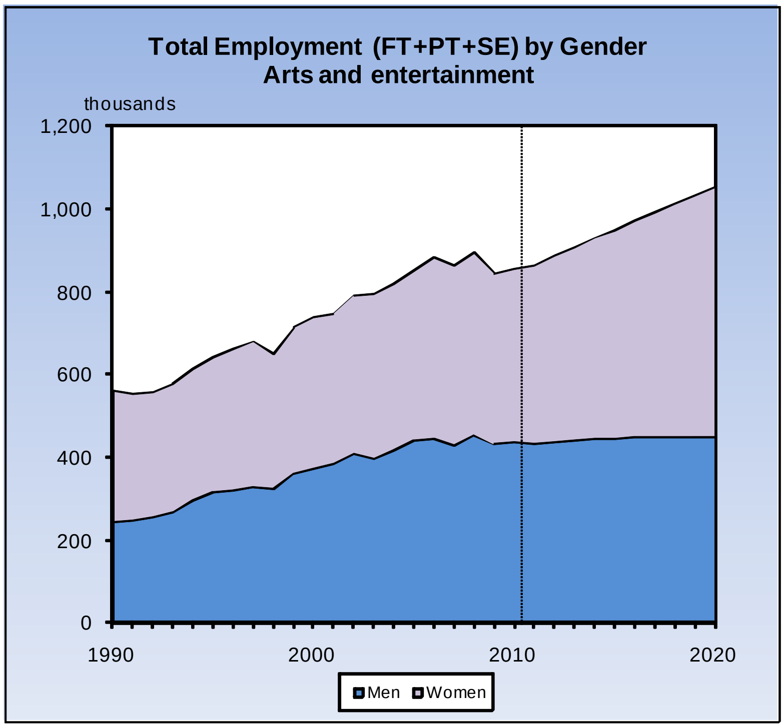
Figure 21.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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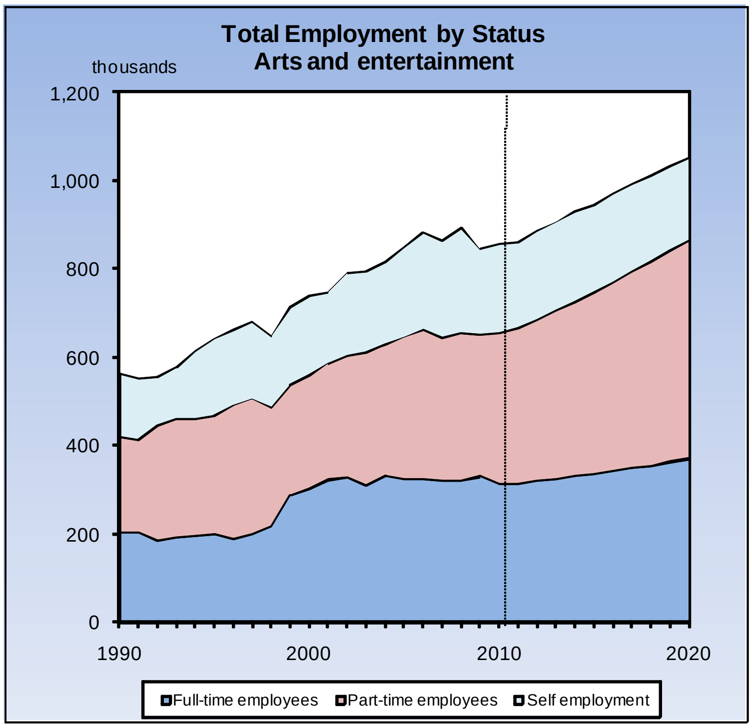
Figure 21.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 21.2: Employment by gender and status

Employment Status	Arts and entertainment								Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total		FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**SE**	**(% share)**	**000s**	**(% share)**	**2010-2015**			
Male employment	180	(21)	129	(15.1)	127	(14.8)	435	(50.8)	-3	11	2	10
Female employment	133	(15.6)	215	(25.1)	73	(8.5)	421	(49.2)	26	55	0	81
Total employment	313	(36.5)	344	(40.2)	199	(23.3)	856	(100)	23	66	2	91
2015									**2015-2020**			
Male employment	176	(18.6)	140	(14.8)	128	(13.6)	445	(47)	3	12	-10	5
Female employment	160	(16.9)	270	(28.5)	73	(7.7)	502	(53)	33	71	-2	102
Total employment	336	(35.5)	410	(43.3)	201	(21.3)	948	(100)	35	83	-11	107
2020									**2010-2020**			
Male employment	179	(17)	153	(14.5)	119	(11.3)	451	(42.7)	-1	24	-8	15
Female employment	192	(18.2)	341	(32.3)	71	(6.8)	604	(57.3)	59	125	-2	183
Total employment	371	(35.2)	493	(46.8)	190	(18)	1,055	(100)	59	149	-10	198

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 21.3: Employment by occupation

Changing Composition of Employment by Occupation								
						2010-2020		
United Kingdom : Arts and entertainment						**Net**	**Replacement**	**Total**
Employment Levels (000s)	**1990**	**2000**	**2010**	**2015**	**2020**	**Change**	**Demands**	**Requirement**
1. Managers, directors and senior officials	49	59	83	104	120	36	38	75
2. Professional occupations	79	105	115	135	156	41	47	88
3. Associate professional and technical	128	202	229	255	279	50	87	137
4. Administrative and secretarial	108	117	130	143	155	25	61	86
5. Skilled trades occupations	51	73	77	74	76	0	35	34
6. Caring, leisure and other service	49	68	76	90	107	31	34	64
7. Sales and customer service	24	33	44	48	54	11	15	25
8. Process, plant and machine operatives	5	8	9	9	9	-1	4	3
9. Elementary occupations	72	74	92	89	98	6	36	42
Total	564	739	856	948	1,055	198	357	555
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**			**Percentage Changes**
1. Managers, directors and senior officials	8.7	7.9	9.7	11.0	11.4	43.6	46.0	89.6
2. Professional occupations	13.9	14.2	13.5	14.3	14.8	35.4	40.5	75.9
3. Associate professional and technical	22.7	27.4	26.8	27.0	26.5	21.8	38.0	59.8
4. Administrative and secretarial	19.1	15.9	15.2	15.1	14.7	18.9	46.8	65.8
5. Skilled trades occupations	9.0	9.9	8.9	7.9	7.2	-0.2	45.2	45.1
6. Caring, leisure and other service	8.7	9.3	8.9	9.5	10.1	40.0	44.3	84.3
7. Sales and customer service	4.2	4.5	5.1	5.0	5.1	24.2	33.9	58.1
8. Process, plant and machine operatives	0.9	1.0	1.1	0.9	0.8	-7.2	42.5	35.3
9. Elementary occupations	12.7	9.9	10.8	9.4	9.3	6.5	39.6	46.1
Total	100.0	100.0	100.0	100.0	100.0	23.1	41.6	64.8

