

# 4 Demand for Skills

## 4.1 Introduction

This chapter is the main focus of the study and in recognition of its importance, it is split into four parts:

- **Part A: Recent skill demand trends** – looks at current employment structure and recent employment trends by industry, occupation and skill level for both jurisdictions and the all-island economy as a whole, including international comparisons of trends in employment skill levels;
- **Part B: Skill demand issues** – analysis of North-South vacancies (including hard-to-fill vacancies), skill shortages and a review of the importance of generic skills. Note information on labour shortages, skill gaps and utilisation of skills is not presented as it is not available in sufficient detail across both jurisdictions;
- **Part C: Skills demand in specific key industry sectors** – skills demand issues in five key priority industries based on consultations with industry players and desk-based research of industry-specific literature; and
- **Part D: Future skill demand trends** – critique/comparability of North-South research on skills and occupation forecasts by FÁS/ESRI and Regional Forecasts (now part of Oxford Economics), including presentation of headline forecast predictions (Note these forecasts have not been updated in line with the latest economic outlook for the Island economy and cannot be matched precisely to produce all-island forecasts – see explanation in Part D).

## 4.2 All-Island Facts

The preceding chapters have looked at high level macroeconomic indicators at all-island and North-South level such as population, GDP and total employment. This chapter, and the 'All-Island facts' presented below, are more focused on the detailed economic trends which have most influence on skill demand. These are primarily the sectoral and occupational pattern of employment growth, although upskilling trends within occupations and the growing importance of generic non-formal skills also matters.

### Recent Employment, Occupation and Skill Demand Trends

- The all-island economy is reasonably well diversified, with no one sector dominating and several large sectors of roughly equal importance (greater than 10 per cent of total employment).

- Like most other developed economies, the all-island economy has undergone a transformation from traditional agriculture/manufacturing to services with 209,000 net new jobs in business and financial services since 1996 and a shedding of jobs in less competitive manufacturing sub-sectors. This transformation has had a major influence on the nature of skill demand in the economy as in the past, many factory or farm jobs required little in the way of formal qualifications compared to for example international financial services where university degrees are a minimum requirement for the majority of positions. Though importantly the South has successfully developed its hi-tech manufacturing sector, which similar to financial and business services, tends to be graduate 'hungry'.
- Public administration, education, health and social services and construction have also grown rapidly, creating 215,000 net new jobs respectively since 1996. The growth in construction, particularly in the South, has been a source of demand for more elementary skills and migrant workers (though many construction positions require a minimum level 2 qualification), partly offsetting falling demand for low skills from the decline in more traditional production sectors.
- Recent all-island employment trends share some similarities with international comparators though the fact that the economy has grown strongly across so many sectors makes it more difficult to compare. The US, UK and France, like the all-island economy, have experienced employment growth in construction, retail, financial & business services and public services (mainly education and health). The main difference, with the exception of rates of growth, is that the all-island economy has not shed jobs in other production industries and also the relative size of the contribution of construction growth to overall employment growth on the Island.
- Of the total of 2.9m persons employed on the Island, roughly 1m are employed in the 'higher end' manager, professional and associate professional occupations, an increase of 100,000 since 2001.
- The key occupational trends at all-island level are the strong growth in professional, craft & related trade and service & shop/market sale occupations and the decline in plant & machine operative occupations. Growth in managerial occupations in director and specialist managerial posts has been somewhat offset by the decline in production and operation managers, which is linked to declines in some manufacturing sub-sectors.
- The number of employed persons with low qualifications, while falling in share terms, has not fallen significantly in absolute numbers and is still high at 650,000 in 2006. This will partly be explained by the strong growth in construction over the last decade which creates demand for a whole range of skill levels.
- The most rapid employment expansion has been in the number persons with higher qualifications, up 340,000 since 1999 to 900,000 in 2006. This reflects partly the transformation of the economy, upskilling within sectors and occupations and the increased supply of university qualified persons, including migrants. The skills trends of persons in employment is not a complete picture of skill demand as it is very difficult to precisely ascertain if workforce skills reflect actual demand or available supply or a combination of both. Within an economy there can be instances of both skill gaps and under-utilised skills.

## Future Employment, Occupation and Skill Demand Trends

- Existing skills forecasting research does not permit all-island aggregation of North-South industry, occupation and skill stock employment forecasts. An explanation for this is provided in Part D. While it is not possible at this stage to provide quantified all-island forecasts, the direction and relative scale of forecasts by sector, occupation and skill level have been indicatively estimated using existing research.
- This analysis suggests that in terms of expansion demand, (that is the change in stock of employment):
  - the transformation from traditional agriculture/industry to services is forecast to continue apace, with financial & business services and public administration, education, health and social services expected to be the main sources of employment growth in the all-island economy. Importantly for skills forecasting, construction employment growth is forecast to slow considerably, and indeed latest forecasts for the South predict short-term job losses in construction (though these are not the forecasts presented in the report);
  - this sectoral pattern will result in employment growth being largely concentrated in managerial and professional occupations and also in service & shop/market sale occupations. Minimal employment growth is forecast for elementary and plant & machine operative occupations;
  - this pattern of sectoral and occupation growth, as over the last decade, has a strong skills profile gradient with a high proportion of jobs forecast to need graduate qualifications and job losses predicted for employment requiring low qualifications. However, there will be some lower grade and low skilled occupations with growth opportunities as overall wealth levels in the economy rises, for example in personal services; and
  - this pattern of skill needs from expansion demand analysis will however be altered to a degree when replacement demand needs are included. As leaving rates tend to be higher for lower grade and lower skilled occupations and joining rates higher for higher grade occupations, the dynamics of the labour market means that the future need for lower qualifications will be higher than predicted by expansion demand forecasts alone.

### 4.3 Part A – Recent Skills Demand Trends

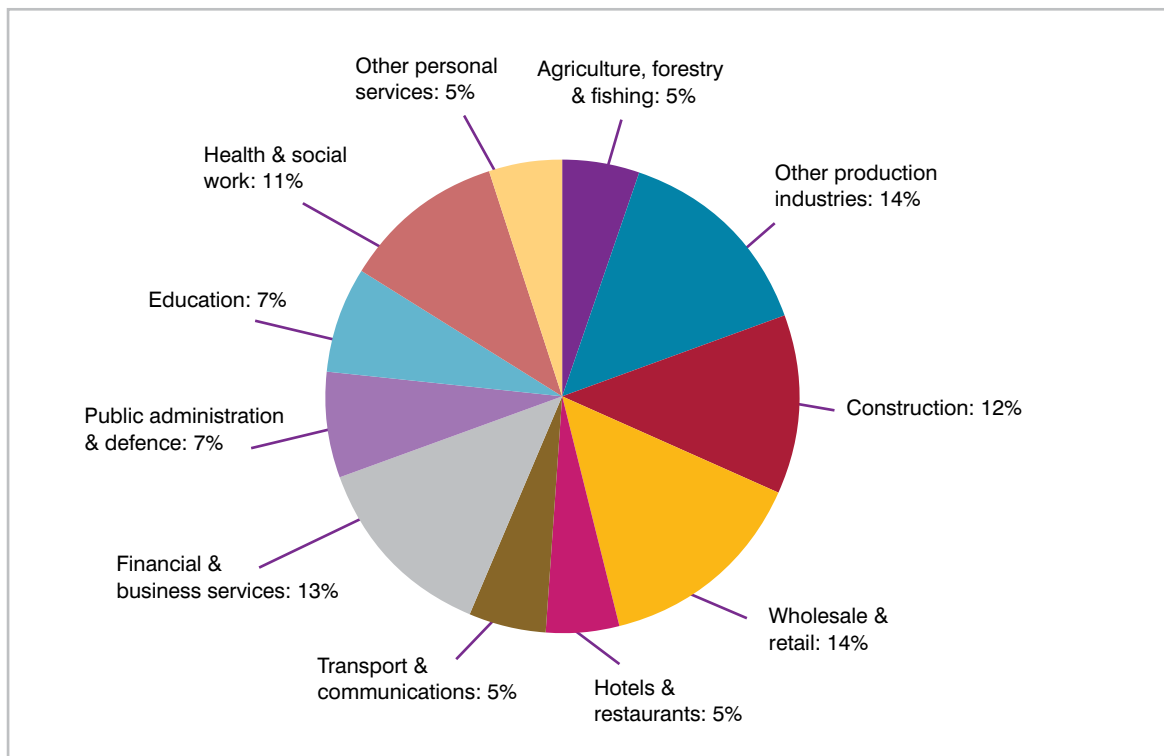
Part A presents recent trends in employment by industry and occupation. As highlighted above but worth re-emphasising, the changing structure of the all-island economy and the growing importance of particular occupations within industries are key factors influencing skill demand. These trends encapsulate the concepts of increasing sophistication, upskilling and moving up the value chain, all developments which are taking place in the all-island economy and shifting the pattern of skill demand towards higher qualifications.

#### 4.3.1 Industry Recent Trends

##### *Employment structure*

Before presenting sectoral employment trends, it is useful to first present the employment structure of the Island economy. Figure 4.1 shows that the all-island economy is relatively well-diversified with no one sector dominating and several large sectors of roughly equal importance e.g. manufacturing which is a main component of other production industries, construction, wholesale & retail, financial and business services and health and health all have employment shares of over 10 per cent.

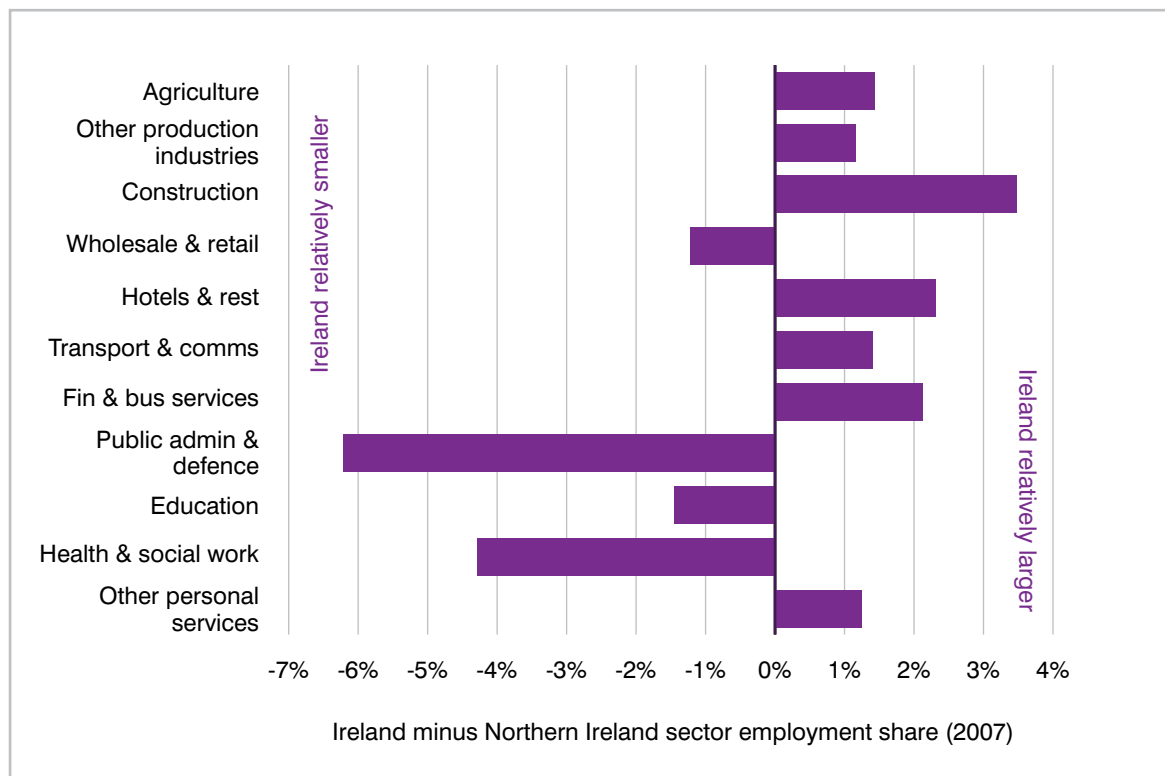
**Figure 4.1: All-Island employment structure (2007)**



Source: CSO QNHS, DETI LFS and Oxford Economics.

Comparing Ireland’s employment structure with NI (Figure 4.2) clearly highlights NI’s greater dependence on the public sector (specifically public administration and health) and less well-developed business and financial services sector. Ireland’s recent construction boom, as in some other economies such as Spain, has seen the economy become more dependent on construction and consequently more vulnerable to the current downturn in the housing market. While in some areas the structure of the two economies differs, the nature of skills demand, as is shown later, need not be wholly different as public services employment has similar skill demand needs, based on skills in employment, to financial and business services. An important caveat to this analysis is that this report does not go into the detail of comparing the sub-sector structure of broader sectors. For example the financial and business services sector in the South is skewed more towards international financial services whereas in the North call centres activities are more prevalent.

**Figure 4.2: Ireland minus Northern Ireland employment structure (2007)**



Source: CSO QNHS and DETI LFS.

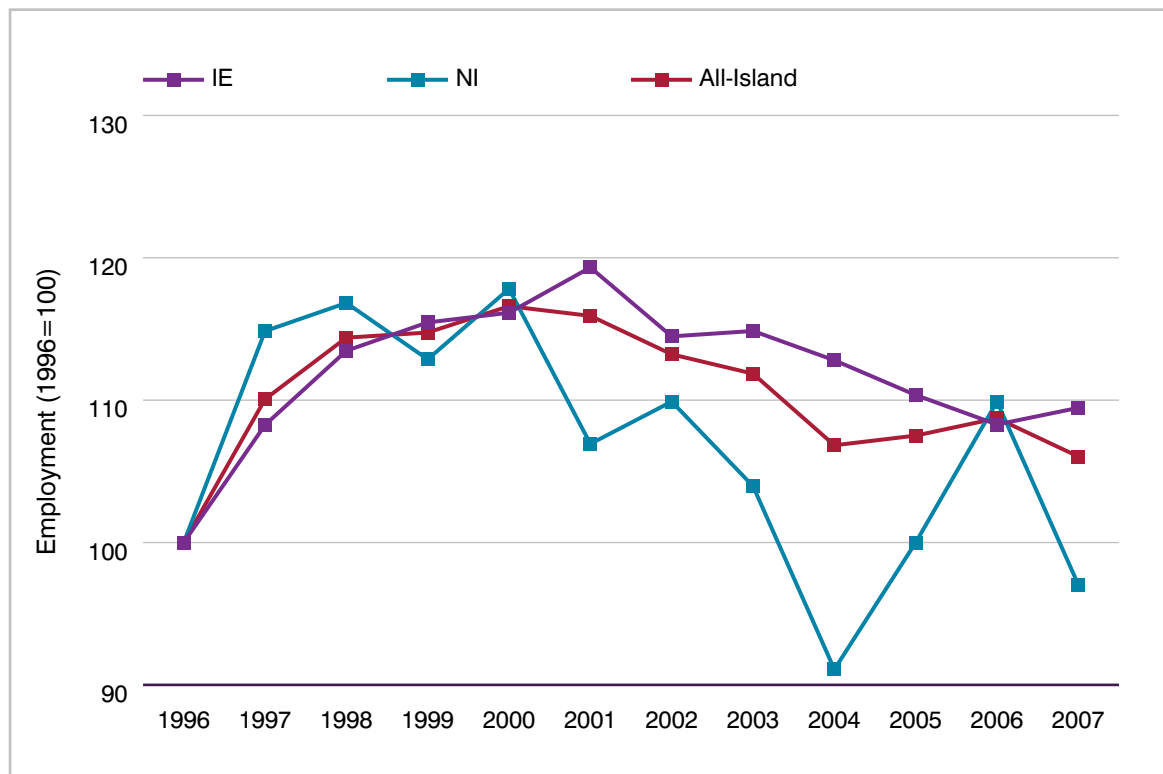
Note: Bars to the right of the Y axis indicate that the sector is relatively larger in share terms in Ireland compared to Northern Ireland. For example Ireland’s construction share of total employment in 2007 is 13 per cent compared to 10 per cent in Northern Ireland – the difference is +3 per cent, meaning the bar is to the right of the Y axis (more dependent/relatively larger).

Turning now to employment trends by industry, presented below are a selection of recent North-South and all-island trends for the following sectors; other production, construction, wholesale & retail, financial & business services and public services (public administration & defence, education and health & social services). The sectoral pattern of employment growth has key implications for skills demand, which is presented later in the report. Some caution should be exercised in interpreting year-on-year employment trends due to sample size issues.

### Other production industries

Employment in other production industries, which are dominated by manufacturing, expanded in the late 1990s before declining (Figure 4.3). While the Island has been successful in attracting hi-tech manufacturing FDI, this has been more than offset recently by declines in lower value added manufacturing sectors. The large jump in manufacturing employment in 2005 and 2006 in NI, which appears to have been partly corrected in 2007, may be due to sampling issues. Though employment in production industries is declining overall, there are several niche manufacturing sectors where the all-island economy remains competitive. Growth opportunities in these sub-sectors, such as pharmaceuticals have important implications for the demand for higher level qualifications and skills. Recently the South's employment performance in other production industries has been stronger.