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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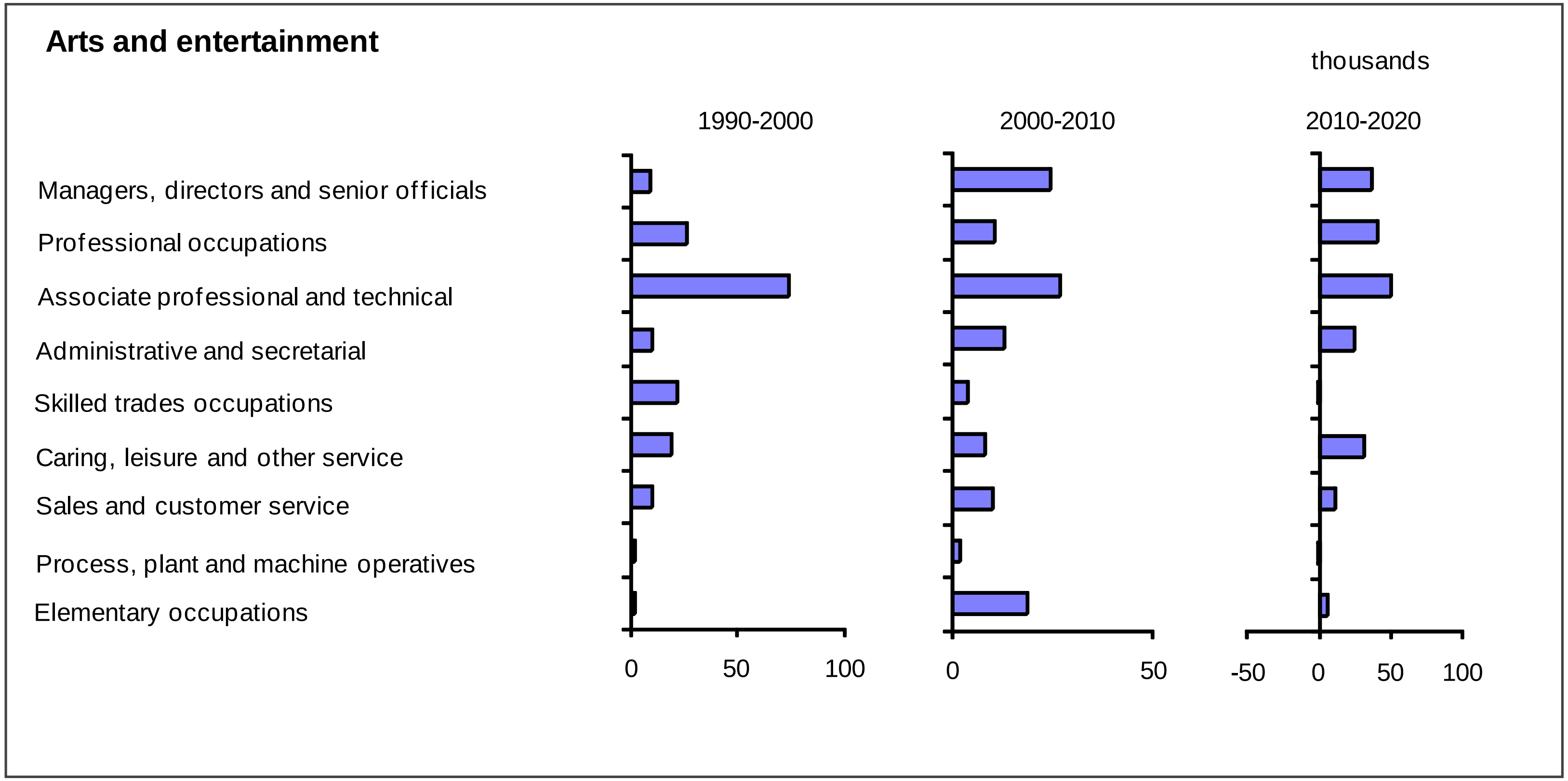
Figure 21.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 21.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000			000s	2000-2010			000s	2010-2020			000s
	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation	Total:	Scale	Industry	Occupation
1. Managers, directors and senior officials	10	1	15	-6	25	3	7	15	36	4	15	17
2. Professional occupations	26	1	23	2	11	5	12	-6	41	6	21	14
3. Associate professional and technical	74	2	38	34	27	9	23	-5	50	12	41	-3
4. Administrative and secretarial	10	2	32	-24	13	5	14	-6	25	7	24	-5
5. Skilled trades occupations	22	1	15	6	4	3	8	-8	0	4	14	-18
6. Caring, leisure and other service	19	1	15	4	8	3	8	-3	31	4	14	13
7. Sales and customer service	10	0	7	2	10	1	4	5	11	2	8	0
8. Process, plant and machine operatives	3	0	2	1	2	0	1	0	-1	0	2	-3
9. Elementary occupations	2	1	21	-20	19	3	8	7	6	5	17	-15
Total	176	8	167	0	117	32	85	0	198	44	155	0
	1990-2000			**% change**	**2000-2010**			**% change**	**2010-2020**			**% change**
1. Managers, directors and senior officials	19.5	1.5	29.7	-11.6	42.0	4.3	11.5	26.2	43.6	5.1	18.1	20.5
2. Professional occupations	33.3	1.5	29.7	2.2	10.2	4.3	11.5	-5.7	35.4	5.1	18.1	12.2
3. Associate professional and technical	58.0	1.5	29.7	26.9	13.3	4.3	11.5	-2.5	21.8	5.1	18.1	-1.3
4. Administrative and secretarial	9.2	1.5	29.7	-21.9	11.1	4.3	11.5	-4.8	18.9	5.1	18.1	-4.2
5. Skilled trades occupations	43.1	1.5	29.7	12.0	5.0	4.3	11.5	-10.8	-0.2	5.1	18.1	-23.3
6. Caring, leisure and other service	39.5	1.5	29.7	8.4	11.6	4.3	11.5	-4.3	40.0	5.1	18.1	16.8
7. Sales and customer service	41.7	1.5	29.7	10.6	30.4	4.3	11.5	14.6	24.2	5.1	18.1	1.0
8. Process, plant and machine operatives	49.5	1.5	29.7	18.3	20.8	4.3	11.5	4.9	-7.2	5.1	18.1	-30.4
9. Elementary occupations	2.7	1.5	29.7	-28.5	25.3	4.3	11.5	9.4	6.5	5.1	18.1	-16.7
Total	31.2	1.5	29.7	0.0	15.8	4.3	11.5	0.0	23.1	5.1	18.1	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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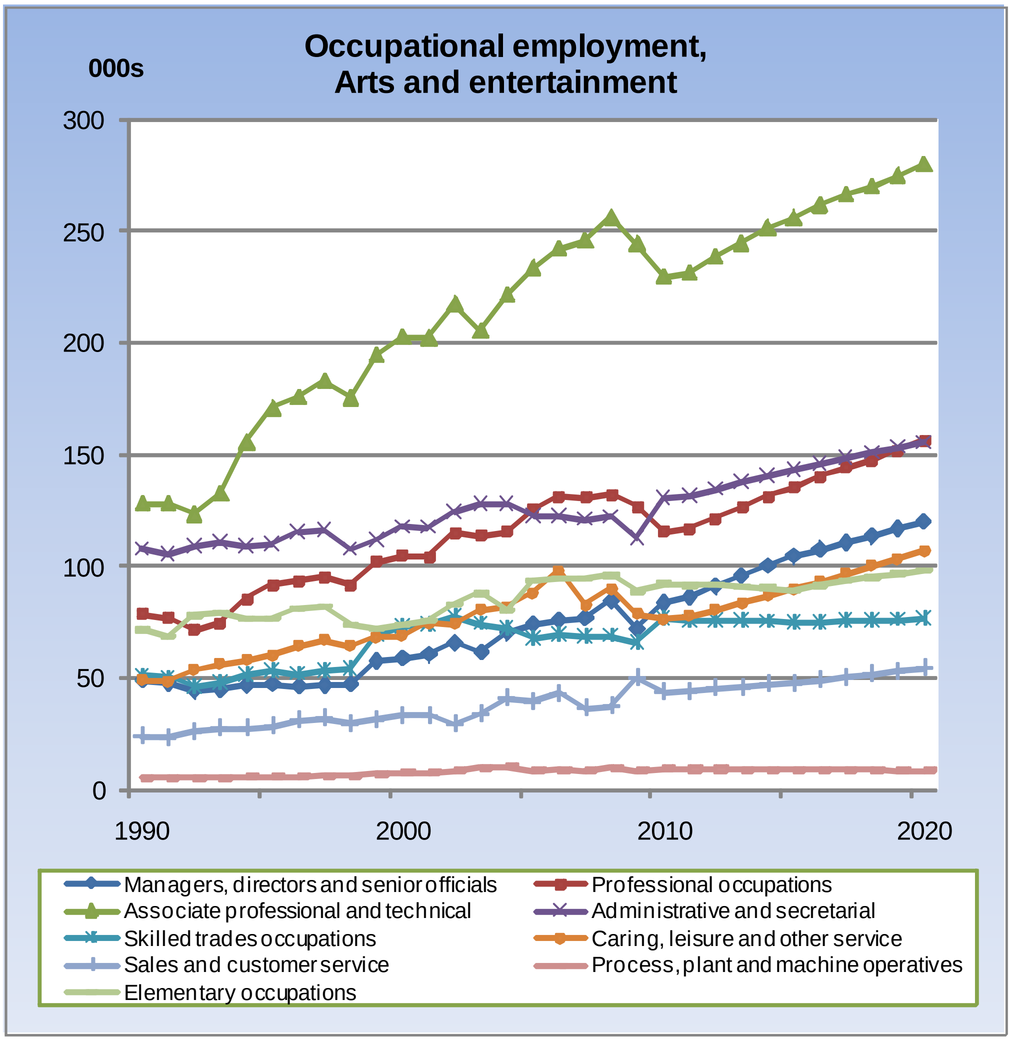
Figure 21.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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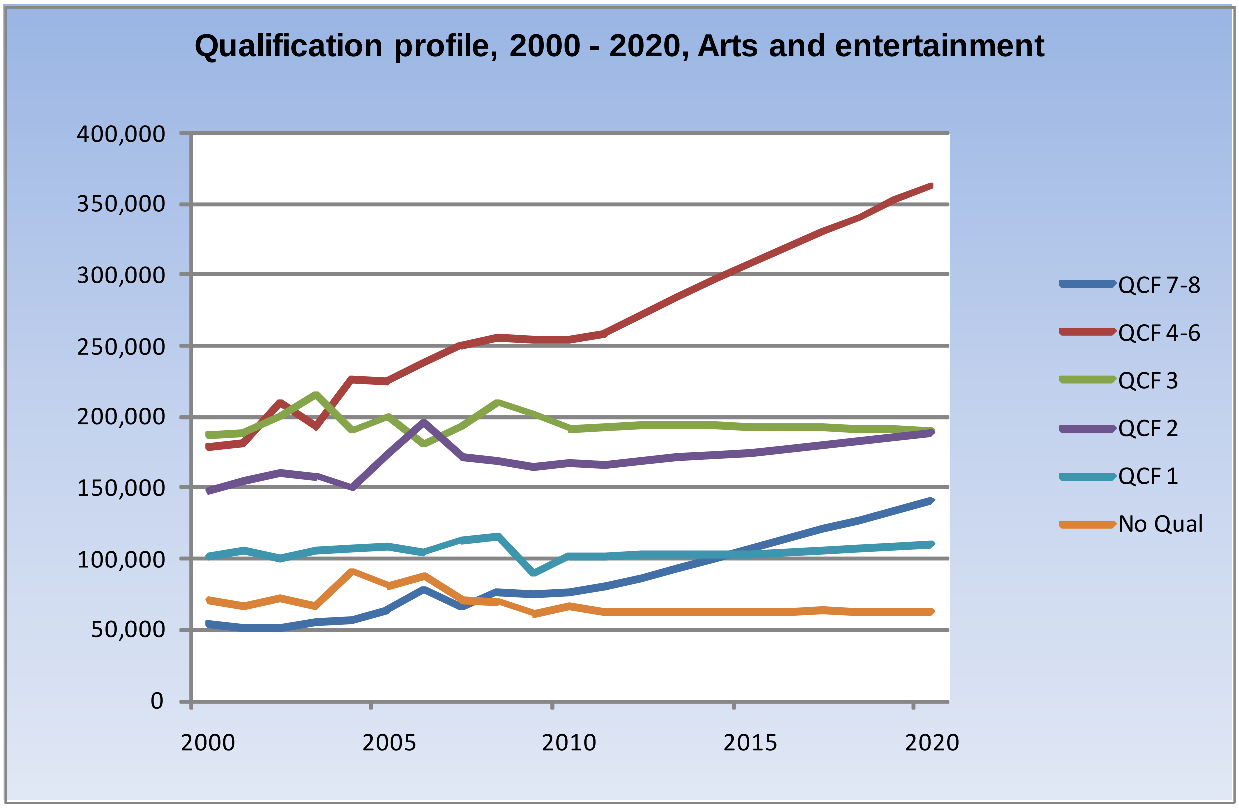
Figure 21.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table: 21.5: Implications for employment by qualification