**Figure 4.3: All-Island other production industries employment trends**



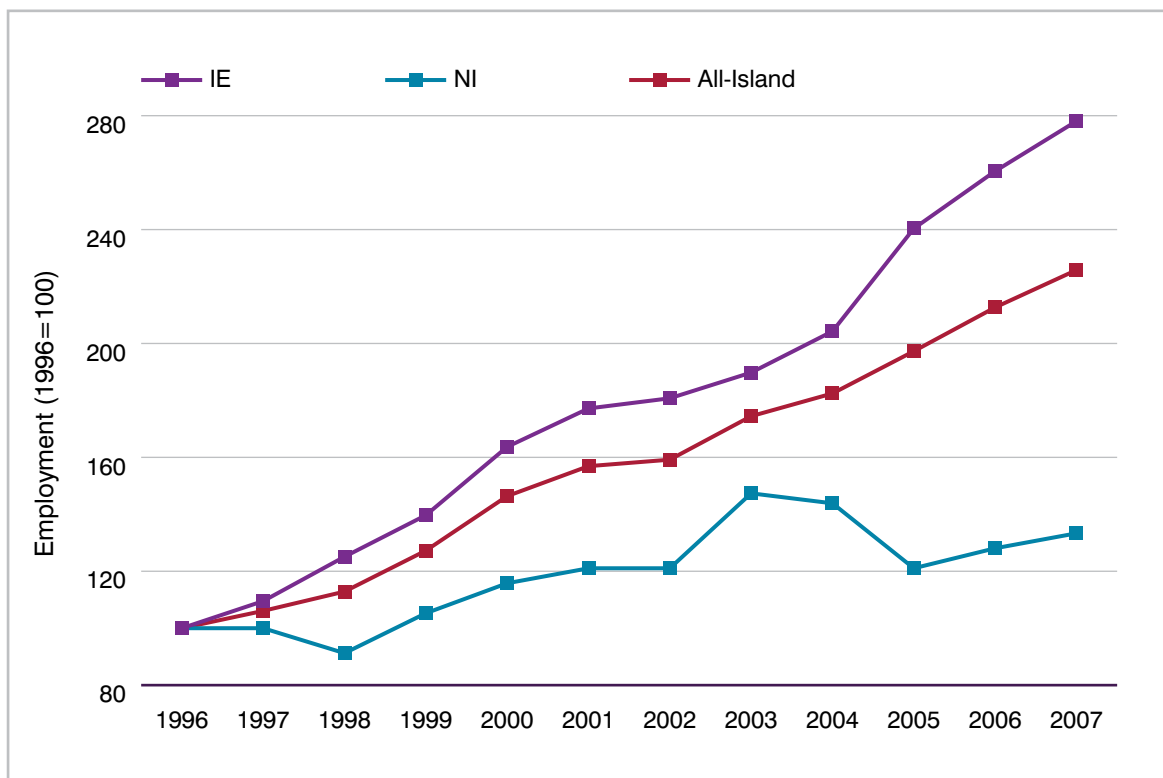
Source: CSO QNHS and DETI LFS.

Note: See note for Figure 3.1. Other production industries include manufacturing, utilities and mining & quarrying.

### Construction

As Figure 4.4 shows, Ireland's construction sector enjoyed a period of remarkable growth over the last decade as both the non-residential sector expanded (due to strong economic growth) and the residential sector grew exponentially with the booming housing market fuelled by rising wealth. NI has enjoyed a construction boom somewhat later than Ireland though this does not show up fully in the LFS data which may be due to sampling issues. As explained earlier, growth in construction has created employment opportunities for a range of skilled labour, including those with lower skills.

**Figure 4.4: All-Island construction employment trends**

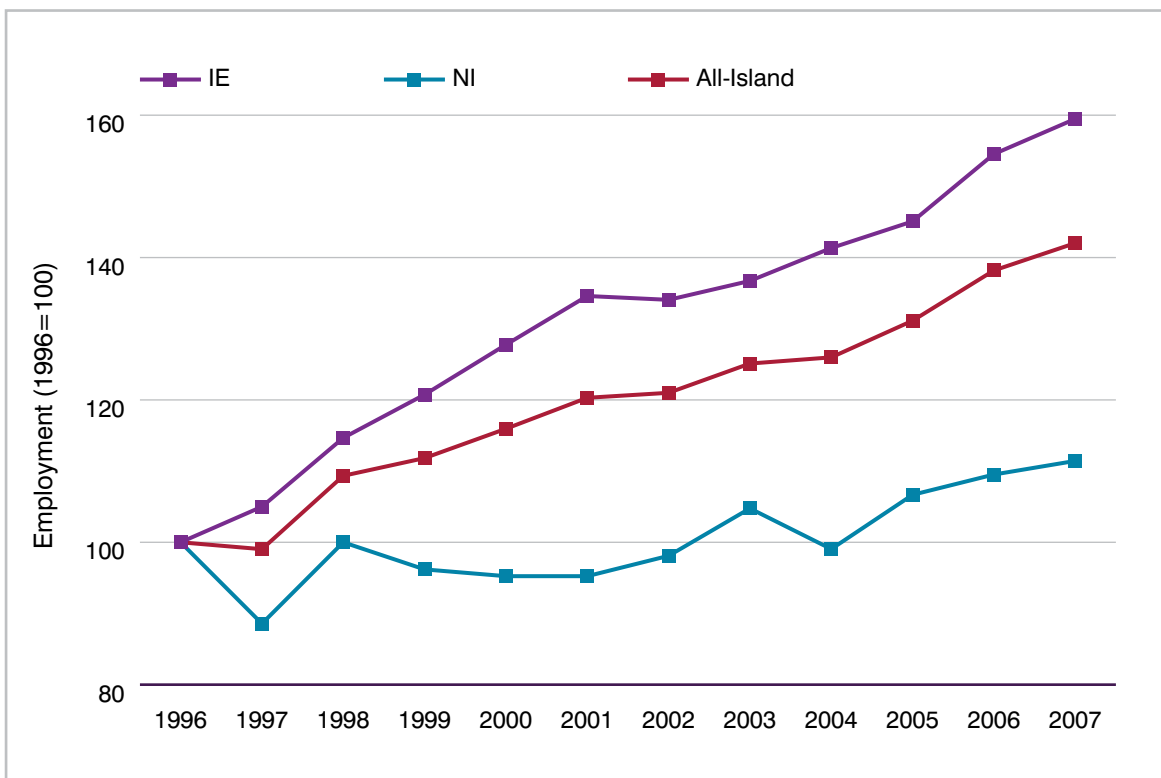


Source: CSO QNHS and DETI LFS.

### Wholesale & retail

Wholesale & retail employment has grown consistently over the last decade in Ireland, expanding by over 55 per cent (Figure 4.5). The number of persons employed in retail in NI has also increased, with the growth more marked if measured from 1997. Despite NI's retail 'catch up' with the arrival of multinational and national retailers, its rate of growth has lagged behind Ireland. This is partly explained by Ireland's faster rate of population growth which is a driver of growth in secondary sectors such as retail and construction. In addition the stronger performance of manufacturing in the South will have driven faster growth in the distribution element of the sector.

**Figure 4.5: All-Island wholesale and retail employment trends**



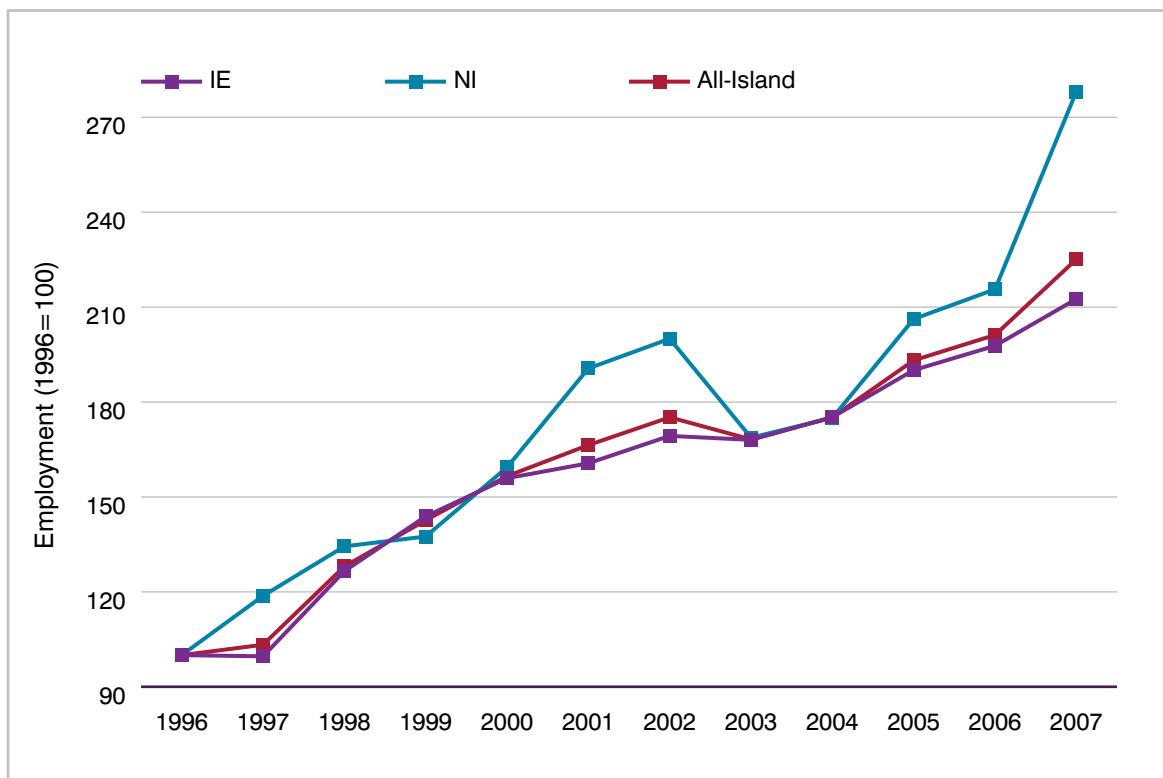
Source: CSO QNHS and DETI LFS.



### Financial and business services

The transformation from traditional agriculture/manufacturing to services in both economies is most evident from the rapid expansion of financial and business services. Recent trends North and South in business and financial services employment are remarkably similar with the sector in both jurisdictions roughly doubling in size in employment terms in the last decade, due to FDI and the sector becoming more export orientated. Although NI started from a lower base and its financial and business service sector is more skewed towards call centres as opposed to international financial services which have different skill needs.

**Figure 4.6: All-Island financial and business service employment trends**

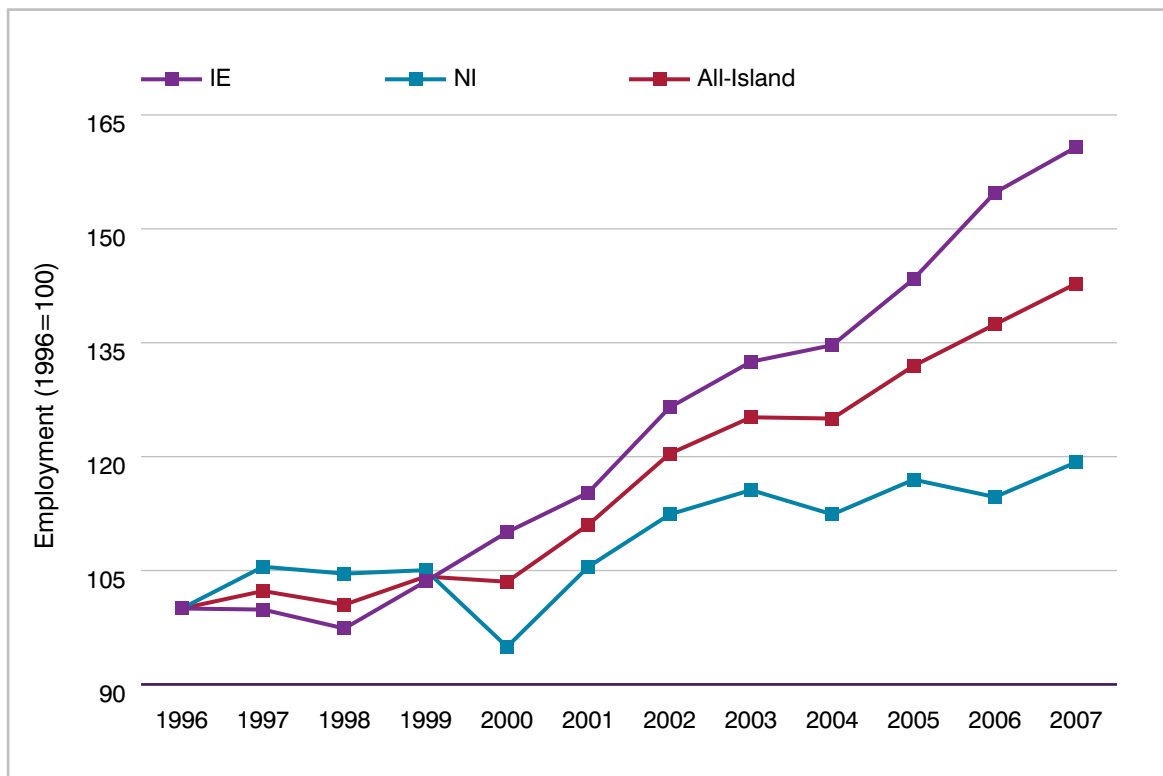


Source: CSO QNHS and DETI LFS.

### Public administration & defence, education and health & social work

Public administration, education, health and social work employment in Northern Ireland increased by 20 per cent over the last decade. Note this definition includes elements of private education and health that are difficult to remove from the data. This phase coincided with the public sector expansion initiated by the incoming Labour government in 1997 after its initial moratorium on increased spending. Ireland's expansion in public services employment has been even faster, with particularly strong growth in health, though the sector started from a smaller base and in relative terms is still smaller than NI's large public sector. Again this growth is partly linked to the need to provide public services to the faster growing population. While public administration employment is less driven by population than education and health, even here the provision of police officers, staff in benefit offices etc. will depend somewhat on population trends.

**Figure 4.7: All-Island public administration, education, health & social services employment trends**



Source: CSO QNHS and DETI LFS.

Note: See note for Figure 3.1. This definition will include elements of private education and health which are difficult to remove from the data.

A summary of recent employment change for the South, North and the all-island, in absolute and per cent growth terms, is provided in Table 4.1 below.

**Table 4.1: All-Island recent change in employment by sector**

	Change 1996-2007 (000's)			Change 1996-2007 (annual average %)		
	Ireland	Northern Ireland	All-Island	Ireland	Northern Ireland	All-Island
Agriculture, forestry & fishing	-27	2	-25	-2%	1%	-1%
Other production industries	25	-3	22	1%	0%	1%
Construction	180	19	199	10%	3%	8%
Wholesale & retail	110	12	122	4%	1%	3%
Hotels & restaurants	51	-2	49	5%	-1%	4%
Transport & communications	61	6	67	7%	2%	5%
Financial & business services	152	57	209	7%	10%	8%
Public administration & defence	29	-18	11	3%	-2%	1%
Education	47	7	54	4%	1%	3%
Health & social work	98	53	151	6%	6%	6%
Other personal services	41	13	54	4%	4%	4%

Source: CSO QNHS and DETI LFS.

### *International comparison of sectoral trends*

Recent all-island employment trends share some similarities with international comparators though the fact that the economy has grown strongly across so many sectors makes it more difficult to compare. The US, UK and France, like the all-island economy, have experienced growth in construction, retail, financial & business services and public admin, education, health and social services (Table 4.2). The main difference, with the exception of rates of growth, is that the all-island economy has not shed jobs in other production industries and also the size of the contribution of construction growth to overall employment growth.

**Table 4.2: All-Island recent change in employment by sector – international comparison**

	% change (1996-2007)				
	All-Island	US	Germany	UK	France
Agriculture, forestry & fishing	-15%	6%	-5%	-15%	1%
Other production industries	6%	-17%	-9%	-30%	-10%
Construction	126%	38%	-37%	39%	25%
Wholesale & retail	42%	14%	8%	15%	23%
Transport & communications	75%	7%	2%	14%	13%
Financial & business services	125%	29%	41%	39%	44%
Government & community services	52%	23%	7%	25%	11%

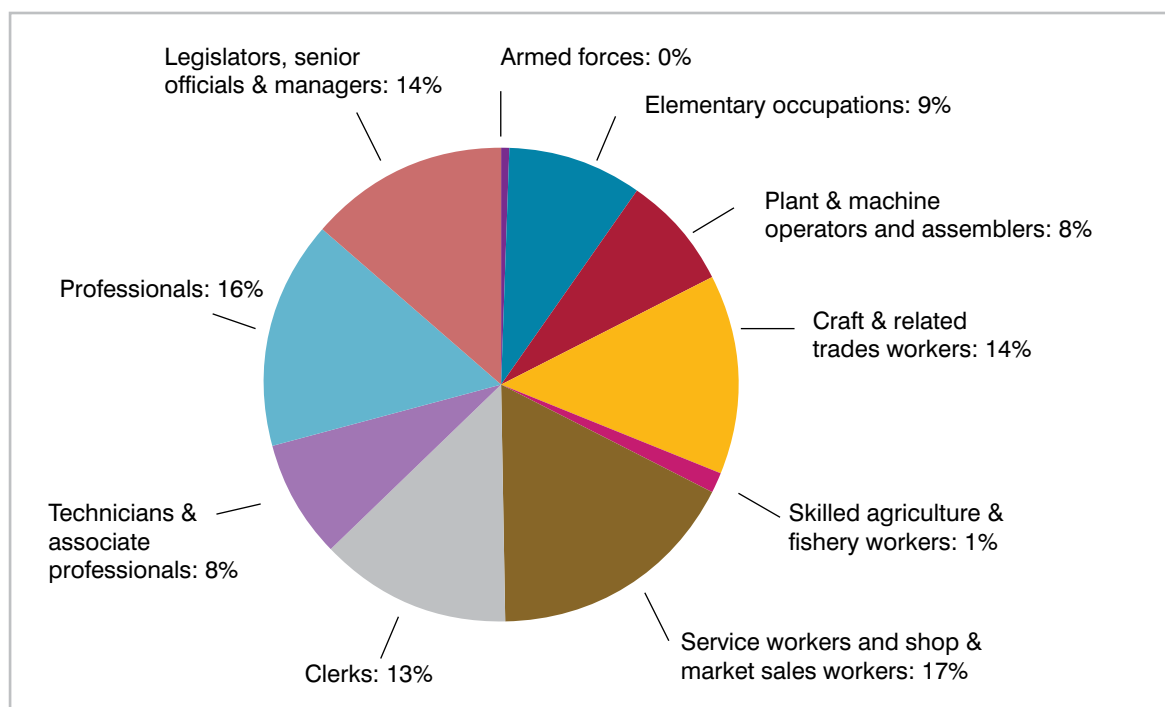
Source: CSO QNHS, DETI LFS and Haver Analytics.

### 4.3.2 Occupation Recent Trends

#### Occupation structure

Figure 4.8 below summarises the occupation structure of all-island employment at 1-digit ISCO 88 level. Almost 2 in 5 occupations are managerial and professional (38 per cent) with less than 1 in 5 in elementary and plant & machine operator occupations (17 per cent). This impacts directly on the current stock of skills in employment as different occupations generally have quite distinct skill profiles.