United Kingdom : Arts and entertainment			000s		
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	76	65	141	32	97
QCF 4-6	254	108	362	106	214
QCF 3	191	-1	190	80	78
QCF 2	167	21	188	70	91
QCF 1	101	9	110	42	51
No Qual	66	-3	63	28	24
Total	856	198	1,055	357	555
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	8.9	85.1	13.4	8.9	126.7
QCF 4-6	29.7	42.5	34.4	29.7	84.1
QCF 3	22.3	-0.6	18.0	22.3	41.0
QCF 2	19.5	12.7	17.9	19.5	54.3
QCF 1	11.8	8.5	10.4	11.8	50.1
No Qual	7.7	-5.0	6.0	7.7	36.6
Total	100.0	23.1	100.0	100.0	64.8

CE/IER estimates based on ONS data(MDM revision 7146).
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22 Other services

22.1 Description of the industry

INDUSTRY 22: OTHER SERVICES

SIC2007 headings: 94-96

94: Activities of membership organisations

95: Repair of computers and personal and household goods

96: Other personal service activities

INDUSTRY PROFILE

		All industries
Share of UK Output (% 2010):	1.9	100.0
Exposure to International Trade:	low	average
Concentration (market share of largest employers):	low	average
Total employment (2010):	796,330	30,458,094
Share of total employment (% 2010):	2.6	100.0
Gender split (male:female) (% 2010):	40:60	53:47
Part-time share (% 2010):	25.1	27.9
Self-employment share (% 2010):	34.4	14.3

Source: 6725output.xls (industry profile) CE/IER estimates based on ONS data.

22.2 Industry Commentary

Background

Other services is a diverse industry that covers a number of sectors, including Activities of membership organisations; repair of computers and personal and household goods and other personal service activities.

22.3 Productivity and Output Trends

Output: The industry now accounts for almost 2 per cent of total output. For a few years now, output in this industry has been flat, actually declining very slightly from 2005-2010. However this negative trend is not projected to continue and output is projected to recover at a moderate pace.

Productivity: Productivity has recently increased slightly and the positive trend is projected to continue but at a moderating pace.

Employment: The industry's share of total employment is currently about 2½ per cent (almost 800,000 jobs).

Future trends in employment levels are expected to remain fairly flat, resulting in a modest increase of around just 30,000 jobs by 2020.

22.4 Employment by Status and Gender

Employment in this industry is dominated in terms of numbers by women, who account for 6 in every 10 jobs.

Self-employment is very important accounting for around a third of total employment.

Accounting for 1 in every 4 jobs, part-time working is also very important in this industry.

These patterns are not expected to change very significantly over the coming decade.

The gender mix of employment is not projected to change radically. The industry will remain an attractive area of employment for females.

Self-employment will remain a significant part of total employment, although it is projected to see a slight reduction of its current share of total employment.

Similar remarks apply to the reduction in the share of employment in part-time work, which will nevertheless remain significant.

22.5 Projections of Employment by Occupation

Key aspects of occupational structure

Caring, leisure and other service occupations is the biggest occupational group accounting for almost a third of all jobs.

Managerial, professional, associate professional and administrative & secretarial occupations are also significant, each accounting for around 1 in 10 jobs at least.

Future changes

The professional group is projected to see particularly rapid growth over the coming decade, but managers and associate professional also benefit.

The caring, leisure and other service occupations group as well as elementary occupations see the biggest job losses.

22.6 Replacement demands

Table 22.3 also presents estimates of replacement demands. These take into account the need to replace those leaving because of retirement or other factors.

Total replacement demands for the industry are ten times as large as the modest scale of expansion demands.

Replacement demands are dominated by the caring, leisure and other service occupations group, but there are likely to be significant replacement demands in many other areas including managers, professionals, associate professional and administrative & secretarial jobs.

Although in decline in terms of employment levels, the caring, leisure and other service occupations group will account for over a third of all replacement needs.

22.7 Shift share analysis

Table 22.4 presents an analysis of the relative importance of scale, industry and occupational effects in the observed and projected changes. The scale effect shows what would have happened had the industry maintained its overall share of total employment within the UK economy. The impact of the overall decline or growth of this particular industry over the various sub-periods covered is demonstrated in the industry effect. Finally, the occupational effect illustrates the impact of changes in technology and organisational factors on the occupational structure ***within*** the industry.

The industry effect played a strongly positive role in the 1990s but this turned sharply negative in the last decade.

The industry effect is projected to be slightly negative over the projection period.

Managers, professionals, and associate professional occupations are expected to benefit from positive occupational effects.

Caring, leisure and other service occupations as well as elementary occupations are the main areas to suffer from negative occupational effects.

22.8 Implications for qualifications

The occupational structure of each industry and how this is changing over time are some of the key drivers for the numbers of formally qualified people employed in each case.