**Figure 4.8: All-Island occupation structure (2007)**

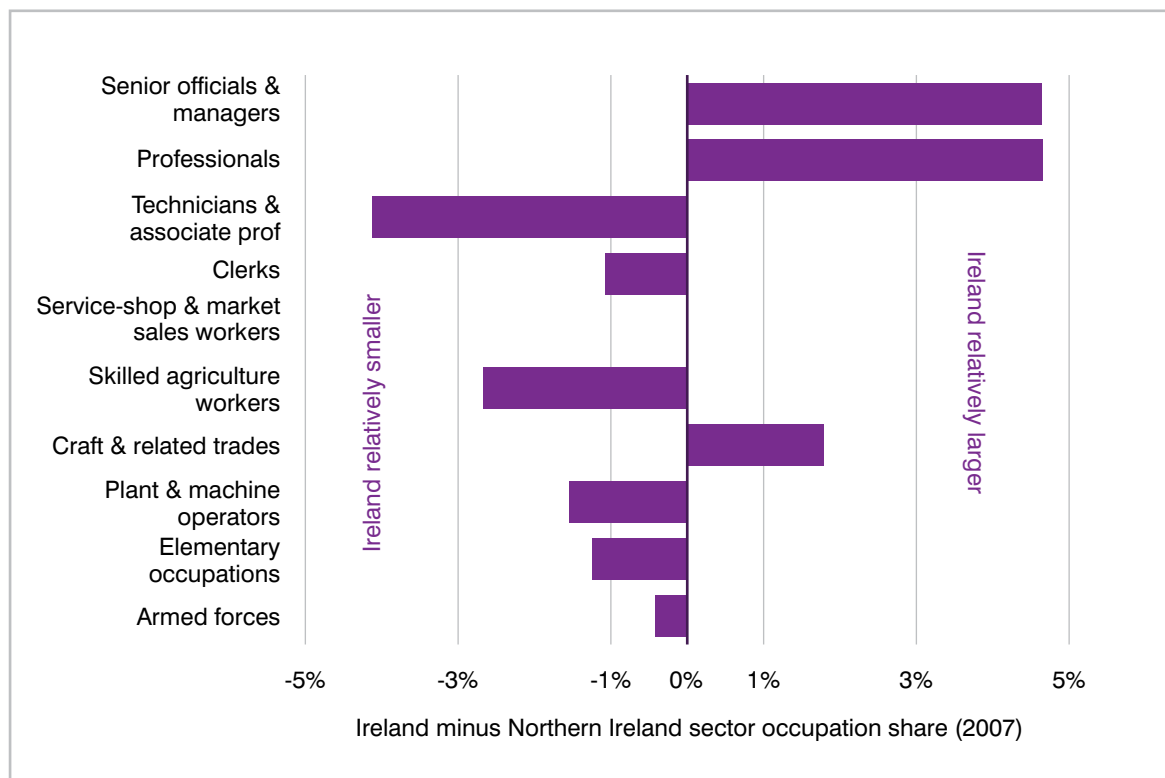


Source: CSO QNHS, DETI LFS and Oxford Economics.

Note: Occupation classification based on ISCO 88.

Comparing Ireland to NI occupations, Figure 4.9 below shows that the South has a higher share of managers and professionals (though NI has a higher share of associate professionals) and a lower share of elementary occupations. Differences between professional and associate professionals should be interpreted with caution and partly represent differences in CSO and ONS' mapping of occupations to ISCO 88. For example CSO classifies all of nursing and midwifery as professional whereas ONS classifies nursing and midwifery as associate professional. There are also some other differences in classification. For example previously it was shown that the South has a relatively larger agriculture sector though Figure 4.9 shows NI to have a relatively higher share of skilled agriculture workers.

**Figure 4.9: Ireland minus Northern Ireland occupation structure (2007)**



Source: CSO QNHS, DETI LFS and Oxford Economics.

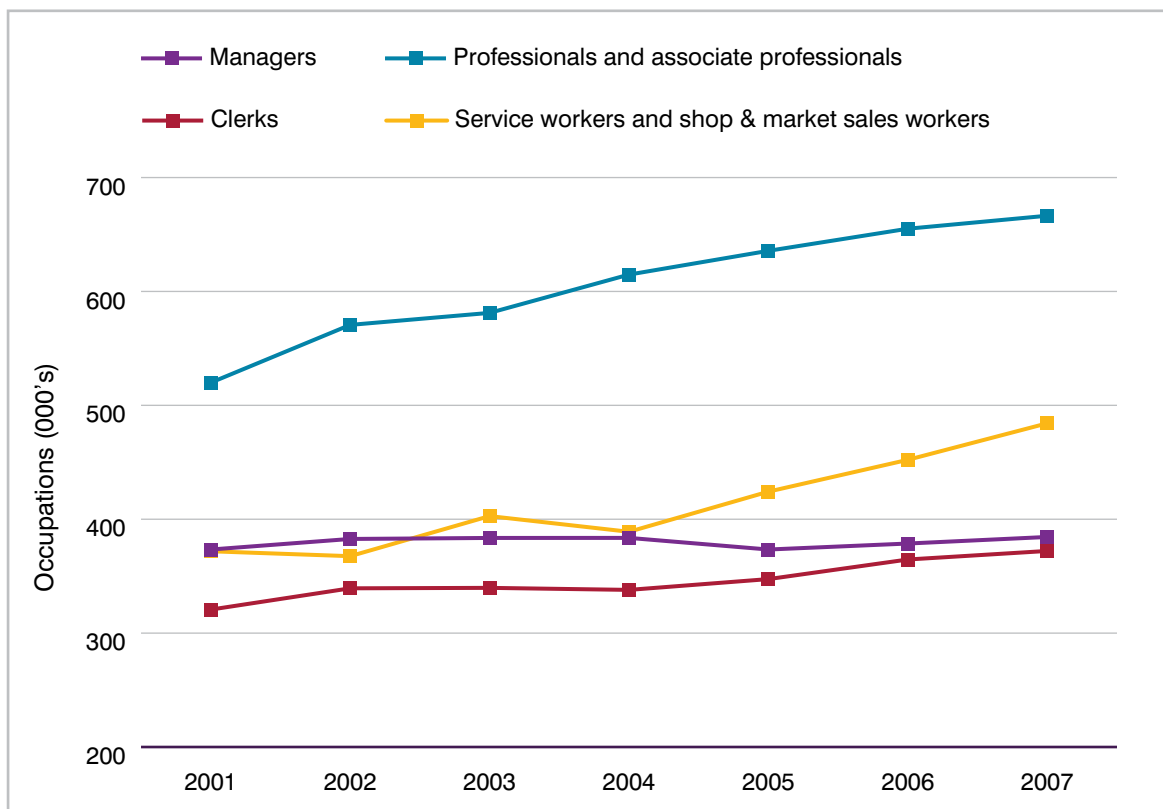
Note: Occupation classification based on ISCO 88. Bars to the right of the Y axis indicate that the occupation is relatively larger in Ireland in share terms compared to Northern Ireland.

### Occupational trends

Comparisons of occupational trends over time are limited by the starting point for analysis. The SOC 2000 classification was only introduced to NI in 2001, the start point for the charts below. While technically NI occupation data pre-2001 (SOC 1990) could be aligned to ISCO 88, this would create a break in the occupation data.

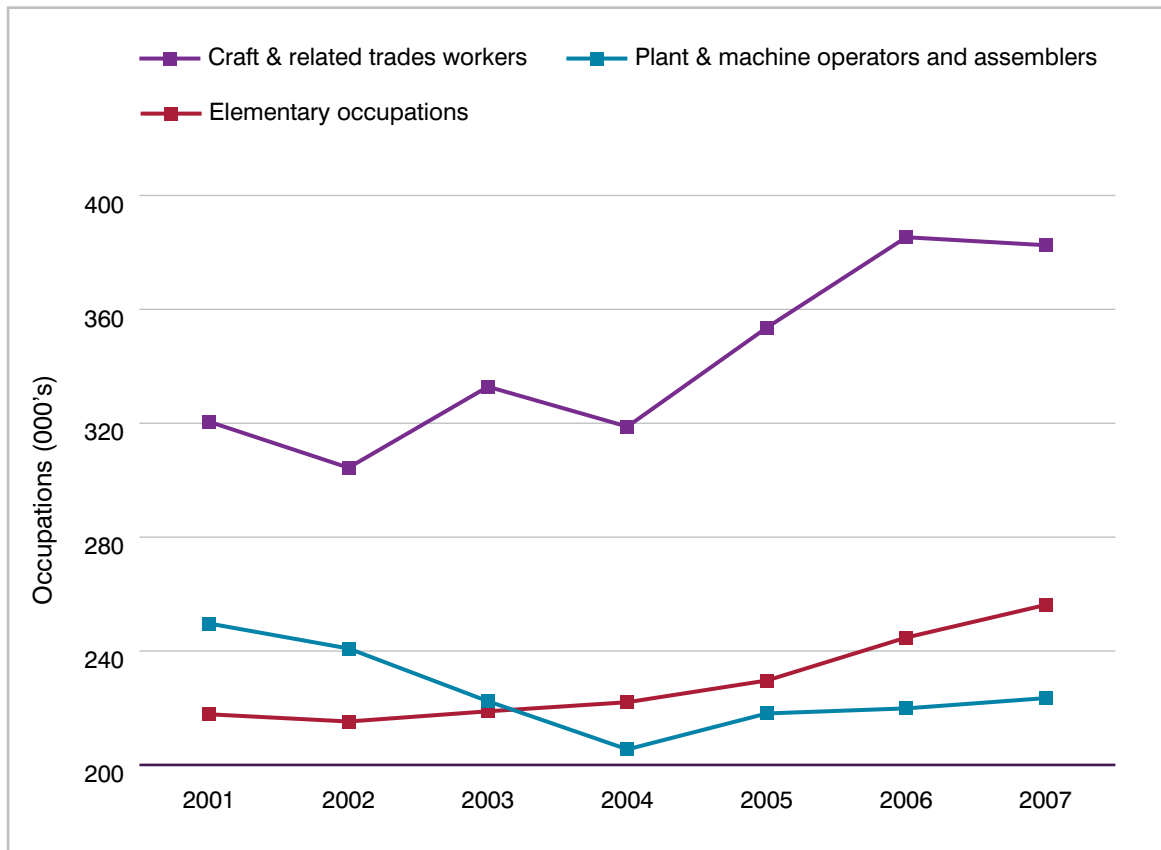
The key trends are the growth in professional occupations and craft & related trade occupations and decline in plant & machine operative occupations (Figure 4.10 and 4.11). Service and shop & market sale occupations have also risen steadily – these include, among other occupations, personal care workers, chefs and waiters/waitresses. The relative lack of growth in managerial occupations is explained by the decline in production and operation managers in industry partly offsetting growth in director/chief executive and specialist managerial occupations.

**Figure 4.10: All-Island occupational trends (1)**



Source: CSO QNHS, DETI LFS and Oxford Economics.

Figure 4.11: All-Island occupational trends (2)



Source: CSO QNHS, DETI LFS and Oxford Economics.

More detailed 2-digit ISCO 88 occupation data and trends are presented in Tables 4.3 and 4.4. 3-digit ISCO 88 occupation data for the All-Island, Ireland and Northern Ireland is presented in Annex A. Table 4.3, which estimates occupation shares of total employment, reveals some differences between North-South occupation structures such as the aforementioned issue of health professionals and health associate professionals (e.g. nurses and midwives). Table 4.4 reports absolute and per cent changes in occupations. It clearly shows how higher skilled occupations have been growing while employment in lower skilled occupations such as plant and machine operators has been declining, with the main exception being labourers in construction etc.

Note the observed trends in employment by industry, occupation and skills are closely inter-linked. The growth in professional occupations is linked to employment growth in business and financial services and other graduate hungry sectors such as hi-tech manufacturing and health, which in turn feeds through to growth in employment of persons with higher qualifications. Though it should also be noted that supply factors, such as expansion in the number of graduates from universities, can also directly affect the skills mix of persons employed, whether or not the level of skills is actually fully utilised.



**Table 4.3: All-Island employment by occupation (2007)**

	Ireland (000's)	Northern Ireland (000's)	All-Island (000's)	Ireland % total	Northern Ireland % total	All-Island % total	Ireland % minus Northern Ireland %
Legislators and senior officials	5	1	6	0.2%	0.1%	0.2%	0.1%
Corporate managers	300	72	372	14.7%	9.3%	13.2%	5.3%
Managers of small enterprises	0	6	6	0.0%	0.8%	0.2%	-0.8%
Physical, mathematical and engineering science professionals	81	24	104	3.9%	3.0%	3.7%	0.9%
Life science and health professionals	77	10	87	3.7%	1.3%	3.1%	2.4%
Teaching professionals	96	32	128	4.7%	4.1%	4.5%	0.6%
Other professionals	93	29	122	4.5%	3.8%	4.3%	0.7%
Physical and engineering science associate professionals	29	17	46	1.4%	2.1%	1.6%	-0.7%
Life science and health associate professionals	13	32	45	0.6%	4.2%	1.6%	-3.6%
Teaching associate professionals	9	3	12	0.4%	0.4%	0.4%	0.0%
Other associate professionals	90	33	122	4.4%	4.2%	4.3%	0.1%
Office clerks	209	85	295	10.2%	11.0%	10.4%	-0.8%
Customer services clerks	55	23	77	2.7%	2.9%	2.7%	-0.3%
Personal and protective services workers	224	78	302	10.9%	10.1%	10.7%	0.8%
Models, salespersons and demonstrators	128	55	182	6.2%	7.1%	6.5%	-0.9%
Skilled agricultural and fishery workers	14	26	40	0.7%	3.4%	1.4%	-2.7%
Extraction and building trades workers	191	55	246	9.3%	7.2%	8.7%	2.1%
Metal, machinery and related trades workers	71	31	102	3.5%	4.0%	3.6%	-0.5%
Precision, handicraft, craft printing and related trades workers	11	3	14	0.5%	0.4%	0.5%	0.2%

	Ireland (000's)	Northern Ireland (000's)	All-Island (000's)	Ireland % total	Northern Ireland % total	All-Island % total	Ireland % minus Northern Ireland %
Other craft and related trades workers	15	5	20	0.7%	0.7%	0.7%	0.0%
Stationary plant and related operators	13	6	19	0.6%	0.8%	0.7%	-0.1%
Machine operators and assemblers	48	30	78	2.3%	3.8%	2.7%	-1.5%
Drivers and mobile plant operators	92	34	127	4.5%	4.4%	4.5%	0.1%
Sales and services elementary occupations	77	55	132	3.7%	7.1%	4.7%	-3.4%
Agricultural, fishery and related labourers	12	2	14	0.6%	0.3%	0.5%	0.3%
Labourers in mining, construction, manufacturing and transport	90	20	110	4.4%	2.6%	3.9%	1.8%
Armed forces	6	6	12	0.3%	0.7%	0.4%	-0.4%
<b>Total</b>	<b>2,048</b>	<b>774</b>	<b>2,822</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>
Occupation not stated	47	4	52	–	–	–	
Total persons in employment	2,095	778	2,873	–	–	–	

Source: CSO QNHS, DETI LFS and Oxford Economics.

Note: Occupation classification based on ISCO 88. Cells shaded in blue in final column indicate Ireland occupation share more than 1 per cent higher than NI occupation share. Cells shaded in lilac in final column indicate Ireland occupation share is more than 1 per cent less than NI occupation share.

**Table 4.4: All-Island recent change in employment by occupation**

	Change 2001-2007 (000's)			Change 2001-2007 (annual average %)		
	Ireland	Northern Ireland	All-Island	Ireland	Northern Ireland	All-Island
Legislators and senior officials	1	0	1	4%	2%	3%
Corporate managers	8	3	11	0%	1%	1%
Managers of small enterprises	0	-1	-1	0%	-3%	-3%
Physical, mathematical and engineering science professionals	19	5	24	5%	4%	4%
Life science and health professionals	17	1	18	4%	2%	4%
Teaching professionals	19	2	21	4%	1%	3%
Other professionals	24	11	35	5%	8%	6%
Physical and engineering science associate professionals	3	5	8	2%	6%	3%
Life science and health associate professionals	3	8	11	5%	5%	5%
Teaching associate professionals	6	1	6	18%	3%	12%
Other associate professionals	18	6	24	4%	3%	4%
Office clerks	34	7	41	3%	1%	3%
Customer services clerks	5	5	11	2%	5%	3%
Personal and protective services workers	69	2	71	6%	0%	5%
Salespersons, demonstrators and models	32	9	41	5%	3%	4%
Skilled agricultural and fishery workers	-1	9	8	-1%	7%	4%
Extraction and building trades workers	61	7	68	7%	2%	6%
Metal, machinery and related trades workers	2	0	2	1%	0%	0%
Precision, handicraft, craft printing and related trades workers	-1	-1	-1	-1%	-3%	-1%

	Change 2001-2007 (000's)			Change 2001-2007 (annual average %)		
	Ireland	Northern Ireland	All-Island	Ireland	Northern Ireland	All-Island
Other craft and related trades workers	-6	-1	-7	-5%	-4%	-5%
Stationary plant and related operators	-11	1	-10	-10%	2%	-7%
Machine operators and assemblers	-37	4	-33	-9%	2%	-6%
Drivers and mobile plant operators	14	3	17	3%	1%	2%
Sales and services elementary occupations	16	2	18	4%	1%	2%
Agricultural, fishery and related labourers	-2	-1	-3	-2%	-8%	-4%
Labourers in mining, construction, manufacturing and transport	32	-8	24	8%	-6%	4%
Armed forces	0	2	2	-1%	9%	3%
<b>Total</b>	<b>328</b>	<b>77</b>	<b>405</b>	<b>3%</b>	<b>2%</b>	<b>3%</b>

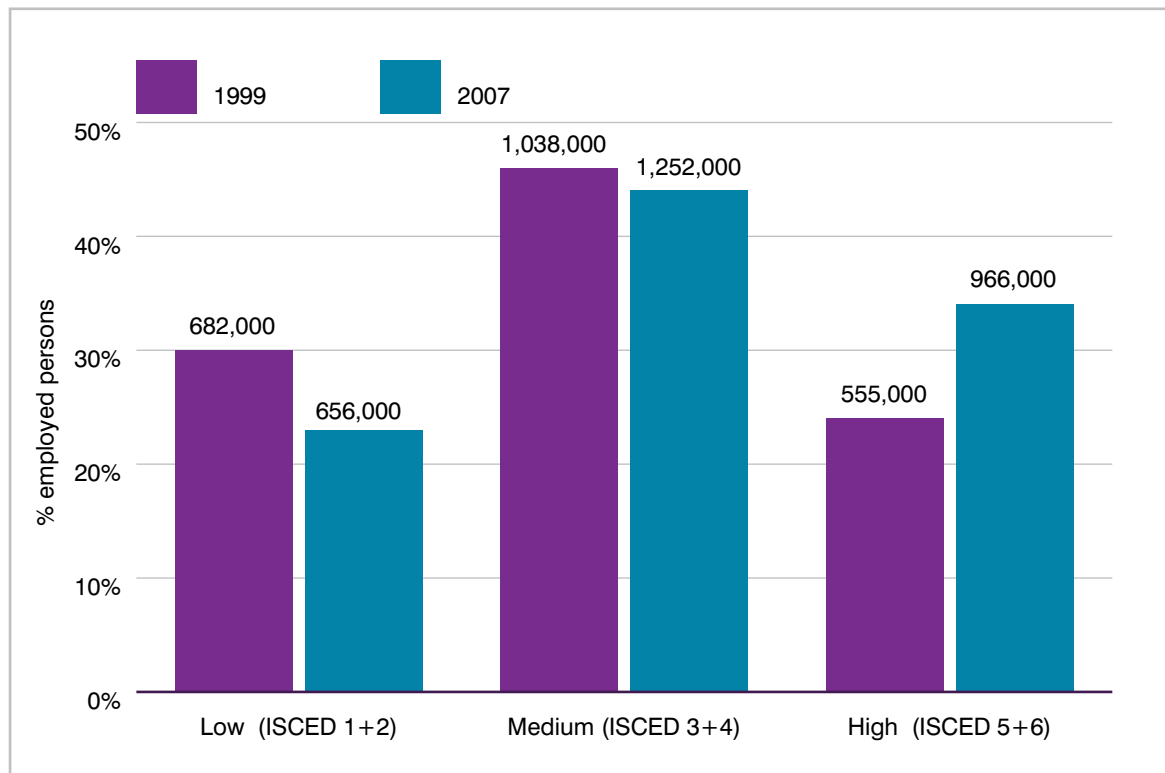
Source: CSO QNHS, DETI LFS and Oxford Economics.

Note: Occupation classification based on ISCO 88. Cells shaded in blue in final three columns indicate an annual average growth rate of more than 3 per cent. Cells shaded in lilac in final three columns indicate an annual average growth rate of less than 3 per cent.

### 4.3.3 Employed Skills Recent Trends

Figure 4.12 below provides a high level summary of recent all-island trends by share and absolute numbers of employed skill levels. These trends are discussed in depth next, emphasising the growth in employment of persons with high qualifications.

**Figure 4.12: All-Island employed persons skills trends – share of total**

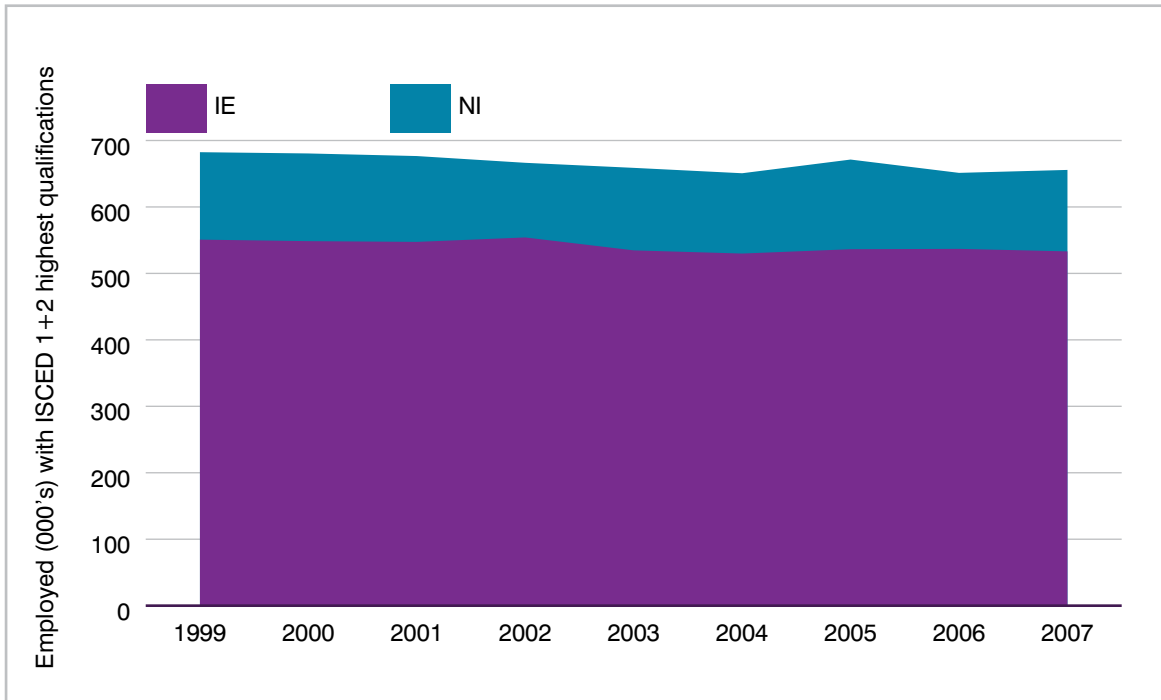


Source: CSO QNHS, DETI LFS and Oxford Economics.

#### Low qualifications

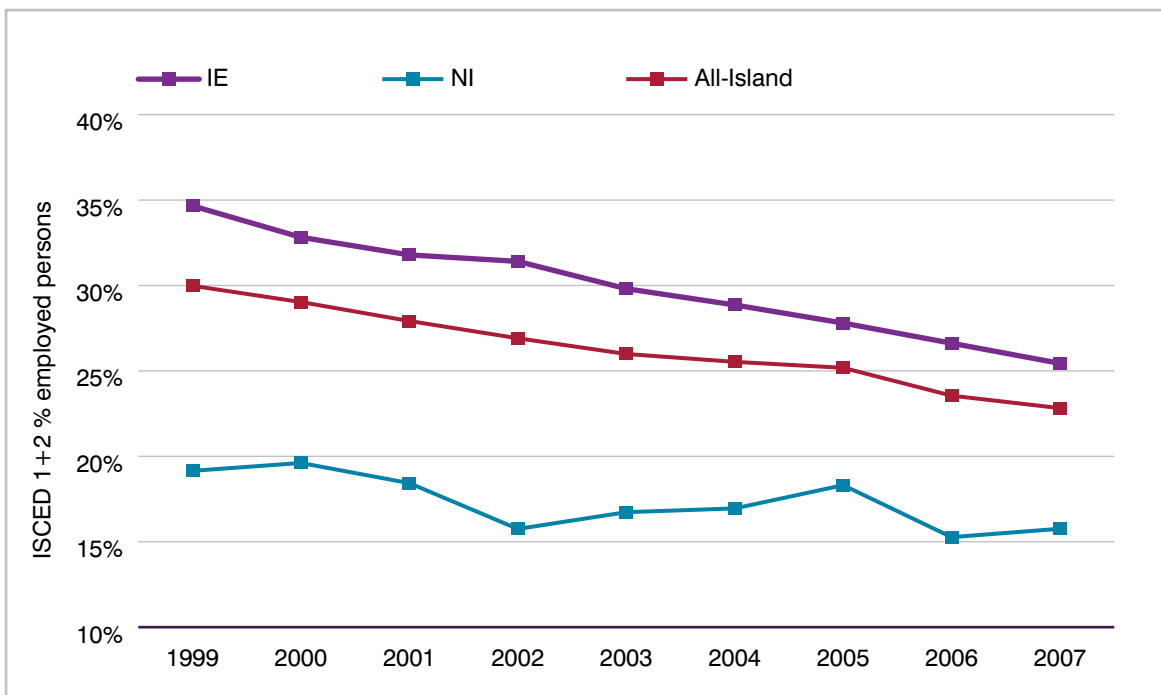
The number of employed persons with low qualifications, while falling in share terms, has not fallen as significantly in absolute numbers as might be expected (Figure 4.13 and 4.24). This is despite the transformation in the all-island economy with the decline in employment in traditionally low skilled sectors such as agriculture and manufacturing sub-sectors such as textiles, and a fall in the number of working-age persons with low attainment levels. The decline overall has been less than 4 per cent in number terms. Much of the explanation for this may be the rapid growth in construction employment which is not forecast to be repeated. Nevertheless this recent evidence of continued, albeit reduced demand for employees with lower level skills is important to bear in mind for forecasting future skill needs.

Figure 4.13: All-Island employed persons skills trends – low qualifications (absolute numbers)



Source: CSO QNHS, DETI LFS and Oxford Economics.

Figure 4.14: All-Island employed persons skills trends – low qualifications (share of total employment)

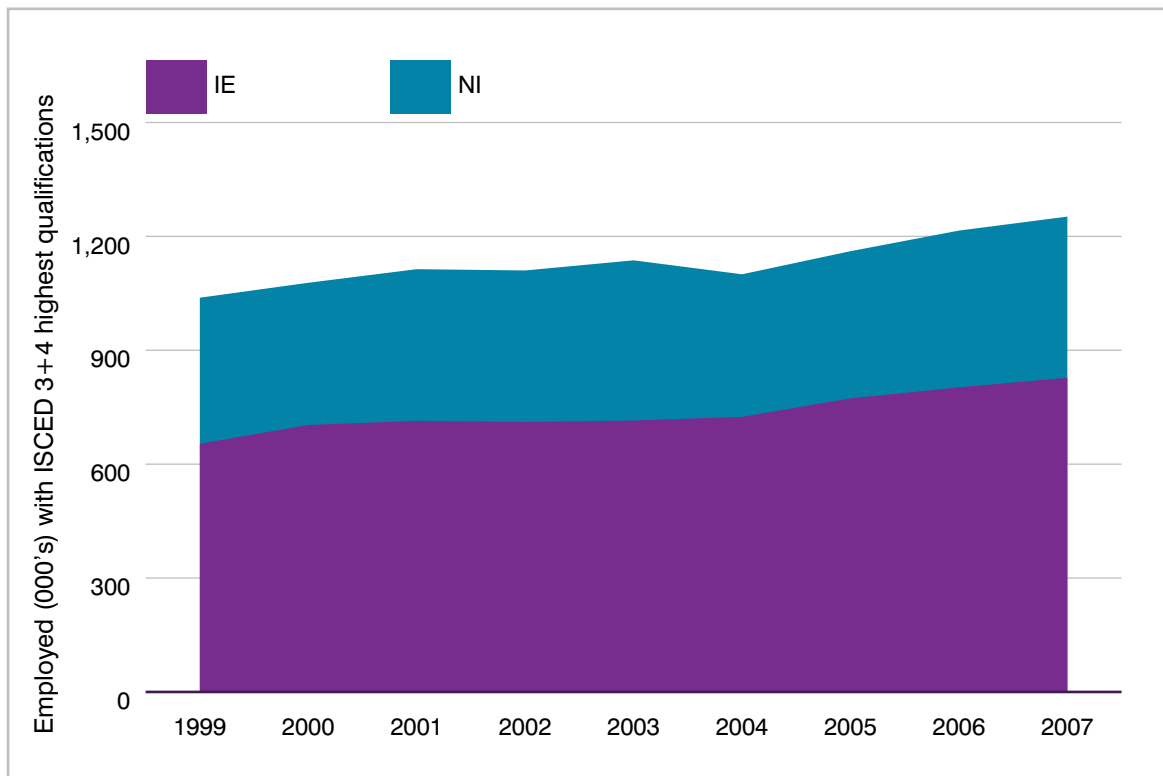


Source: CSO QNHS, DETI LFS and Oxford Economics.

### Medium qualifications

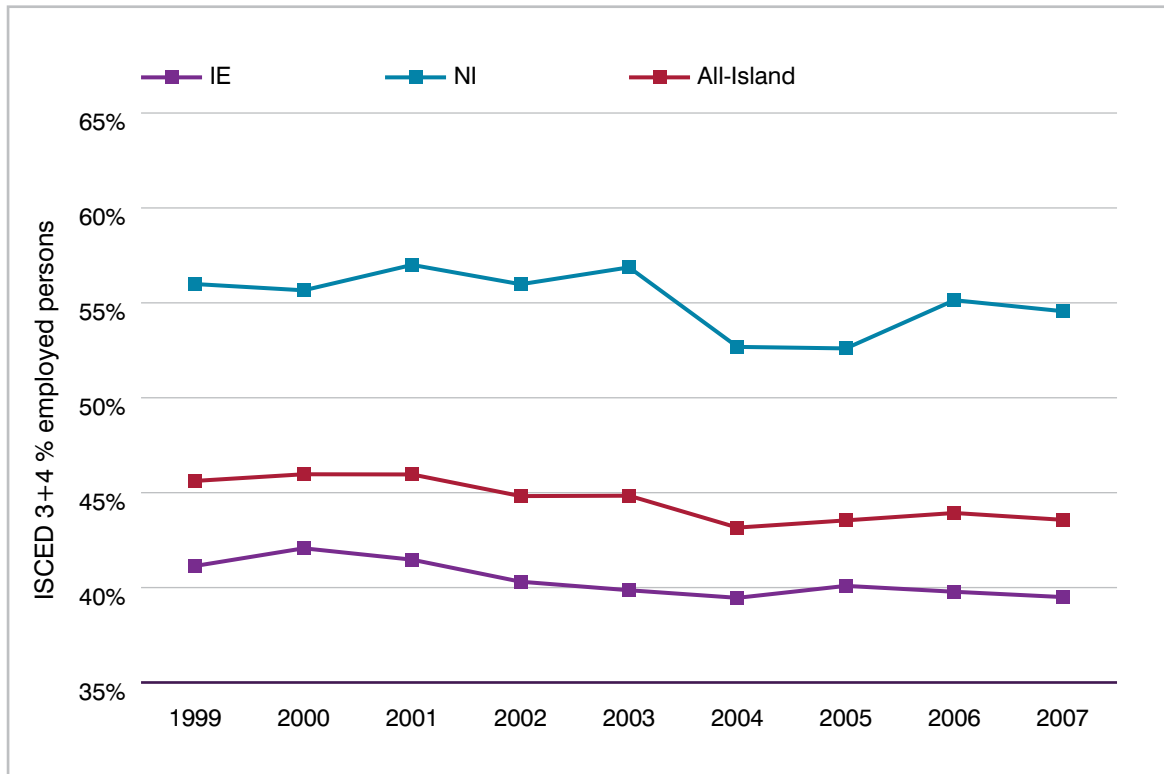
The number of employed persons with medium qualifications has risen moderately though declined slightly in share terms (Figure 4.15 and 4.16). This is a similar trend to that observed for the working-age population as a whole.

**Figure 4.15: All-Island employed persons skills trends – medium qualifications (absolute numbers)**



Source: CSO QNHS, DETI LFS and Oxford Economics.

**Figure 4.16: All-Island employed persons skills trends – medium qualifications  
(share of total employment)**



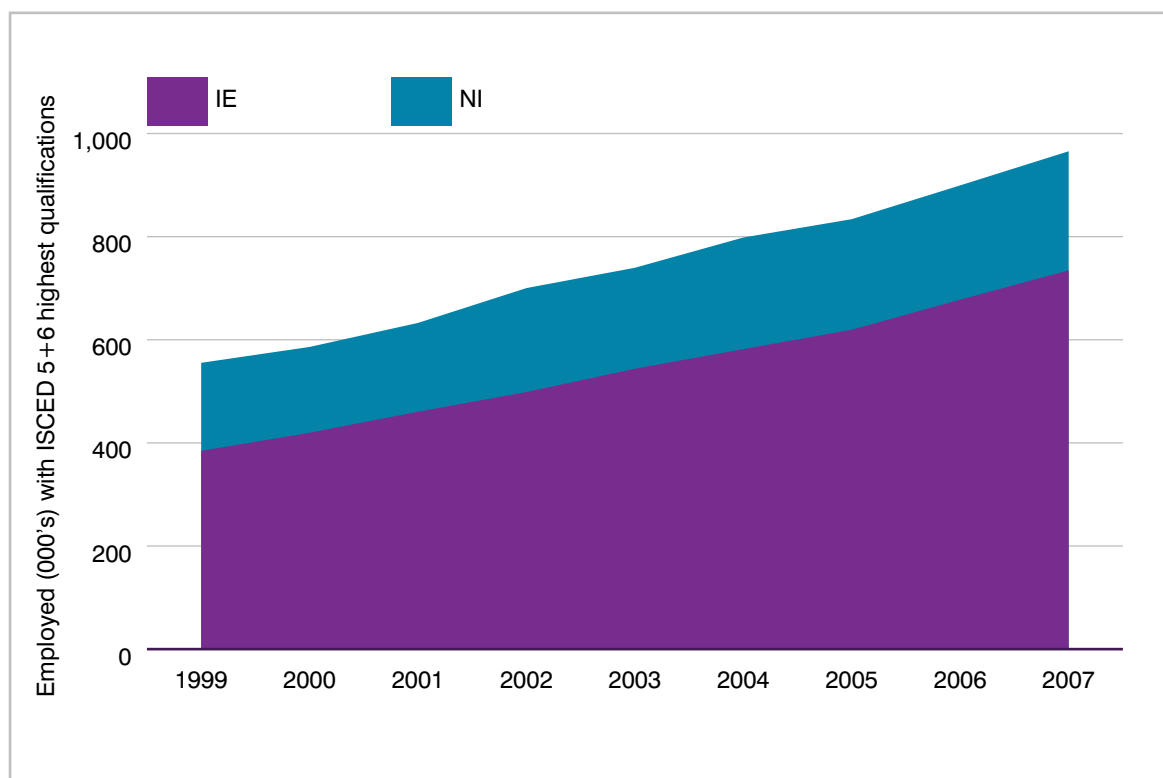
Source: CSO QNHS, DETI LFS and Oxford Economics.



### High qualifications

Like the working-age skill trends in the previous chapter, the most marked trend in employment by skill level is the rapid growth in employed persons with third level higher qualifications (Figure 4.17 and 4.18). Again the North and South's shares have moved closely together, although NI's share of employed persons with higher qualifications has remained flat since 2004 according to the LFS. Compared to 1999, the QNHS and LFS estimate that there are now 340,000 more graduates in employment in the All-Island economy.

**Figure 4.17: All-Island employed persons skills trends – high qualifications (absolute numbers)**



Source: CSO QNHS, DETI LFS and Oxford Economics.

**Figure 4.18: All-Island employed persons skills trends – high qualifications (share of total employment)**



Source: CSO QNHS, DETI LFS and Oxford Economics.

### *International comparison of employed skill trends*

The CEDEFOP report on 'Future Skill Needs in Europe' presents for the first time a consistent and medium-term forecast along with a historical series of employment and skill needs across the whole of Europe. Table 4.5 below reports historical growth rates in employment by ISCED skill level for the EU25 economies combined from the CEDEFOP report alongside the comparative growth rates for Ireland and Northern Ireland. Broadly-speaking the same pattern of skills employment exists for the EU25 and all-island economy – highest growth for higher qualifications and slight decline in demand for persons with low qualifications.