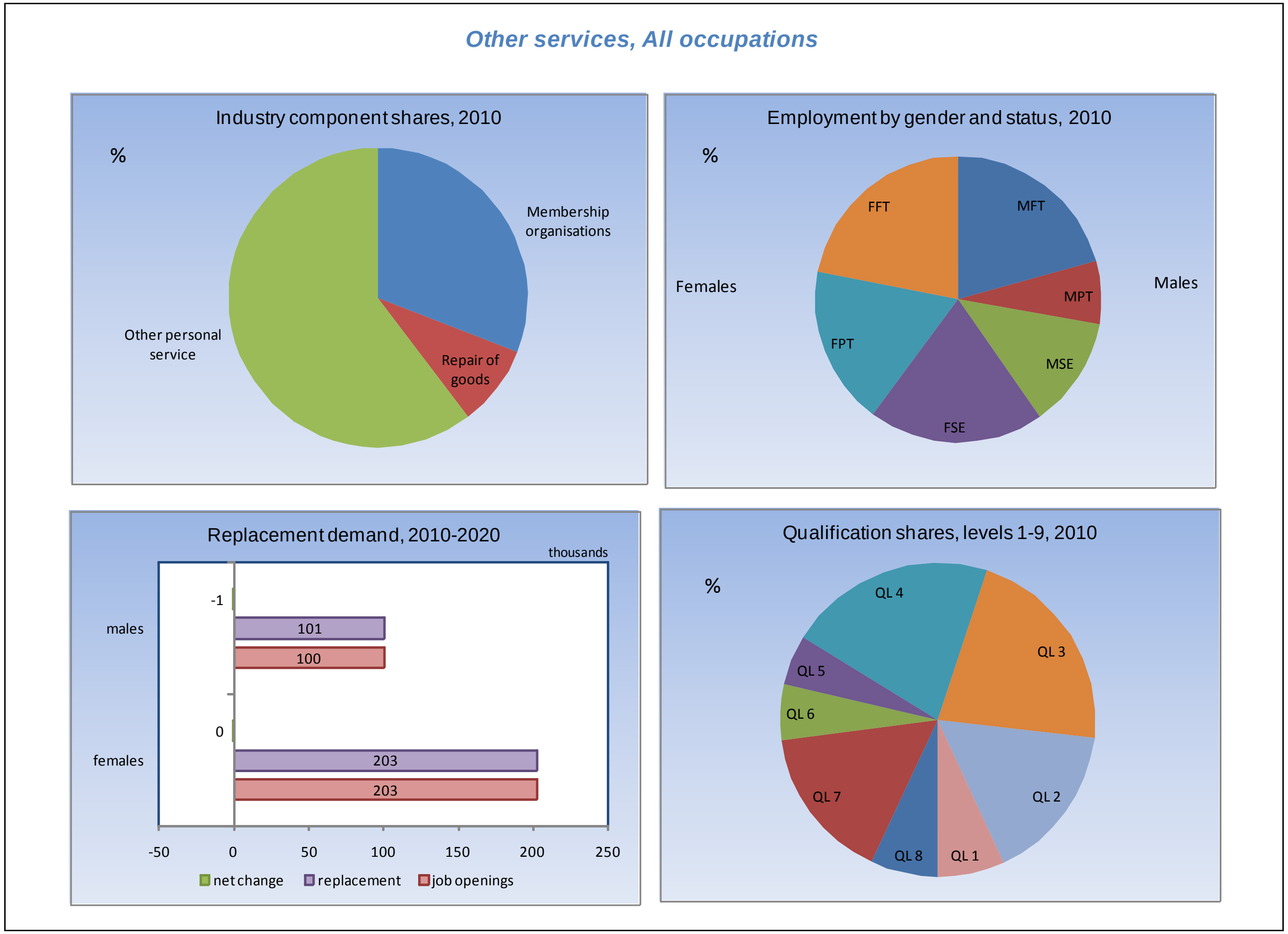
The observed patterns also reflect supply side changes. With the strong trends towards more people being better qualified, the tendency is for the employment shares of those with higher level qualifications to rise and those with no or few formal qualifications to fall.

The occupational structure in Other services favours those qualified at intermediate levels. The pattern of projected qualification change is expected to show shares of higher qualifications rising, with both intermediate and lower qualifications falling.

In 2010, just over 30 per cent of employment was accounted for by those with higher qualifications (QCF 4-8) and this is projected to rise to over 40 per cent by 2020. Intermediate qualifications (QCF 2 and 3) are expected to fall from over 40 per cent in 2010 to nearer 30 per cent by 2020.

Those with low or no formal qualifications (QCF 0-1) in 2010 are also expected to fall but less markedly, from approximately 25 per cent to around 24 per cent.

Figure 22.1: Other services – employment profile



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 22.1: Trends in Output, Productivity and Employment

Average change in the period

Other services Indicator	2000-2005	2005-2010	2010-2015	UK 2015-2020
Output (% pa)	1.4	-0.2	2.3	1.0
Employment (% pa)	0.4	-2.1	-0.2	0.9
(000s)	18	-87	-7	36
Productivity (% pa)	1.0	1.9	2.5	0.1

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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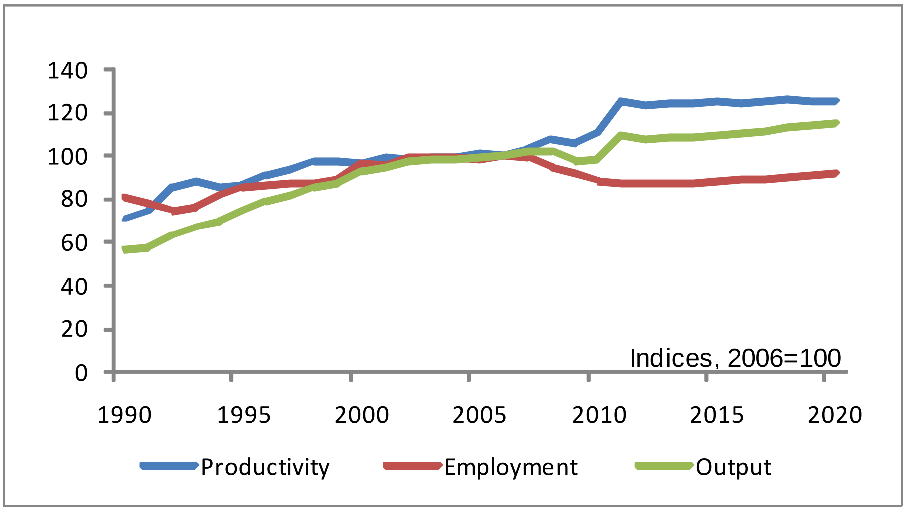
Figure 22.2: Output, productivity and employment in Other services



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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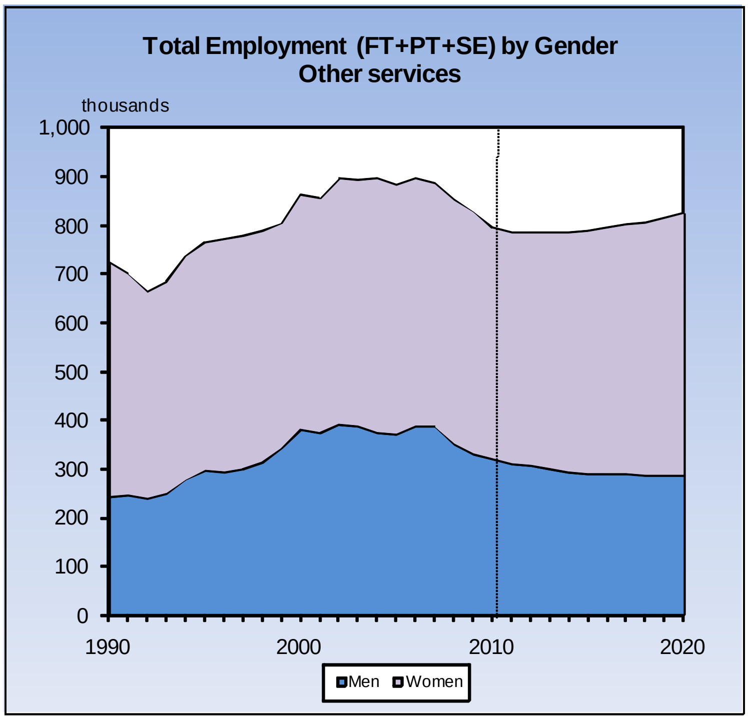
Figure 22.3: Employment by gender