While NI growth rates are reasonably close to EU25, Ireland has experienced much faster expansion in employment of persons with both medium and higher qualifications and a slower decline in employment of persons with lower qualifications. This is consistent with an earlier point made, that relative to other economies, there was strong growth in the South's economy across a range of sectors with divergent skill needs.

**Table 4.5: All-Island employed persons skills trends – comparison with EU25 (annual average growth 1999-2006)**

	Ireland	Northern Ireland	All-Island	EU 25
Low (ISCED 1+2)	-0.4%	-2.0%	-0.7%	-1.4%
Medium (ISCED 2+4)	3.0%	1.0%	2.3%	1.4%
High (ISCED 5+6)	8.4%	3.8%	7.1%	2.8%

Source: CSO QNHS, DETI LFS, Oxford Economics and CEDEFOP.

Note a summary of North-South similarities and differences in recent skill demand trends is presented at the end of Part D alongside similarities and differences in future skill demand trends.

#### 4.4 Part B – Skills Demand Issues

This section introduces a more micro and ‘on the ground’ dimension to skill demand issues and starts to relate demand to supply. In addition it covers the importance of generic skills and in doing so, extends the analysis beyond formal ISCED qualification categories. The section addresses the following skill demand issues:

- Vacancies;
- Hard-to-fill vacancies;
- Skills shortages; and
- The importance of generic skills.

Note data and qualitative commentary on skill demand issues does not refer to the current period as this information is not yet fully available. The most up-to-date information is though presented provided it is available for the same year for both jurisdictions. This should be borne in mind given that the situation for some sectors has changed quite significantly.

##### 4.4.1 Definition of Skill Demand Issues

- **Vacancies** – vacancies provide a useful indicator of the current demand for skills in the economy. Vacancies arise from either the creation of a new position by an employer (expansion demand) or through a person leaving an already existing position (replacement demand). It is not possible to determine whether a vacancy is due to expansion or replacement demand though vacancy data do provide an indication of what sectors and occupations are reporting vacancies and changes over time.

- **Hard-to-fill vacancies** – it is to be expected that some vacancies will prove easier for employers to fill than others. Surveys North and South (see source details in Annex C) are both specifically interested in finding out more about vacancies that employers reported as proving difficult to fill. Note there is no formal definition of a ‘difficult to fill’ vacancy – this is normally defined in terms of the individual business questioned and their current situation.
- **Skill shortages** – skill shortages are defined as those vacancies difficult to fill due to a lack of skills, a lack of qualifications required or a lack of work experience that the employer requires.
- **Labour shortages** – defined as difficult to fill vacancies where there is an insufficient number of individuals willing to take up employment opportunities.

Note the EGFSN defines skill and labour shortages in relation to the existing Irish workforce as mobile migrant labour is often relied upon to fill vacancies due to either skill or labour shortages.

Countries tend to minimise skill and labour shortages by having points-based migration policies and explicit policies to import labour, e.g. some of the Arab oil states. Were it not for the influx of Eastern European and other migrants to Ireland and later Northern Ireland with wide ranging skills, the All-Island economy would likely have grown slower due to major skill and labour shortages. Note there are often ‘blurred edges’ between labour and skill shortages and the terms are sometimes used interchangeably which is incorrect. For clarity it is preferable to think of labour shortages in terms of lack of people (who could be relatively easily trained to fill a position) and skill shortages in terms of lack of appropriately qualified and experienced people. This is the principle used in the FÁS National Skills Bulletin 2007.

- **Skill gaps** – another skills issue, often confused with but differentiated from skill shortages, is that of skill gaps. Skill gaps exist not where there are hard-to-fill vacancies but within the workplace where there is a gap between an employee’s current skill level and what is needed to meet work objectives (i.e. a similar concept to over-employment, opposite of under-employment).
- **Utilisation of skills** – closely related to skill gaps, but from the opposite perspective, is utilisation of skills. This refers specifically to workers in possession of a higher (or lower) qualification than is required for the job currently occupied.

Analysis of skill gaps and utilisation of skills is not presented in this study due to lack of comparable information across both jurisdictions. Although it is interesting to make the point that in NI, according to the ‘Skills at Work in NI 2006’ report, a third of workers are in possession of a qualification which is higher than the qualification required for the job they currently occupy (according to respondent’s view). Note this is not necessarily a disadvantage for an employer as ‘over qualification’ may lead to higher productivity or a better service. The prevalence of lack of utilisation of skills is quite striking given other evidence on skill shortages and skill gaps. Job and skill matching may therefore be a problem in terms of matching people and their skills to jobs that require them. No economy can expect perfect job matching but moving towards the most efficient use of labour and skills and minimising labour shortages and skill shortages and gaps is clearly central to the skills agenda.

- **Generic and ‘soft’ skills** – these skills, which are increasingly recognised alongside more formal qualifications, facilitate flexibility and responsiveness and encompass a broad range of transferable attributes ranging from numeracy and literacy to the development of soft skills such as inter-personal understanding and effective communication.

A brief outline and description of the main sources for these skill demand issues is provided as an annex chapter (Annex C).

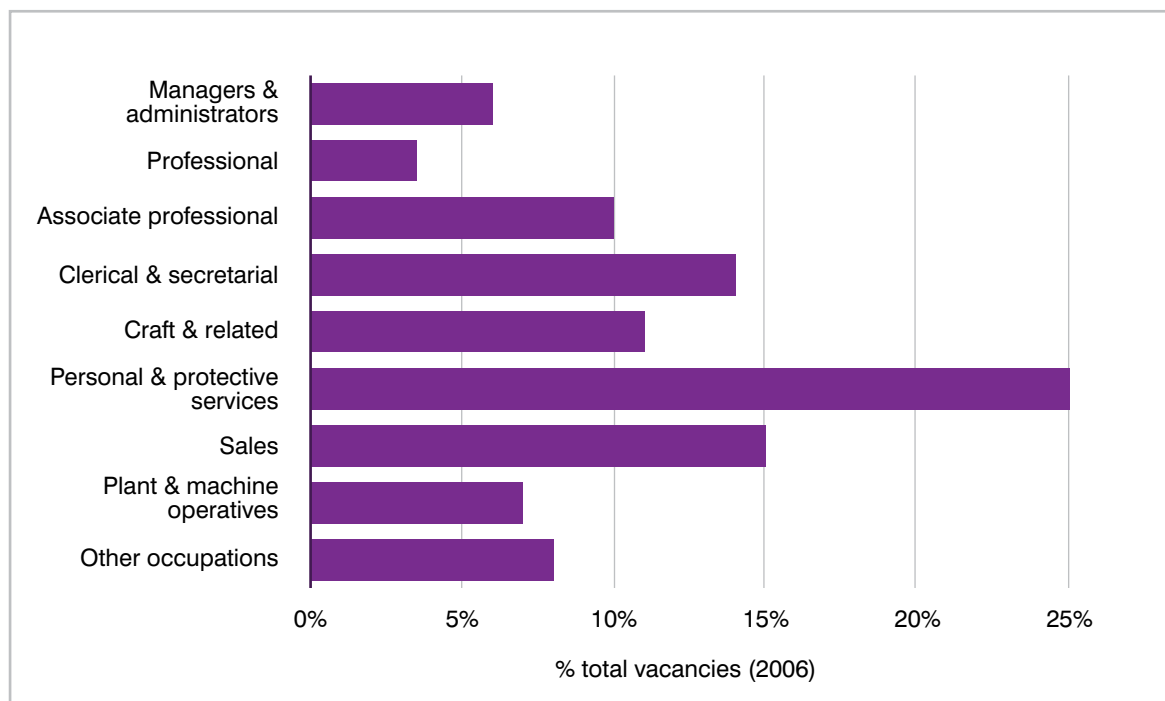
#### 4.4.2 Vacancies

##### Ireland

FÁS vacancy data for 2006 generally show a broad spread of vacancies across occupations, though for the year in question there was a noticeably higher number in personal & protective service and sales occupations (Figure 4.19). The broad range of vacancies is consistent with the recent pattern of employment growth in the South across a number of sectors.

The Irishjobs.ie vacancy data for the same period in contrast shows a different pattern, with vacancies skewed towards higher grade occupations (Figure 4.20). This should not be seen as conflicting evidence with FÁS vacancy data since the two sources serve somewhat different markets and neither are entirely comprehensive.

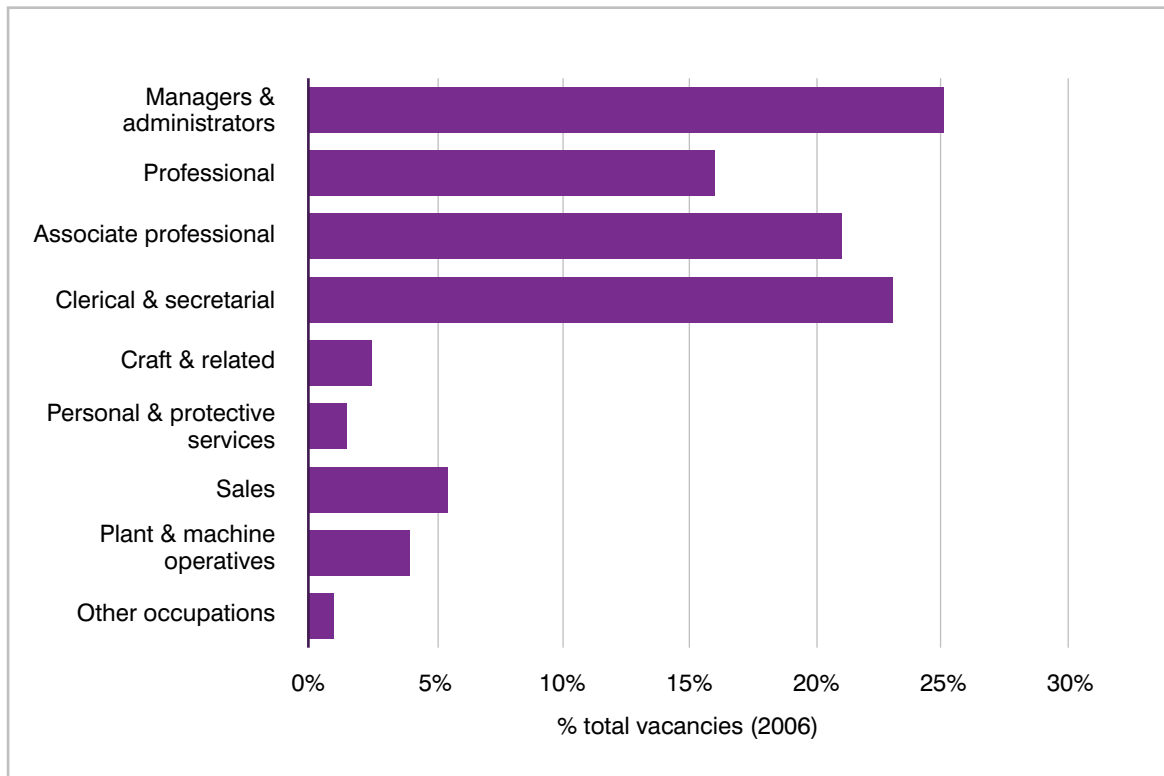
**Figure 4.19: Ireland vacancies by occupation – FÁS (2006)**



Source: FÁS (FÁS/EGFSN National Skills Bulletin 2007).

Note: Based on SOC 1990 occupation classification. Vacancies recorded are those notified to FÁS.

**Figure 4.20: Ireland vacancies by occupation – Irishjobs.ie (2006)**



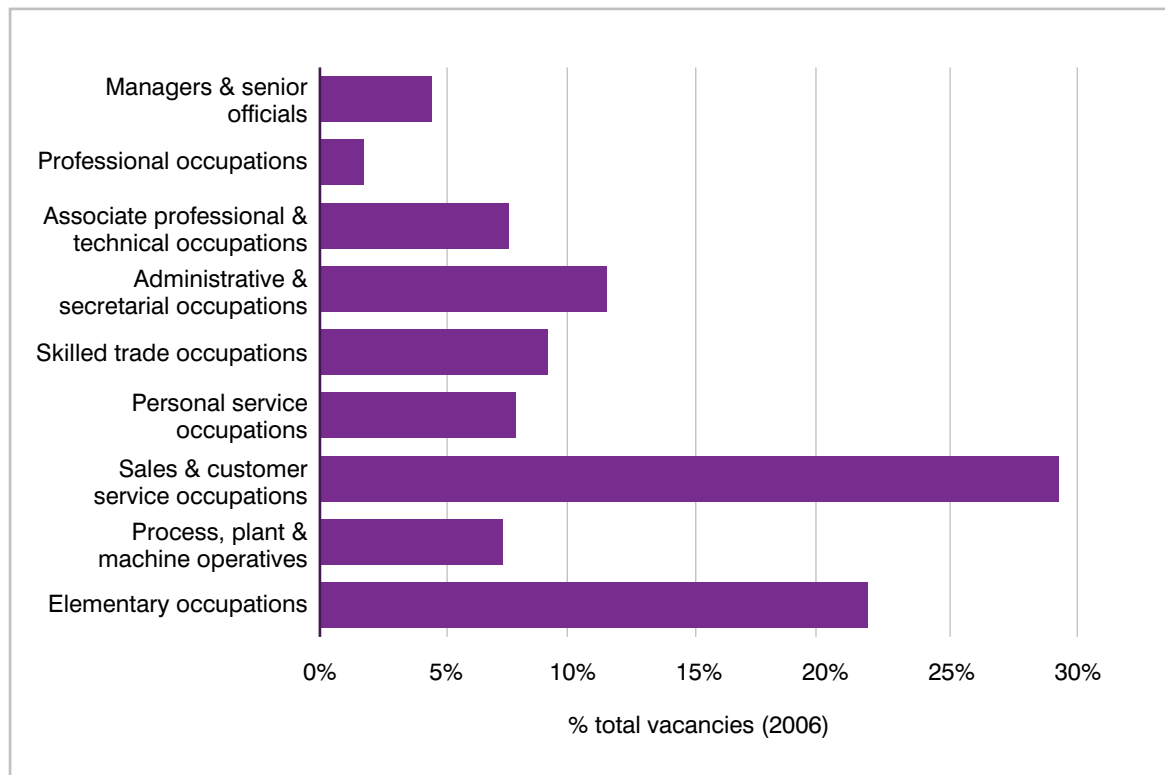
Source: Irishjobs.ie (FÁS/EGFSN National Skills Bulletin 2007).

Note: Based on SOC 1990 occupation classification. Vacancies recorded are those advertised in Irishjobs.ie.

### Northern Ireland

Half of all vacancies notified to DEL in 2006 were in two occupations – sales & customer service and elementary occupations (Figure 4.21). This distribution is similar in one respect to FÁS vacancies (sales occupations) and different in another – fewer elementary vacancies in the South. The latter may be explained in part by to the timing of economic cycles with NI experiencing a later boom in construction (i.e. construction labourers in elementary occupations). Though note also that different occupational classifications are used (SOC 1990 and SOC 2000) so an exact North-South comparison is not possible. DEL also collects information on ‘executive’ jobs advertised in the Belfast Telegraph by industry though this is not comparable to the Irishjobs.ie vacancies as it is exclusively focused on ‘executive’ jobs.

**Figure 4.21: Northern Ireland vacancies by occupation – DEL (2006)**



Source: DEL.

*Note: Based on SOC 2000 occupation classification. Vacancies are those vacancies notified to Jobcentre/Jobs & Benefits offices of DEL. The statistics do not represent the total unsatisfied demand for staff by employers within Northern Ireland but are only those vacancies notified by employers to the Department. The reported statistics represent the original number of vacancies notified by each employer. Employers may subsequently amend the original amount by adding or cancelling vacancies. The reported statistics do not take into account such amendments.*

Note it is also not possible to sum of FÁS and DEL vacancies in 2006 as FÁS vacancy data in the EGFSN National Skills Bulletin are only provided by occupational shares of the total.

### 4.4.3 Hard-to-fill Vacancies

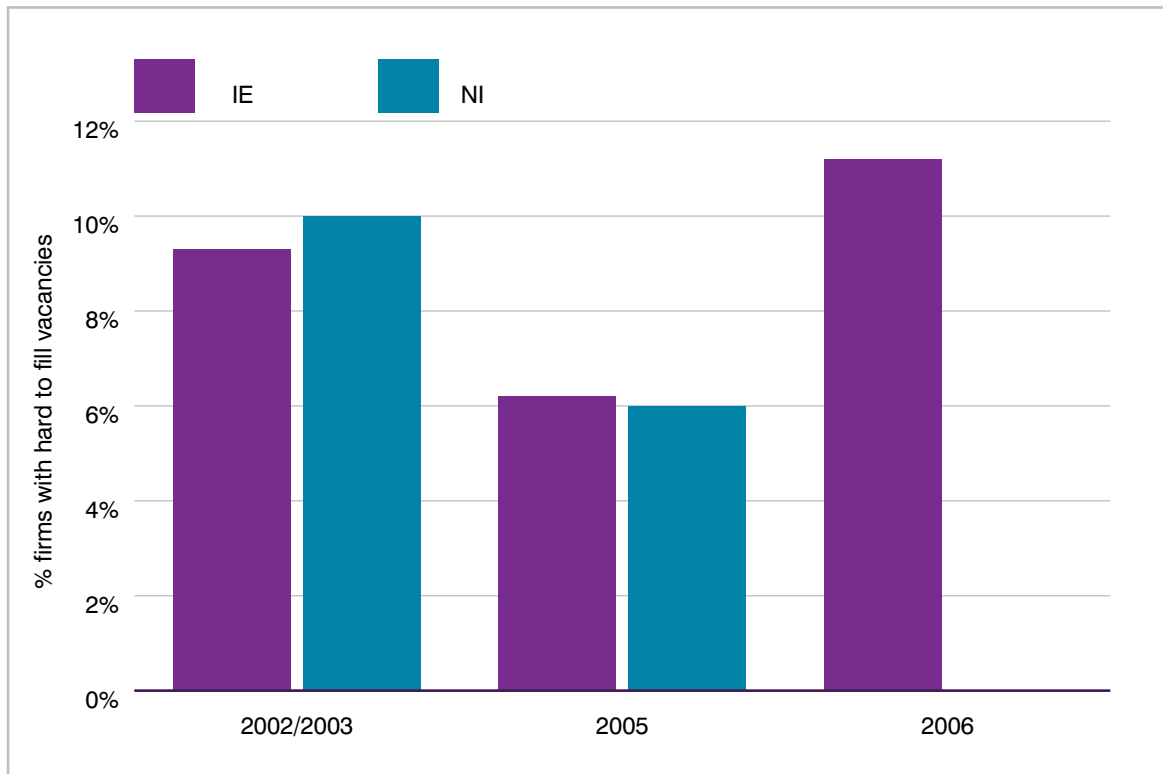
#### Ireland

The share of firms reporting hard-to-fill vacancies (i.e. mentions) fell in 2005 before rising to just over 11 per cent in 2006 (Figure 4.22). The fall in 2005 relative to 2003 may be explained by an influx of migrant labour to fill labour and skill shortages. Ireland's growth in hard-to-fill vacancies between 2005 and 2006 has been largely in industry, with engineering positions in particular most difficult to fill.

#### Northern Ireland

The shares of firms with hard-to-fill vacancies in NI also fell between 2002 and 2005. No data are available for NI since 2005 though we might expect, at least towards the end of 2006 during the main influx of migrants to NI, that hard-to-fill vacancies would not have increased to the same degree as for the South, even though the NI economy was growing strongly during this period.

**Figure 4.22: All-Island hard-to-fill vacancies**



Source: FÁS/ESRI and NI Skills Monitoring Survey.

Note: Northern Ireland data refers to 2002 and 2005. Ireland refers to 2003, 2005 and 2006.

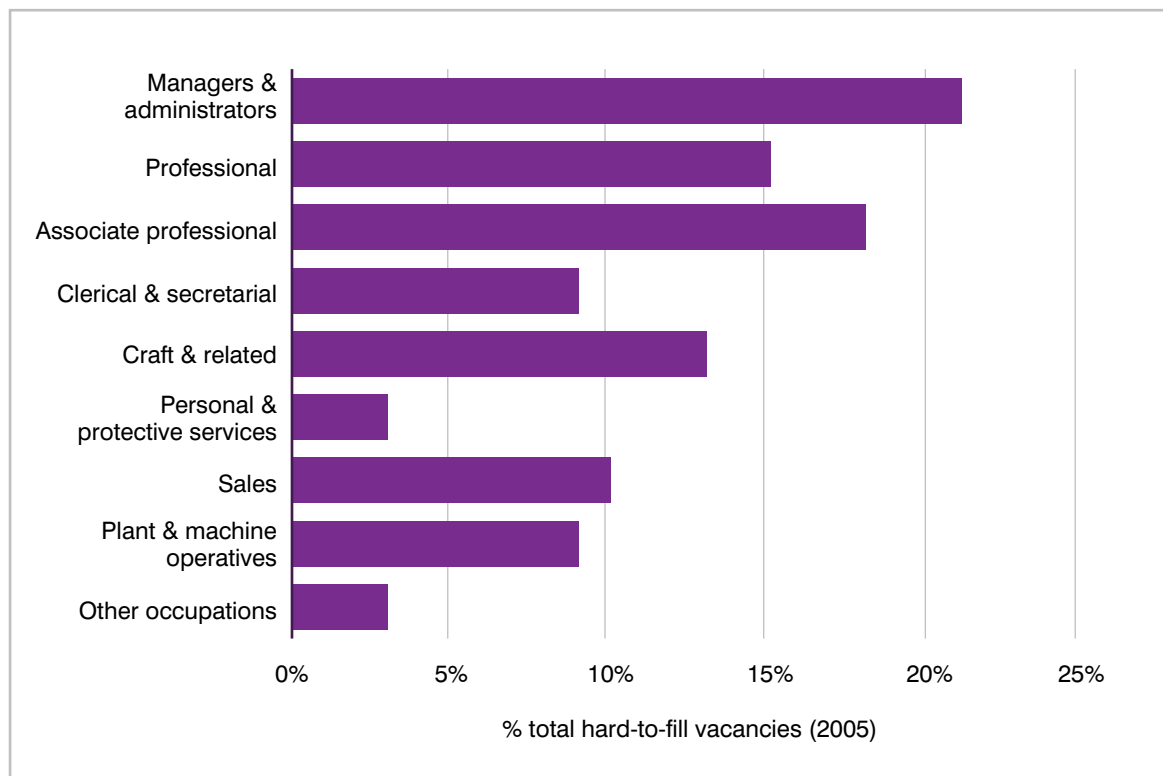


### Hard-to-fill vacancies by occupation

Comparing North-South hard-to-fill vacancies by occupation for the latest year data are available (2005)<sup>10</sup>, again a divergent pattern emerges with the South's hard-to-fill vacancies more skewed towards professional and managerial occupations and the North's towards elementary and personal service occupations (Figure 4.23 and 4.24).

Notwithstanding the differences in occupation classification, these differences are important and could be indicative of a number of trends worthy of further consideration. These could include higher demand, in relative terms, for managers and professionals in the South due to sectoral patterns in growth and the quality of jobs being created; high leaving rates in NI for lower grade occupations and the difficulty attracting the local non-employed and migrants to enter employment in these occupations, or a shortage of migrants in NI. Another way to para-phrase this situation might be to say that hard-to-fill vacancies in the South may be more related to skill shortages and in NI to labour shortages but more up-to-date data would be required to confirm this.

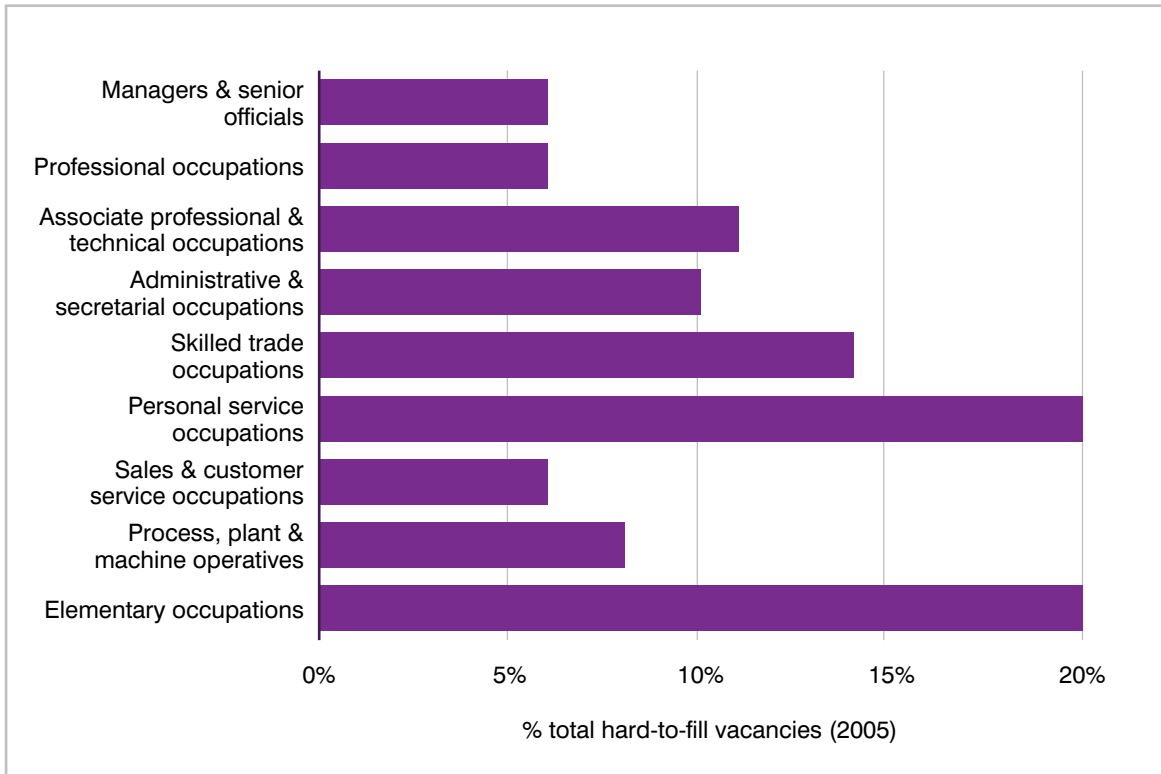
**Figure 4.23: Ireland hard-to-fill vacancies by occupation (2005)**



Source: FÁS/ESRI.

Note: Based on SOC 1990 occupation classification.

<sup>10</sup> More recent data for 2006 is available for the South but is not presented as it is preferable to make North-South comparisons for the same period.

**Figure 4.24: Northern Ireland hard-to-fill vacancies by occupation (2005)**

Source: NI Skills Monitoring Survey.

Note: Based on SOC 2000 occupation classification.

Further analysis of NI's hard-to-fill vacancies in 2005 from the NI Skills Monitoring Survey revealed the following characteristics: larger employers with 50 or more staff were more likely to report a current difficult to fill vacancy; the financial services sector had the highest incidence of employers reporting difficult to fill vacancies; the most frequently mentioned main reason for difficulty in filling these vacancies were the lack of skills that the company demands (20 per cent) and not enough people interested in that type of work (20 per cent); and difficulties in recruitment clearly had an impact on business – over half of the difficult to fill vacancies caused difficulties in meeting customer service objectives.

#### 4.4.4 Skill Shortages

##### *Ireland*

It is understood that actual quantitative analysis of skill shortages has not been undertaken for the South (or at least it is not presented in the EGFSN National Skills Bulletin). However the bulletin does provide a very useful and detailed table of demand and shortage indicators for a wide range of occupations at the time of publication, which indicates whether an occupation has no shortage, a labour shortage or a skill shortage. As expected, labour shortages are more common in lower grade occupations e.g. private security occupations, domestic child minders, sales assistants, labourers in agriculture and construction. Skill shortages in contrast arise more frequently for higher grade occupations and were identified in the following sectors/professions according to the FÁS/EGFSN National Skills Bulletin. To reiterate an important point made earlier, this analysis below relates to the date of publication of the bulletin. Skill shortages in some sectors are likely to be different at the time of writing this report. A more up-to-date picture of skill issues on some of the sectors below is presented in Part C.

- **Construction:** At the time of publication there was a shortage of experienced quantity surveyors and building managers (site managers and construction project managers). Current skill issues are discussed under priority industry section of this chapter (Part C).
- **Financial services:** Demand in the international segment of the sector is driven by two forces: the expansion of back office activities which represent a core platform of the sector and the demand which is arising from the expansion of middle and front office activities which are associated with higher added value and higher skills. In terms of specific skills, there were skill shortages in the areas of accounting (financial reporting and audit), quantitative finance (risk and investment analysis) and compliance (regulatory issues).
- **Engineering:** There was evidence of skill shortages of engineers of all types.
- **Information technology:** There were shortages of software engineers and computer analysts/programmers with employers continuously sourcing IT skills from abroad.
- **Health:** There was evidence of shortages in many healthcare occupations including medical practitioners, dentists, various types of therapists and radiographers. Despite a recent increase in supply from the education system, work permit data indicated that many nurses continue to be sourced from abroad, suggesting difficulties at the time in attracting and retaining staff in the profession.
- **Sales:** Marketing managers were being increasingly sourced from non-Irish stock indicating a skills shortage in this area.
- **Manufacturing:** In terms of specific job titles, there were shortages of aircraft mechanics, lift installation engineers and sheet metal mechanics.

### *Northern Ireland*

According to the 2005 NI Skills Monitoring Survey, overall 34 per cent of difficult to fill vacancies were due to skill shortages, sometimes termed external shortages. Skill shortages in NI in 2005 were more prevalent within the transport and communications (63 per cent of difficult to fill vacancies in that sector), construction (53 per cent) and business services (51 per cent) sectors. In terms of occupations, skill shortages were most prevalent for sales staff (72 per cent) as well as managers and senior officials (67 per cent). The most common skills reported by employers as lacking from applicants were other technical and practical skills (35 per cent of external skill shortages), communication skills (30 per cent) and customer handling skills (22 per cent of skill shortage vacancies).

### *North-South comparison of skill shortages*

Clearly the evidence on skill shortages from the NI Skills Monitoring Survey is more quantitative, relative to the information in Ireland's National Skills Bulletin. This makes it difficult to make direct skill shortage comparisons as for Ireland it is difficult to conclude, based on qualitative evidence, which sectors have a greater skill shortage problem. However some North-South commonalities are evident in that some of the same sectors (at the time of publication) reported skill shortages (construction and professional services) and these tended to be for higher grade occupations. Further information on commonalities and difference in skill shortages in priority industries is presented in Part C.

#### **4.4.5 Importance of Generic and 'Soft' Skills**

When considering the varying dynamics behind the demand for skills – particularly in the context of a rapidly changing environment – it is necessary to address the importance of generic skills and the changing nature and role of such skills. These skills facilitate flexibility and responsiveness and encompass a broad range of transferable attributes ranging from numeracy and literacy to the development of soft skills such as inter-personal understanding and effective communication. Indeed these skills are considered to be useful predictors of effective workplace performance and have become increasingly relevant to jobs at all skills levels. The importance of such skills for an employee's future employability and for both employers and the economy in general is recognised in the international literature.

The growing understanding of the centrality of generic skills to the modern workplace reflects the ongoing impact of globalisation and the requirements of today's knowledge economy and to this end, the traditional economic focus on production has been superseded by a greater emphasis upon maintaining market competitiveness by delivering innovative, consumer-centred services with a consequent need for greater skills, particularly in terms of team-working and innovation.

The importance of transferable skills such as good communication, inter-personal skills and team-working reflects a well-trained and capable workforce, albeit a flexible one. This importance is clearly articulated by Joyce (2001):

*“Generic skills, soft skills....key competencies....people skills – many names for the same thing. Basically, they can be defined as those skills that are common to many vocations and are not specific to one job or industry”.*

The EGFSN has also noted the importance of such skills in Tomorrow’s Skills – Towards a National Skills Strategy (2007). This report underscores the rapidly changing nature of the current environment and the emerging importance of knowledge work. A continuing shift towards the services and value-added manufacturing sectors is a feature of this environment in tandem with an associated rise in the incidence of managerial, professional and services employment. In line with this trend towards knowledge work and the demand for those with high-level skills, there is now a greater emphasis upon those generic skills, which are the hallmark of a flexible and responsive workforce including literacy, numeracy and the use of ICT.

Given the changing nature of both work and the skills required in the modern workplace, attributes such as individual initiative, judgement and continuous learning have come to be seen as increasingly necessary. As a result it has become ever more important for employees to ‘acquire a range of generic and transferable skills and attitudes’ (EGFSN, 2007). To this end, the aforementioned report concluded that the following should form part of any generic skills portfolio:

- **Basic/fundamental skills** — such as literacy, numeracy, IT literacy;
- **People-related skills** — such as communication, interpersonal, team-working and customer-service skills; and
- **Conceptual/thinking skills** — such as collecting and organising information, problem solving, planning and organising, learning-to-learn skills, innovation and creativity skills, systematic thinking.

The emergence of the knowledge economy has also shaped the type of generic skills which employers consider essential. In other words, employees are increasingly required to build upon basic skills – such as literacy and numeracy – and to master ICT, innovation and learning how to learn in order to maintain their employability. The changing nature and increasing importance of specific generic skills is more clearly understood within the context of changing economic realities and Carnevale and Desrochers (1999) have noted:

*“... the new service-orientated manufacturing economy and growing services economy demand a more complex set of performance standards”.*

#### 4.4.6 Summary of Current Skills Demand Issues

##### North-South similarities/differences in skills demand issues

Similarities	Differences
<ul style="list-style-type: none"> <li>■ Similar share of firms reporting hard-to-fill vacancies in 2002/03 and 2005.</li> <li>■ Although difficult to make direct North-South comparisons of skill shortages based on the available information, some commonalities are evident in that some of the same sectors (at the time of publication of reports) identified skill shortages (construction and professional services) and these tended to be for higher grade occupations.</li> </ul>	<ul style="list-style-type: none"> <li>■ Evidence in 2006 suggested NI vacancies were more concentrated in lower grade occupations whereas vacancies in the South in the same period were more broadly spread across occupations (FÁS). This may be partly due to the later influx of migrants to NI to fill positions in lower grade occupations.</li> <li>■ There was a divergent pattern in the nature of hard-to-fill vacancies for the latest comparable year (2005). Hard-to-fill vacancies in the South were more skewed towards managerial and professional occupations and in NI towards elementary and personal service occupations.</li> </ul>

#### 4.5 Part C – Skills Demand in Specific Key Industry Sectors

In addition to the preceding investigation of the comparability of North-South data, a programme of consultations with representatives of a number of key industry sectors was undertaken in order to develop an up-to-date picture of skills demand on an all-island basis in five key sectors.

The purpose of these consultations was to develop a greater insight into:

- current skills demand for each sector;
- trends in skills demand over time for each sector; and
- drivers of change in skills demand.

These consultations sought to gain greater insights into the all-island nature of the current and future demand for skills and to identify commonalities between North and South. In doing so, they help draw out any divergent trends and/or causalities between the neighbouring jurisdictions but also place the overall evidence within an all-island context. This work has also drawn from the extensive literature that exists both North and South on each of these sectors and that work is referenced in Annex E. This analysis does not seek to duplicate that work, rather it seeks to draw upon it to identify key all-island skills issues.

## 4.6 Sectors for Consideration

Five sectors were selected for the purposes of a more detailed analysis of skills demand. These sectors are likely to play a key role in promoting economic growth across the Island of Ireland in the years to come. The sectors chosen for more detailed consideration were Tourism and Hospitality, Construction, Engineering, ICT and Financial Services. The rationale for their inclusion is presented in Table 4.6.

As well as a number of consultations with sectoral representatives, cognisance was also taken of a range of published sources including:

- various publications by the Expert Group on Future Skills Needs (EGFSN) into the skills needs of specific sectors;
- the National Skills Bulletin 2007;
- ESRI Current Trends in Occupational Employment and Forecasts for 2010 and 2015 (September 2006);
- relevant Sector Skill Council reports in NI; and
- the Northern Ireland Skills Monitoring Survey 2005.

It should also be noted that each sector under review has a large 'footprint', covering a wide range of different industries and occupations. As a result, the 3-digit ISCO 88 occupation data for All-Island, Ireland and NI presented in Annex A is not sufficiently detailed permit a comprehensive or comparable occupational assessment of each sector under review. For example, Restaurant managers are classified within ISCO's 'Production and operations managers' occupation – an aggregation of 20 other occupations such as Bank Managers and Managers in Building. For this reason the, statistical information for each sector assessed here is limited to an overview.