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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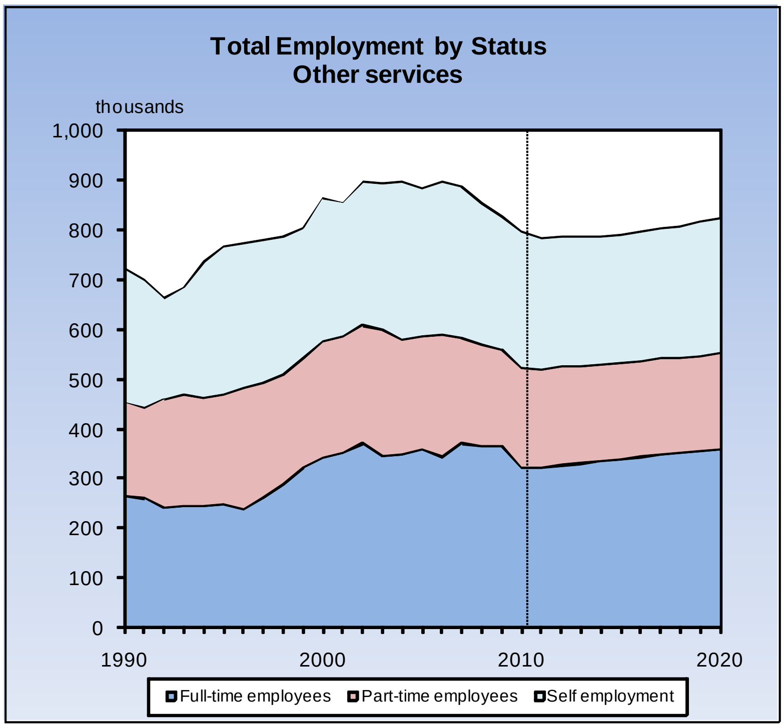
Figure 22.4: Employment by status



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 22.2: Employment by gender and status

	Employment Status			Other services						Changes in Employment Status (000s)			
Employment by Gender	Full time		Part time		Self employed		Total			FT	PT	SE	Total
2010	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**	**000s**	**(% share)**		**2010-2015**			
Male employment	165	(20.7)	57	(7.1)	100	(12.5)	322	(40.4)		-14	-5	-10	-30
Female employment	157	(19.8)	143	(18)	174	(21.9)	475	(59.6)		30	-1	-7	23
Total employment	322	(40.5)	200	(25.1)	274	(34.4)	796	(100)		16	-6	-17	-7
2015										**2015-2020**			
Male employment	151	(19.1)	52	(6.6)	89	(11.3)	292	(37)		-15	0	12	-3
Female employment	187	(23.8)	143	(18.1)	167	(21.2)	497	(63)		36	0	4	39
Total employment	338	(42.9)	194	(24.6)	257	(32.5)	789	(100)		21	0	16	36
2020										**2010-2020**			
Male employment	136	(16.5)	51	(6.2)	101	(12.3)	289	(35)		-29	-5	2	-33
Female employment	223	(27)	143	(17.3)	171	(20.7)	537	(65)		66	-1	-3	62
Total employment	359	(43.5)	194	(23.5)	272	(33)	825	(100)		36	-6	-2	29

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 22.3: Employment by occupation

Changing Composition of Employment by Occupation								
United Kingdom : Other services						2010-2020		
Employment Levels (000s)	1990	2000	2010	2015	2020	Net Change	Replacement Demands	Total Requirement
1. Managers, directors and senior officials	76	96	91	101	114	23	41	65
2. Professional occupations	100	136	142	153	171	29	57	86
3. Associate professional and technical	69	90	97	102	115	18	37	55
4. Administrative and secretarial	95	97	83	80	77	-6	39	33
5. Skilled trades occupations	37	47	39	36	37	-2	17	15
6. Caring, leisure and other service	199	228	239	224	222	-17	100	82
7. Sales and customer service	39	39	31	30	31	-1	11	10
8. Process, plant and machine operatives	16	30	20	16	14	-5	9	3
9. Elementary occupations	94	102	55	47	45	-11	22	11
Total	724	865	796	789	825	29	331	360
Percentage Shares	**1990**	**2000**	**2010**	**2015**	**2020**		**Percentage Changes**	
1. Managers, directors and senior officials	10.5	11.1	11.4	12.8	13.8	25.8	45.5	71.3
2. Professional occupations	13.7	15.7	17.8	19.4	20.7	20.4	40.1	60.5
3. Associate professional and technical	9.5	10.4	12.1	12.9	13.9	18.4	38.4	56.8
4. Administrative and secretarial	13.2	11.2	10.4	10.2	9.3	-6.8	46.7	39.8
5. Skilled trades occupations	5.2	5.5	4.9	4.6	4.5	-4.6	43.3	38.7
6. Caring, leisure and other service	27.5	26.3	30.1	28.4	26.9	-7.2	41.6	34.4
7. Sales and customer service	5.4	4.5	3.9	3.8	3.7	-2.6	34.6	32.0
8. Process, plant and machine operatives	2.2	3.5	2.5	2.0	1.7	-27.2	44.4	17.2
9. Elementary occupations	12.9	11.8	6.9	5.9	5.4	-19.1	39.0	19.9
Total	100.0	100.0	100.0	100.0	100.0	3.6	41.6	45.2