Table 4.6: Sectors for consideration

Sector	Rationale
ICT	<p><b>The National Skills Bulletin cites:</b></p> <p><i>Shortages of Software Engineers.</i></p> <p><i>Shortages of Computer Analysts.</i></p> <p><i>Projected Strong Growth in IT employment.</i></p> <p><b>E-skills UK (in NI Skills Monitoring report) cites:</b></p> <p><i>Higher than average Percentage of Difficult to Fill Vacancies due to External Skills Shortages.</i></p> <p><i>Higher than average Skills Shortage Vacancy Gap.</i></p>
Engineering/Life Sciences	<p><b>The National Skills Bulletin cites:</b></p> <p><i>Shortages of Engineers of all types.</i></p> <p><i>Declining science uptake at university suggests future shortages.</i></p> <p><i>Technician level occupations reporting hard to fill vacancies.</i></p> <p><b>Summit Skills (in NI Skills Monitoring report) cites:</b></p> <p><i>Higher than average 'Percentage of Difficult to Fill Vacancies due to External Skills Shortages'.</i></p> <p><i>Higher than average 'Skills Shortage Vacancy Gap'.</i></p> <p><i>Higher than average 'Skills Gap Rate'.</i></p> <p><b>SEMTA (in NI Skills Monitoring report) cites:</b></p> <p><i>Higher than average 'Percentage of Difficult to Fill Vacancies due to External Skills Shortages'.</i></p> <p><i>Higher than average 'Skills Shortage Vacancy Gap'.</i></p>
Construction	<p><b>The National Skills Bulletin cites:</b></p> <p><i>Current shortage of architects not expected to continue in medium term.</i></p> <p><i>Significant Shortage of Experienced Quantity Surveyors.</i></p> <p><i>Shortage of site managers/project managers.</i></p> <p><i>NDP expected to exacerbate skills shortages in civil engineering.</i></p> <p><b>Construction Skills (in NI Skills Monitoring Report) cites:</b></p> <p><i>Higher than average 'Percentage of Difficult to Fill Vacancies due to External Skills Shortages'.</i></p> <p><i>Higher than average 'Skills Shortage Vacancy Gap'.</i></p> <p><i>Higher than average 'Skills Gap Rate'.</i></p>



Sector	Rationale
Financial Services	<p><b>The National Skills Bulletin cites:</b> <i>Reported shortages in accounting, Quantitative Finance and Compliance.</i></p> <p><b>Financial Services Skills Council (in NI Skills Monitoring Report) cites:</b> <i>Higher than average 'Percentage of Difficult to Fill Vacancies due to External Skills Shortages'.</i> <i>Higher than average 'Skills Shortage Vacancy Gap'.</i> <i>Higher than average 'Skills Gap Rate'.</i></p>
Tourism and Hospitality	<p><b>Economically significant sector for the Island economy:</b> <i>Higher than average 'skills gap rate'.</i></p>

## 4.7 Tourism and Hospitality

The tourism and hospitality sector covers a wide range of occupations including the following:

■ Bar staff	■ Commis Chef
■ Chef	■ Travel and flight attendants
■ Waiter	■ Travel agency manager
■ Hotel and accommodation managers	■ Kitchen Porter
■ Publicans	■ Concierge
■ Hotel receptionist	■ Leisure club manager
■ Front of house manager	■ Retail travel consultation
■ Conference and banqueting manager	■ Restaurant manager

### 4.7.1 Sector Size

#### *Ireland*

In 2005, the tourism-related industry in the South accounted for a total employment of approximately 246,000 jobs. The strong growth in both incoming visitor numbers and domestic tourism – combined with substantial capital investment – means that tourism has been a major source of job creation with 17,000 jobs (or 7 per cent) added between 1999 and 2005. By 2005, tourism-related activities (i.e. restaurants and licensed premises) accounted for more than 60 per cent of these jobs with the balance comprising accommodation and tourist attractions.

### *Northern Ireland*

In NI, the Sector Skills Council, People 1st, suggests that close to 46,000 people work across the tourism and hospitality sectors with almost one third of these employees working in restaurants. Two-thirds of the employees are female and close to 40 per cent of total employees are working in elementary occupations such as kitchen assistants, waiting staff and bar staff.

### *All-Island*

The Tourism and Hospitality sector makes a significant contribution to the all-island economy and provides employment to around 290,000 people across a diverse range of occupations.

## 4.7.2 Trends in Skills Demand

### *Ireland*

The National Skills Bulletin (FÁS, 2007) suggests the trend in demand for personnel varies between occupations in this sector. For instance, the number of persons in occupations such as chefs, waiting staff and bar staff experienced strong annual average growth of 4 per cent over the period 2001/06. By contrast, the number of persons working as restaurant managers (-1 per cent), hotel managers (-5 per cent) and flights attendants (-8 per cent) declined over the same period. When considering these trends in demand for staff it is important to note that the hospitality and tourism sector has traditionally been characterised by a high staff turnover with approximately 5,000 vacancies per annum. This, in turn, has tended to drive an ongoing demand for skilled (and semi-skilled) personnel across the sector.

In recent years employers have frequently cited vacancies for both chefs (particularly commis chefs) and waiting staff as difficult to fill and that these occupations had become particularly reliant upon migrant labour. Nevertheless, the feedback received as part of the consultative process indicates that these trends have begun to change within the context of the altered macroeconomic climate. This has led to a reduced reliance upon migrant workers parallel to a greater focus upon those factors which can drive higher staff productivity including the importance of generic skills (i.e. customer service, supervisory skills, etc.).

### *Northern Ireland*

People 1st is currently reporting that across the UK, the sector is characterised as suffering from a high proportion of hard-to-fill vacancies, relatively low skill shortages and high levels of skills gaps within the current workforce. In their Northern Ireland profile (2008) People 1st quotes the 2005 NI Skills Monitoring Survey which shows that there were 1,800 vacancies and 900 'hard to fill' vacancies in NI, with 10 per cent of employers in the sector reporting skills gaps.

The aforementioned published information was also supplemented through discussions with representatives of these sectors in NI. The key message coming from these discussions is that there remain hard to fill vacancies and that this is particularly prevalent among chefs and reception staff. Indeed, one reason offered for the shortage of head chefs was a lack of 'flow through' from more junior levels (i.e. poor staff retention).

Moreover, the growth in contact centre employment was cited as a reason for the difficulties in recruiting reception staff given that this is viewed as a major competitor for the types of skills required for hotel reception work (personable, IT literate, customer focused).

#### 4.7.3 Tourism Skills Demand: All-Island Perspective

A series of common issues are clear in the tourism sector from an all-island perspective. Firstly, a recurrent theme emerging from this research relates to the high proportion of hard-to-fill vacancies – specifically with regard to chefs – and the problems posed by high staff turnover within the sector (i.e. poor staff retention), both North and South. Similarly, the sector has tended to be reliant upon migrant labour in recent years although the current economic slowdown may be a key determinant of the easing of such pressures.

Generic skills play an important role in the tourism and hospitality sector, both North and South. Specifically, the delivery of a high-quality product to those visiting either jurisdiction requires that staff display a range of key skills including English language competency and a focus upon customer service.

Finally, the tourism and hospitality sector will continue to play a significant role in the All-Island economy and in doing so, will act as an important driver of future economic growth. As part of this process, the sector will continue to be a source of demand for a broad mixture of skills and in order to ensure that this demand is met, the sector will need to address a range of issues relating to staff turnover, the importance of generic skills and the scope for productivity improvements.

## 4.8 Construction

The construction sector covers a wide range of occupations including the following:

■ Senior & executive managers	■ Floorers
■ Business process managers	■ Glaziers
■ Construction managers	■ Specialist building operatives
■ Office-based staff (excl. managers)	■ Scaffolders
■ Other professional/technical staff & IT	■ Plant operatives
■ Wood trades & interior fit-out	■ Plant mechanics/fitters
■ Bricklayers	■ Steel erectors/structural
■ Building envelope specialists	■ Labourers
■ Painters & decorators	■ Electrical trades & installation
■ Plasterers & dry liners	■ Plumbing & HVAC trades
■ Roofers	■ Logistics
■ Construction profess& tech staff	■ Civil engineering operatives

### 4.8.1 Sector Size

#### *Ireland*

By 2007, the construction industry in the South provided 280,000 direct jobs (or 13 per cent of total employment), a significantly higher proportion than for comparable European economies. This increase in employment is a relatively recent phenomenon with current levels approximately double levels in 1998. More than two-fifths of employment within the construction sector in the South was accounted for by those engaged in craft-related occupations. In addition, management and professional grades accounted for 14 per cent whilst skilled and semi-skilled grades contributed a further 26 per cent).

#### *Northern Ireland*

According to the Quarterly Employment Survey, the sector employs close to 45,000 people (not including the self employed). This is approximately 45 per cent higher than in 1998 and the sector currently accounts for just over 6 per cent of employees.

#### *All-Island*

Construction makes a significant contribution to the all-island economy and provides employment to around 325,000 people across a diverse range of occupations.

## 4.8.2 Trends in Skills Demand

### *Ireland*

The forthcoming EGFSN Review of the Employment and Skills Needs of the Construction Industry in Ireland (2008) will note while that employment in new house building is forecast to fall by approximately 70,000 in the short-term it is anticipated that construction industry employment will recover by 2013 to reach 259,000 jobs. It is also expected that the restructuring of the industry will create changes in the skills profile. Moreover, given the construction industry employment opportunities in markets such as the UK and Poland – specifically for craft workers – it is expected that job losses in the industry will not result in equivalent rises in unemployment.

This report will also note that ‘the skills which will be most adversely affected by the contraction in new house building – bricklaying, plastering, plumbing, carpentry and painting – are not required to the same degree’ in the expanding areas of the industry (i.e. civil engineering, general contracting, house improvements) and that new building technologies will play an important role in the changing skills mix in the industry: ‘new forms of construction – usually involving some aspect of off-site manufacturing – are becoming the norm in respect of large construction projects in general contracting in both the public and private sphere’.

The feedback received as part of the consultative process has re-iterated many of the findings of the National Skills Bulletin with regard to continued difficulties recruiting experienced quantity surveyors. A clear message was with regard to the negative impact of the contraction in house building upon demand for craft and semi-skilled personnel (i.e. bricklaying, plastering, plumbing, carpentry, etc.). However, it is recognised that some of the excess capacity may be absorbed by the expansion of regeneration, remedial and extension-related construction activity.

Pressures relating to demand for skilled construction personnel which had characterised the sector in recent years have eased in light of the current slowdown and similarly, the reliance upon migrant workers has been reduced significantly. However, this sector continues to experience a strong demand for personnel skilled in new building technologies and techniques – particularly green building techniques – in addition to those qualified and experienced with regard to the current health and safety requirements and public procurement procedures with a strong multi-disciplinary background (i.e. project management, etc.).

### *Northern Ireland*

The *Annual Recruitment Requirement* produced by the Construction Industry Training Board for the construction sector in the North is estimated at 2,980 per annum between 2008 and 2012. The largest requirements are likely to be in wood trades and interior fit out, bricklayers, building envelope staff and office based staff. However, it should be noted that these requirements were estimated before the current downturn and are likely to have changed significantly.

In a report prepared by PricewaterhouseCoopers in February 2007, 508 construction companies in NI were asked for their views on skills shortages, gaps and hard to fill vacancies. The key findings from this report were:

- a shortage of skilled workers to accommodate the existing workload was a particular issue amongst the bricklaying and joinery sectors;
- almost one-third of the firms who had experienced difficulty with the recruitment of new staff were of the opinion that general operatives/labourers were difficult to recruit;
- just less than 20 per cent cited that recruiting staff into the wood trades was difficult, with approximately 10 per cent stating plasterers, bricklayers and plumbers as difficult to source occupations;
- nearly half of all respondents who had experienced recruitment problems stated the lack of applicants with the required skills as the main reason for the problems they experienced; and
- just less than 30 per cent of the 156 firms who had experienced recent difficulties reported that there were an insufficient number of applicants with the required experience and/or qualifications. A general lack of interest in the job type and a lack of the required attitude and/or motivation were cited by approximately 20 per cent of respondents as the key reason for the recruitment difficulties they had experienced.

Again published information has been supplemented with discussions with key sectoral representatives. In the first instance, these suggest that although the current slowdown has heralded a reduction in the demand for skills such as bricklaying, difficulties remain with regard to the recruitment and retention of highly-skilled personnel.

While the current downturn could impact on skills demand in construction, the Royal Institution of Chartered Surveyors believes the slowdown could lead to a skills shortage in the long-term if experienced workers and training schemes are lost in the wake of the slow down. The RICS believes that the long term prospects for the sector are very good, as regeneration and investment in significant infrastructure projects continue. This includes the large number of capital projects flowing from the planned Investment Strategy for Northern Ireland. In this context, firms should continue to invest in training staff, thus safeguarding the future of skills in the industry.

#### 4.8.3 Construction Skills Demand: All-Island Perspective

A series of common issues are clearly impacting on skills demand on an all-island basis. For example, a recurrent theme emerging from this research relates to the reduction in the challenge posed by the recruitment of both skilled workers and labourers in addition to the reduced reliance upon migrant labour. However, difficulties continue to remain with regard to the recruitment and retention of highly-skilled personnel. Specifically, demand remains strong for those with the qualifications and skill-sets relating to emerging construction techniques and technologies in addition to competencies such as project management, ICT, public sector procurement and sustainable development.

However, it is important to note that the construction sector will continue to make a significant contribution to economic growth and job creation, North and South, given the positive medium-term forecasts for the economy.

## 4.9 Engineering

Engineering is a more diverse career than many imagine covering a wide range of disciplines. The broader engineering sector covers a wide range of occupations including the following:

■ Mechanical Engineer	■ Civil Engineer
■ Electrical Engineer	■ Planning and Quality Control Engineer
■ Maintenance	■ Chemical Engineers
■ Design and Development Engineer	■ Engineering Technician

### 4.9.1 Sector Size

#### *Ireland*

In 2006, engineers and allied trade workers accounted for almost 80,000 jobs in the South. Employment in a number of these engineering sectors has grown significantly since 2001. For example chemical engineers employment has increased by 9.1 per cent, design and development engineers by 7.8 per cent and mechanical engineers by 7.5 per cent.

#### *Northern Ireland*

Engineering is one of the most important sectors in NI. SEMTA, the Sector Skills Council for engineering reports that the sector employs over 33,200 people (39,600 if self employed people and casual labour are included). Aerospace, for instance, is an important area of engineering in the North. Northern Ireland currently has approximately 30-40 companies in this sub-sector employing approximately 7,000 people.

#### *All-Island*

The engineering sector accounts for a diverse range of occupations across a number of disciplines and provides approximately 110,000 jobs on an all-island basis.

## 4.9.2 Trends in Skills Demand

### *Ireland*

The National Skills Bulletin 2007 identified evidence of employers experiencing difficulties in sourcing engineers. Demand for engineers is expected to continue to be strong in the coming years due to the projected strong performance of the pharmaceutical, medical devices and IT sectors; on the supply side a decline in enrolments in engineering courses in recent years is expected to contribute to future shortages of engineering skills.

At technician level, there is an issue with a decline in supply, and resulting shortages, due to a fall in the uptake of engineering courses in general and the increased progression from higher certificate and ordinary degree (technician) to honours degree (professional) level.

An important sub sector of the Irish economy, with export sales of approximately €6bn – the medical devices sector – is an important determinant of the demand for engineers, given the focus upon the manufacture of medical and surgical instruments, appliances and supplies – in addition to R&D. The Expert Group on Future Skills Needs (EGFSN) has identified in a recent report that the volume of engineering graduates with a specific focus upon design is insufficient to meet demand within the medical devices sector and that the sector is also experiencing a shortage of engineers with ‘the skills to design end-to-end automated medical devices production processes’ (EGFSN, 2008). Similarly, this sector is currently recruiting PhDs across a range of disciplines, particularly biomedical and mechanical engineering, although the output of the Irish higher education institutions remains less than the absorptive capacity of this sector.

Feedback received as part of the consultative process provides further interesting skills demand insights. For instance, sectoral representatives have expressed concern that the shortage of highly-skilled personnel arises from an image problem. This, in turn, has given rise to the perception that engineering is heavy factory work and thus an unattractive option to students. Consequently, this sector continues to experience a paucity of engineers with specialised skills (i.e. plastics) and with qualifications in associated fields such as logistics and business management.

A key theme to emerge was the perceived need for more engineering graduates going forward. The steady supply of engineering graduates with advanced qualifications is considered an important prerequisite for the South to avail of the process of global technological transfer and R&D and to position itself at the forefront of the development of innovative products and production.



## Northern Ireland

Discussions with key sector representatives provided an insight into the critical skills supply and demand issues facing the engineering sector in NI. These issues have been published in the 'Skills Balance Sheet' published by SEMTA, in June 2008. The key findings from this report are:

- over 2,500 people were recruited into the engineering industry in NI between March 2006 and 2007;
- there were an estimated 535 hard-to-fill vacancies within engineering establishments in NI over this period, the majority relating to skilled trades/craft (56 per cent) and professional (16 per cent) vacancies;
- the main reasons cited for hard-to-fill vacancies were a lack of applicants with required qualifications and skills, a lack of applicants with required work experience and a general lack of applicants;
- 23 per cent of engineering establishments in NI reported skill gaps, higher than the proportion within the UK (21 per cent);
- employers in NI expected skills gaps for operators, crafts-persons and technicians would have the most significant effect on their business;
- the main skills cited as lacking in employees was technical and engineering skills at all levels; 72 per cent of those engineering establishments in NI reporting skill gaps;
- the main technical skills gaps for the engineering sector in NI related to welding, CNC machine operations, mechanical engineering skills, metal working and electrical engineering skills;
- the generic skills gaps highlighted were for management skills, key or core personal skills and marketing or selling skills;
- together with changes in skill requirements, qualifications demanded by employers are likely to change, with an increasing requirement for intermediate and higher level qualifications; and
- over the period 2008-2014 there is expected to be a net requirement within the engineering industry in NI for about 1,700 people at NVQ Level 2, about 1,900 people at NVQ Level 3, about 1,600 at NVQ Level 4 and about 400 at NVQ Level 5.

The Skills Balance Sheet concludes that for the engineering sector in NI there is a potential upskilling requirement for more than 14,000 people across management and core technical occupations, consisting of:

- 950 managers requiring development to Level 3 and above;
- 150 professional engineers requiring development to Level 4 and above;
- 1,650 technicians requiring development to Level 4 and above;
- 3,300 skilled trades (craft) requiring development to Level 3 and above;

- 8,200 operators requiring development to Level 2 and above; and
- additionally, there is an annual requirement for training about 1,350 new recruits across all occupations into the engineering sector in NI, to replace those retiring.

Finally, the NI administration, in recognising that there are reduced student numbers choosing key science technology engineering and mathematics (STEM) courses has launched a comprehensive review of STEM. This review is intended to establish a vision for STEM, establish how to promote an understanding and acceptance of STEM and the importance of investing in STEM education to society in NI.