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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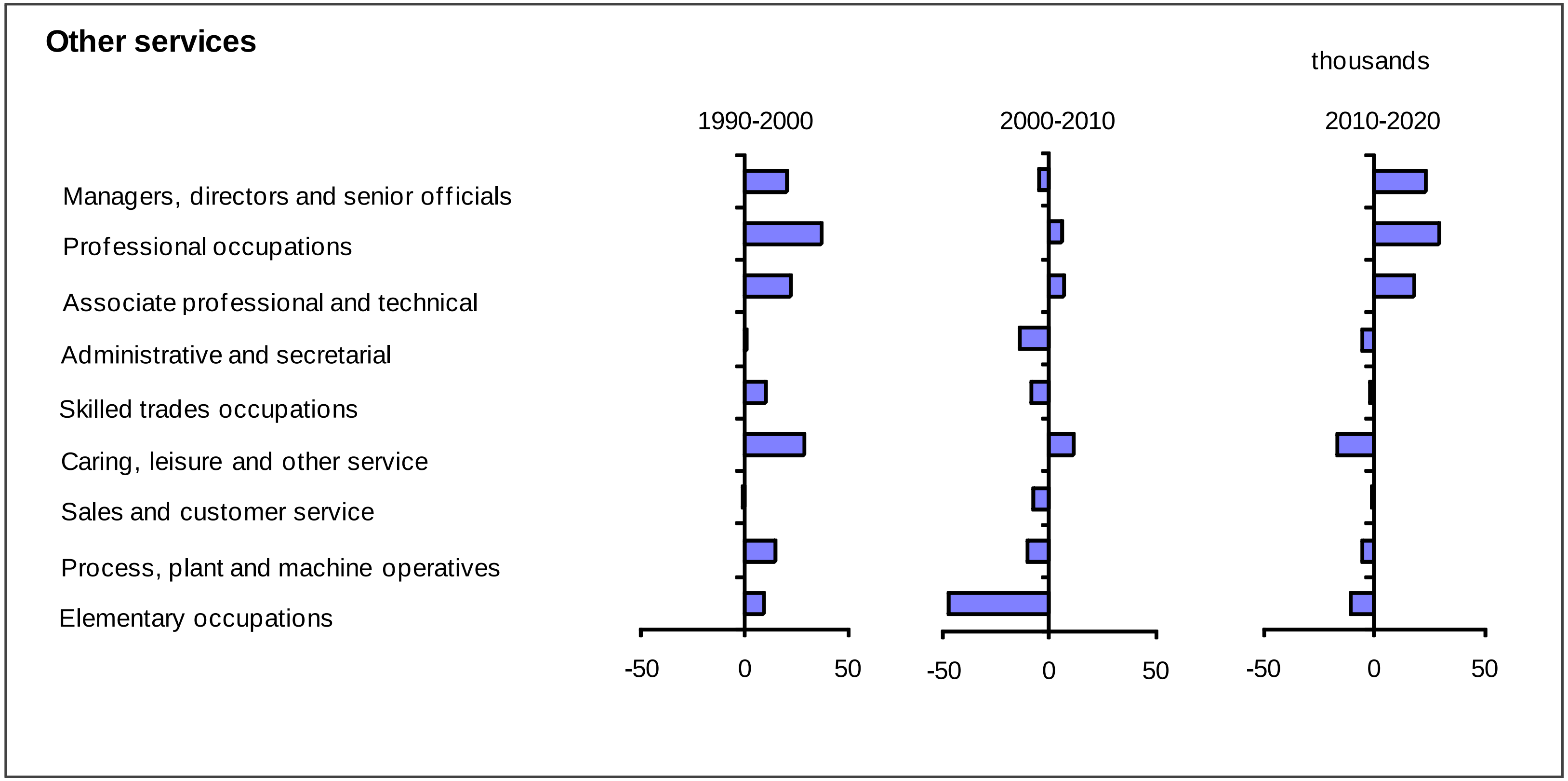
Figure 22.5: Changing Composition of Employment by Occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
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Table 22.4: Shift-share Analysis of Changes in Occupational Employment

	1990-2000 Total:	Scale	Industry	000s Occupation	2000-2010 Total:	Scale	Industry	000s Occupation	2010-2020 Total:	Scale	Industry	000s Occupation
1. Managers, directors and senior officials	20	1	14	5	-5	4	-12	3	23	5	-1	20
2. Professional occupations	37	1	18	17	6	6	-17	17	29	7	-2	24
3. Associate professional and technical	22	1	12	8	7	4	-11	14	18	5	-1	14
4. Administrative and secretarial	1	1	17	-18	-14	4	-12	-6	-6	4	-1	-9
5. Skilled trades occupations	10	1	7	3	-9	2	-6	-5	-2	2	-1	-3
6. Caring, leisure and other service	29	3	36	-10	11	10	-28	30	-17	12	-4	-26
7. Sales and customer service	0	1	7	-8	-8	2	-5	-5	-1	2	0	-2
8. Process, plant and machine operatives	14	0	3	11	-10	1	-4	-8	-5	1	0	-6
9. Elementary occupations	9	1	17	-10	-47	4	-13	-39	-11	3	-1	-13
Total	141	11	130	0	-69	38	-107	0	29	41	-12	0

	1990-2000			% change	2000-2010			% change	2010-2020			% change
1. Managers, directors and senior officials	26.4	1.5	18.0	7.0	-5.4	4.3	-12.3	2.6	25.8	5.1	-1.5	22.2
2. Professional occupations	36.8	1.5	18.0	17.4	4.3	4.3	-12.3	12.2	20.4	5.1	-1.5	16.7
3. Associate professional and technical	31.4	1.5	18.0	12.0	7.4	4.3	-12.3	15.4	18.4	5.1	-1.5	14.8
4. Administrative and secretarial	1.1	1.5	18.0	-18.4	-14.4	4.3	-12.3	-6.4	-6.8	5.1	-1.5	-10.5
5. Skilled trades occupations	26.8	1.5	18.0	7.3	-18.5	4.3	-12.3	-10.5	-4.6	5.1	-1.5	-8.2
6. Caring, leisure and other service	14.3	1.5	18.0	-5.1	5.0	4.3	-12.3	13.0	-7.2	5.1	-1.5	-10.8
7. Sales and customer service	-0.1	1.5	18.0	-19.5	-19.6	4.3	-12.3	-11.6	-2.6	5.1	-1.5	-6.2
8. Process, plant and machine operatives	91.3	1.5	18.0	71.8	-34.7	4.3	-12.3	-26.7	-27.2	5.1	-1.5	-30.8
9. Elementary occupations	9.3	1.5	18.0	-10.2	-46.0	4.3	-12.3	-38.0	-19.1	5.1	-1.5	-22.7
Total	19.4	1.5	18.0	0.0	-8.0	4.3	-12.3	0.0	3.6	5.1	-1.5	0.0

Source: CE/IER estimates based on ONS data(MDM revision 7146).
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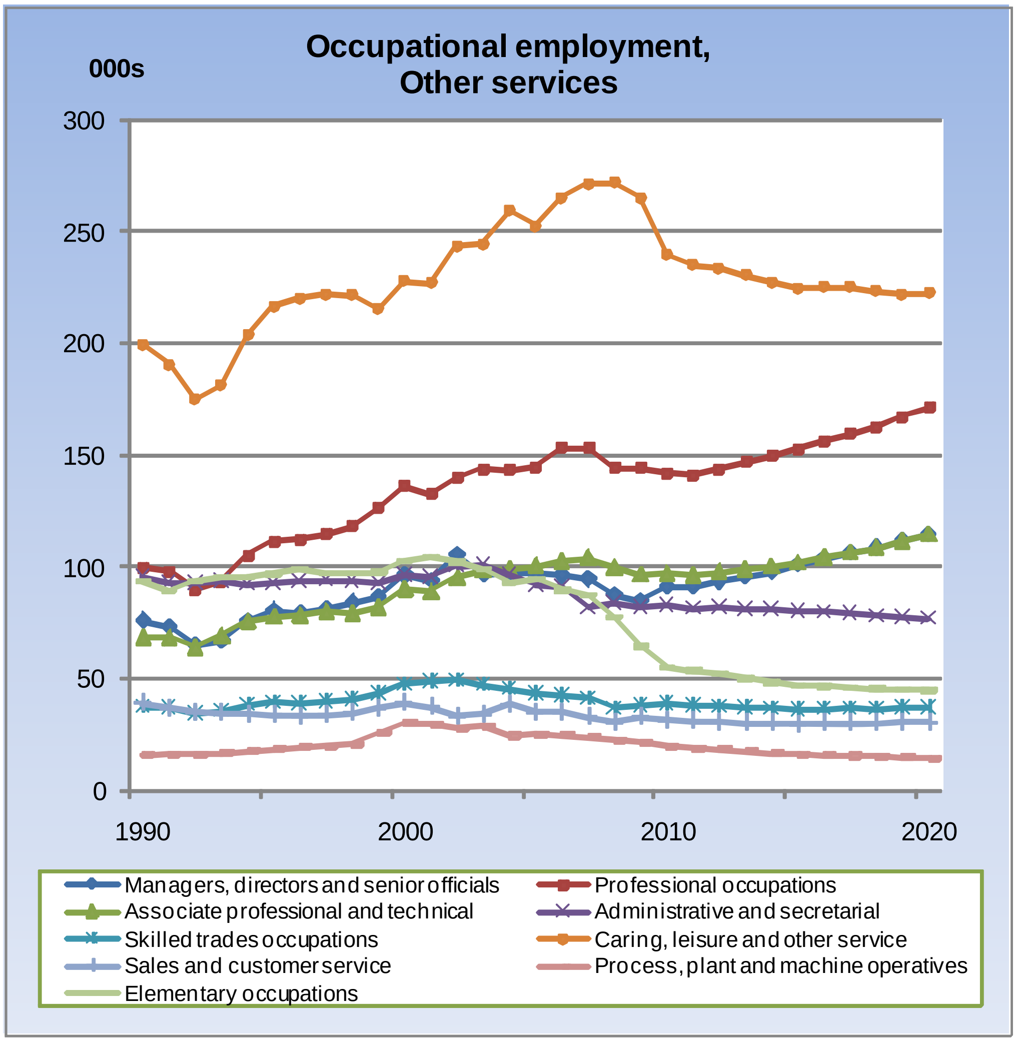
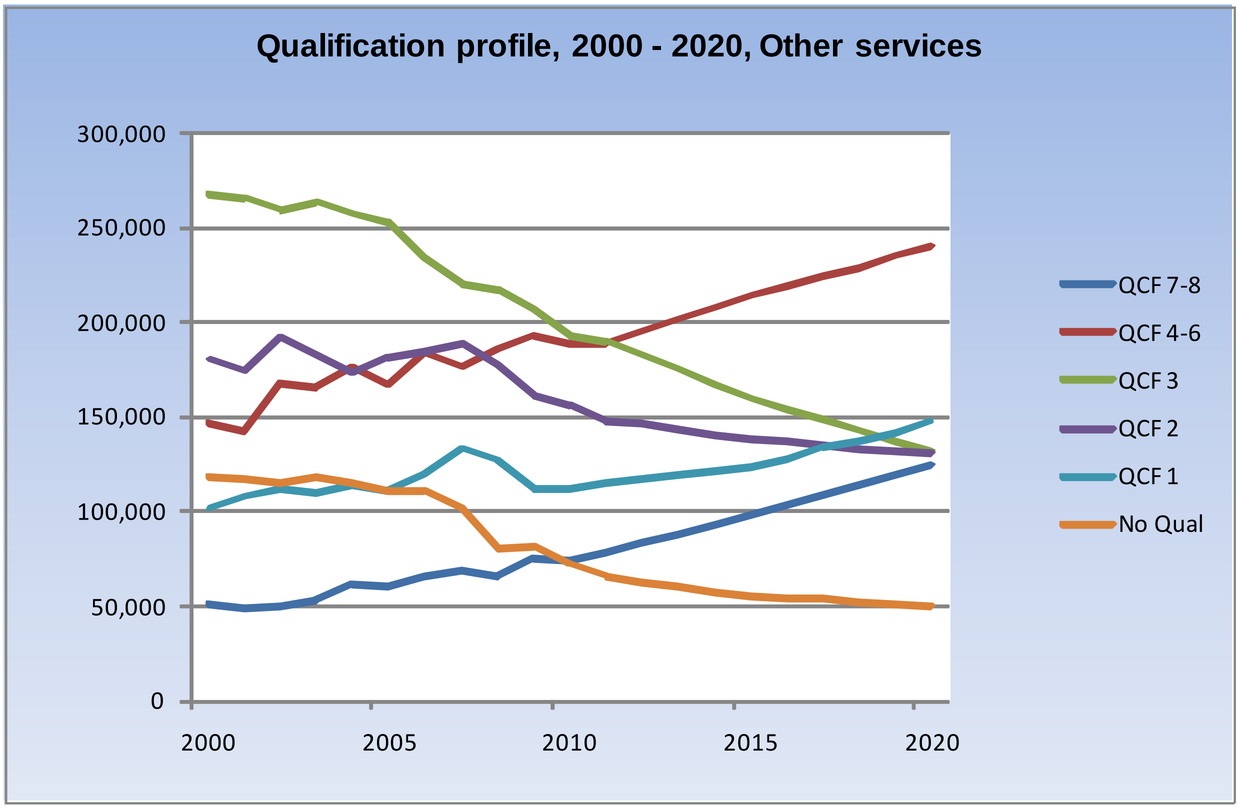
Figure 22.6: Employment by occupation



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Figure 6.x.11, forecast C111

Figure 22.7: Qualification trends



Source: CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], Figure 7.2, forecast C111

Table: 22.5: Implications for employment by qualification

United Kingdom : Other services				000s	
QCF group	**Base year level 2010**	**Change 2010 - 2020**	**Projected level 2020**	**Replacement Demand**	**Total requirement 2010 - 2020**
QCF 7-8	74	50	125	31	81
QCF 4-6	189	51	240	79	130
QCF 3	193	-60	132	80	20
QCF 2	156	-25	131	65	40
QCF 1	112	35	147	47	82
No Qual	73	-23	50	30	7
Total	796	29	825	331	360
	% share	**% change**	**% share**	**% share**	**% of base year level**
QCF 7-8	9.3	67.7	15.1	9.3	109.3
QCF 4-6	23.7	27.1	29.1	23.7	68.7
QCF 3	24.2	-31.3	16.0	24.2	10.3
QCF 2	19.6	-15.7	15.9	19.6	25.8
QCF 1	14.1	31.2	17.8	14.1	72.8
No Qual	9.1	-31.5	6.0	9.1	10.0
Total	100.0	3.6	100.0	100.0	45.2

CE/IER estimates based on ONS data(MDM revision 7146).
N:\ Projects\Working Futures\workbooks\[22UK.xlsm], TableQ, forecast C111

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