#### 4.9.3 Engineering Skills Demand: All-Island Perspective

With regard to the evidence reviewed for the purposes of this report, a number of common themes arise.

A recurrent theme emerging from this research relates to the continuing strong demand for engineers and the presence of skills gaps and the difficulty with regard to sourcing engineers. In particular, these difficulties focus upon the paucity of engineers with the qualifications required for disciplines such as the manufacture of medical devices, design and mechanical engineering. Moreover, it is important to note that there is a requirement for engineering graduates with higher qualification profiles (i.e. PhD) and that there are continuing concerns with regard to the capacity of the 3rd level sector to deliver sufficient output.

Again it is important to note that the engineering sector has significant potential to make a major contribution to the economy, both North and South. Indeed, given the strong demand for highly-skilled personnel and the related investment in new technologies and R&D this sector is likely to be an important driver of productivity and economic growth going forward.

## 4.10 ICT

The Information and Communication Technology sector covers a wide range of occupations including the following:

■ Computer/data processing managers	■ Systems managers
■ Software consultants	■ Analysts/programmers
■ Software and electronic engineers	■ Database managers
■ Web masters	■ Systems administrators
■ Telecomm engineers	■ Telephone technicians

### 4.10.1 Sector Size

#### *Ireland*

The ICT sector employs a total of 70,000 people in the South and is of strategic economic importance in terms of inward investment and exports. Both productivity and profitability in the sector are rising and the picture is if a vibrant sector which is forecast to increase in employment over the coming years.

#### *Northern Ireland*

The sector skills council for IT, E-Skills, estimates that there are currently 14,600 people in the IT workforce in Northern Ireland (9,300 in the IT industry itself and 5,200 IT professionals working in other industries).

#### *All-Island*

The ICT sector is a key component within the export-orientated focus of both jurisdictions. The sector provides employment across a diverse range of occupations – software engineering, analysts, systems managers, etc. – and contributes in excess of 100,000 jobs to the all-island economy.

#### 4.10.2 Trends in Skills Demand

##### *Ireland*

A recent study by The EGFSN on the Future Requirements for High-level ICT Skills in the ICT Sector (2008) provides a vital insight into skills demand trends in ICT. The report finds that the projected domestic supply of high-level graduates alone will not be sufficient to meet whole economy demand under either of the two more positive demand scenarios presented in the report. This should be seen against the background of a global shortage of high-level ICT staff. The shortages projected range up to some several hundreds per annum for electronic engineers qualified to Honours Bachelor Degree level and up to an average of about 2,000-3,000 per annum for computing graduates qualified to this level. Inward migration will continue to be required to bridge the gap. A number of recommendations have been made to boost the domestic supply of high-level ICT graduates.

##### *Northern Ireland*

Demand for ICT skills in NI is forecast to grow considerably over the next decade. In fact, work undertaken for the NI ICT Sector Skills Action Plan 2007-2010 indicated that approximately 1,900 people will be required to enter the ICT workforce each year until 2021. The Sector Skills Action Plan notes that much of the growth in NI's IT sector is in 'high value' roles that require skills in business, client relationships and project management alongside deep technical competencies.

Discussions with key sector stakeholders confirmed the existence of skills gaps and shortages in Northern Ireland's ICT sector with hard to fill vacancies centred on web support, business analysis and IT architecture. In addition, engagement with the Sector Skills Council widened the scope of IT skills to encompass all users of IT in the workforce rather than those directly employed as IT professionals. A key issue when including these people is that there is a significant need for upskilling to level 2 and level 3.

#### 4.10.3 ICT Skills Demand: All-Island Perspective

With regard to the evidence reviewed for the purposes of this report, a number of commonalities have arisen.

A recurrent theme emerging from this research relates to the likely continuation of the strong demand for ICT skills and the need to promote ongoing upskilling of the workforce in addition to higher domestic take-up at 3rd level (including at Masters and PhD level) in order to meet this demand. Specifically, the available evidence indicates the presence of a shortage of skilled ICT professionals globally and a need for the all-island economy to continue to draw upon skilled migrant workers.

## 4.11 Financial Services

The Financial Services sector covers a wide range of occupations including the following:

■ Structured credit analyst	■ Market risk analyst
■ Portfolio administrator	■ Treasury accountant
■ Tax specialist	■ Underwriter – private lines
■ SPV Accountant	■ Underwriter – commercial lines
■ Pricing administrator	■ Underwriter – product specialist
■ Treasury Manager	■ Life claims administrator
■ Treasury analyst	■ Customer service administrator
■ Treasury dealer	■ Financial reporting accountant
■ Treasury MIS	■ Risk Control Surveyor
■ Credit risk analyst	■ Fraudulent claims specialist

### 4.11.1 Sector Size

#### *Ireland*

According to the Expert Group on Future Skills Needs (EGFSN), there are currently a total of almost 150,000 persons employed in financial services-related occupations in the South. This includes 22,000 employees in International Financial Services (IFS), a sector which has grown dramatically over the past 2 decades.

#### *Northern Ireland*

The Financial Services sector in Northern Ireland employs around 22,000 individuals in over 1,200 companies across the region. Belfast is the main centre for financial services in NI and has had recent strong performance in attracting FDI through companies such as Citi, Allstate Corporation, and Liberty Mutual.

#### *All-Island*

The Financial Services Sector has made a significant contribution to economic growth both North and South in recent years. Moreover, this sector contributes approximately 170,000 jobs to the all-island economy and is an important source of high-quality job creation.

#### 4.11.2 Trends in Skills Demand

##### *Ireland*

The National Skills Bulletin 2007 noted that the Financial Services sector continues to experience shortages with regard to specific skill areas such as accounting, quantitative finance and compliance. Indeed, a comparison of the supply and demand of financial services-related skills has noted that the sector is experiencing ongoing skills shortages. This was attributed to a range of factors including a shortage of personnel with particular international financial services-related qualifications (i.e. insurance, finance, etc.) and the low number of graduates choosing a career in international financial services.

The EGFSN (2007) has noted that Ireland continues to be viewed as an attractive investment proposition by foreign multinationals and has projected that IFS employment will increase by almost 50 per cent by 2012. Consequently, the need to continue to invest in the Irish educational system has been identified as critical in order to ensure a sufficient supply of skilled graduates to meet this projected growth.

Discussions with key sector stakeholders underscored the above EGFSN findings with regard to a likely rise in the future demand for IFS-related skills and current shortages. It is believed that this likely demand will be focused upon specific skill-sets such as mathematics, economics and risk management amongst others. Moreover, the shortage identified is particularly acute with regard to the recruitment of highly skilled graduates (i.e. to Masters and PhD level) due to the low level of such graduates coming through from the Irish 3rd level sector.

An interesting finding of these discussions was that although the high demand for skilled graduates has eased in the past 12 months, the requirement for highly qualified professionals in the fields of portfolio management, actuarial and insurance has remained unchanged.

##### *Northern Ireland*

The Financial Services Sector Skills Council (FSSC) is currently completing work for DEL on a 'Skills Bill for Financial Services in Northern Ireland'. As part of this work, a survey of financial services establishments was conducted. This survey suggests that increasingly, growth across the UK financial services industry as a whole will be driven by product innovation, contingent on the strength and changing geography of the global economy, the impact of technological advancements and the needs of a wealthier, ageing population. It will focus on higher value-added occupations in higher value-added sectors, and those parts of the UK that can establish and maintain strong financial services clusters will reap most of its benefits. This growth will be more balanced than in the past and will depend less on the property market and consumer credit.

The outlook for Northern Ireland is cautiously positive, although the growth rates of the very recent past may not be repeated over the next few years, according to the FSSC. Much depends on the fortunes of Belfast as a financial services centre, as it is clusters of financial services that will drive financial services skills demand. The FSSC believes that the main skills demand issues will centre around technical staff, managers and senior officials although demand for these occupations tends to be volatile.

#### 4.11.3 Financial Services: All-Island Perspective

It was noted in Part A of this chapter that recent trends North and South in business and financial services employment are remarkably similar with the sector in both jurisdictions roughly doubling in size in employment terms in the last decade, due to FDI and the sector becoming more export orientated.

It is also evident from the analysis that the sector is at different stages of 'maturity' with NI more skewed towards call centres as opposed to international financial services which have different skill needs. All-Island skills demand issues will therefore likely cover a wide range with demand in the South expected to focus on the recruitment of highly skilled graduates (i.e. to Masters and PhD level) with specific skill-sets such as mathematics, economics and risk management amongst others while demand in the North is likely to centre on technical staff, managers and senior officials. Of course, if the North is successful in growing the financial services sector in higher value added areas, skills demand issues are likely to harmonise North and South.

## 4.12 Part D – Future Skills Demand Trends

This chapter has focused on past skill demand trends and current skill demand issues. Part D now looks briefly at sectoral and occupational employment trends over the next decade and implications for skill demand North and South and at all-island level. It is important not to assume, without rigorous analysis that past skill demand trends will automatically be repeated. For example, as the long-term economic outlook for some sectors may change relative to the previous decade and new occupational patterns may emerge within industries as the sub-sector structure evolves and the nature of FDI potentially shifts.

### Box 4.1: Baseline Not Aspirational Forecasts Presented

The future trends presented in Part D are baseline forecasts. Baseline forecasts are essentially 'policy neutral'. That is, they reflect the most likely future path in the absence of a change in policy and should be seen as a guide rather than precise estimates and are subject to unforeseen changes in the economy. Baseline forecasts do not build in the step change in skills provision and attainment that both Ireland and NI are aspiring to. As such, they are not the aspirational North-South targets presented in the first chapter from the NI Programme for Government and Ireland's 'Tomorrow's Skills: Towards a National Skills Strategy'.

In addition, as explained later, the forecasts presented do not reflect the latest All-Island economic outlook. Work to update skills forecasts North and South has been undertaken/ is currently underway but is not available at the time of writing. It is not expected that this will materially change the pattern of future skills demand as, for example, a slowdown in construction was already previously built into the forecasts, although absolute forecast numbers will change – an issue which is of relevance for numerical skill targets.

### 4.12.1 Existing Skills Forecasting Research

Before presenting employment forecasts for both jurisdictions by industry, occupation and skill level, some brief details are provided below on existing North-South skills forecasting research. However, it should be noted that they rely on differing methodologies and assumptions which limit the extent to which direct comparisons can be made.

#### *Ireland skills forecasting research*

- ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006).
- FÁS/ESRI Manpower Forecasting Studies Report No. 12 'Occupational Employment Forecasts 2012' (July 2007).



- FÁS/ESRI Manpower Forecasting Studies Report No. 9 'Estimating Labour Force Flows, Job Openings and Human Resource Requirements, 1990-2005' (April 2001).
- CEDEFOP 'Future Skills Needs in Europe' (2008).

### *Northern Ireland skills forecasting research*

- Regional Forecasts 'Occupation Forecasts and Replacement Demand Analysis for NI 2005-2015' (February 2006).

Annex D provides a summary of what the research by FÁS/ESRI and Regional Forecasts covers and the methodologies used. The focus is only on the above reports from which figures are presented in this report. Note the latest forecast report for Ireland is not referred to as this is more up-to-date, and therefore not comparable to the NI research from 2006, which is currently being revised.

### *Comparability of North-South existing skills forecasting research*

While FÁS/ESRI and Regional Forecasts (now Oxford Economics) models adopt differing forecasting methodologies and assumptions, there are nevertheless several similarities in the two approaches which make it possible to compare North-South forecast trends. These include:

- the macro forecasts driving the sector, occupation and skill forecasts were published at close to the same – FÁS/ESRI (December 2005) and Regional Forecasts/Oxford Economics (Autumn 2005). This methodological issue is therefore considered to be broadly comparable. While the short to medium term macroeconomic forecasts for each jurisdiction have changed markedly, the focus here is on long-term trends and patterns, which will not have materially changed. Absolute forecast change in employment numbers are of less importance for this general research though they do matter significantly for actual skill targets;
- methodologies employed to forecast occupations North and South are broadly the same and are linked to macro employment forecasts by sector and assumptions on change in occupation shares by sector, which both measure the number of people in employment as opposed to jobs. While FÁS/ESRI sectoral employment forecasts for Ireland are based on a supply-demand equilibrium and Regional Forecasts' for NI are purely demand forecasts, it is not believed that the differences would be large as NI faces few supply-side constraints with wage levels remaining low despite record employment growth;
- methodologies to forecast net replacement demand are broadly the same, including who is captured under leavers and joiners to occupations. However attrition assumptions used for the South are due to be updated and may explain some of the differences in net replacement demand rates. There may also be subtle but critical differences in the components of replacement demand; and

- ESRI research forecasts how the stock of employment by education level will change between 2005 and 2020. Regional Forecasts' research looks only at the qualification profile of the total requirement in the context of both expansion demand and replacement demand flows and applies the qualification share of those people who are new entrants to the labour market, as opposed to the current qualification structure of all employed people. Regional Forecasts' research does not estimate the stock demand for qualifications by occupation. Additional work has been undertaken to show how the skills structure of NI employment is forecast to change in the decade ahead against which comparisons with the South can be made. Additional analysis to translate the replacement demand flows by occupation for the South into skill requirements was also undertaken using the qualification structure of all employed people in the occupation from the expansion demand stock analysis. The results of this additional analysis should be seen as indicative.

#### Box 4.2: Why Existing Research Does not Permit Development of All-Island Employed Skill Forecasts

Notwithstanding the above commonalities in producing North-South skill it is not recommended at this stage adding North-South forecasts to produce all-island employed skill stock forecasts or adding replacement demand forecasts.

There are two key differences between the historical and forecast employment and occupation series. Firstly the NI employment and occupation forecasts from Regional Forecasts are not based on the LFS but instead on employment data from other sources – DETI Quarterly Employment Survey (occupation shares are based on the Census and trended in line with the LFS).

Secondly to align SOC 1990 and SOC 2000 forecasts to ISCO 88 requires highly detailed occupation data (for example down to 3-digit for the South). The occupation forecasts by FÁS/ESRI and Regional Forecasts are not available at this level of detail for both NI and Ireland.

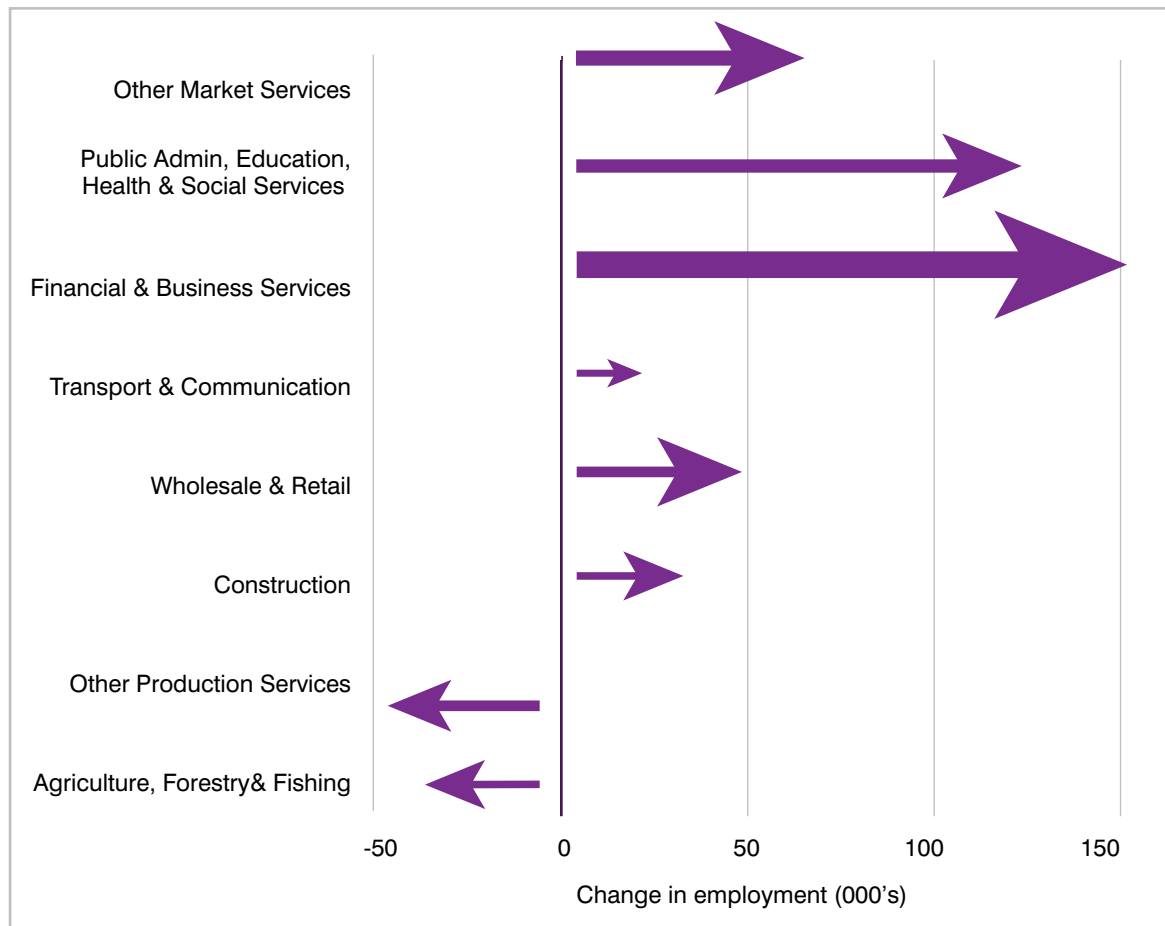
However in order to give an indicative picture of the pattern and scale of future trends at all-island levels, without quantifying the trends precisely, 'arrow' diagrams are provided for all-island future trends in employment by industry, occupation and skill level (Figures 4.25, 4.28 and 4.31).

#### 4.12.2 Industry forecasts

##### All-Island

The economic transformation from traditional agriculture/industry to services is forecast to continue apace on the Island, with financial & business services and public services expected to be the main sources of employment growth in the all-island economy over the next decade. Importantly for skills forecasting, construction employment growth is forecast to slow considerably, and indeed the very latest forecasts North and South predict short-term job losses in construction (though these are not the forecasts presented in the report).

**Figure 4.25: All-Island indicative employment forecasts by sector (next ten years)**



Source: Oxford Economics.

### *Ireland*

Employment growth in the South has been driven primarily by three sectors over the last decade – construction, financial and business services and the public services (Figure 4.26). Other service sectors have performed relatively strongly and other production industries, despite losses in less competitive manufacturing sub-sectors such as textiles, have registered a small net gain in employment when comparing 1995 to 2005. Agriculture, forestry and fishing are the only sectors to have experienced a decline in the number of persons employed.

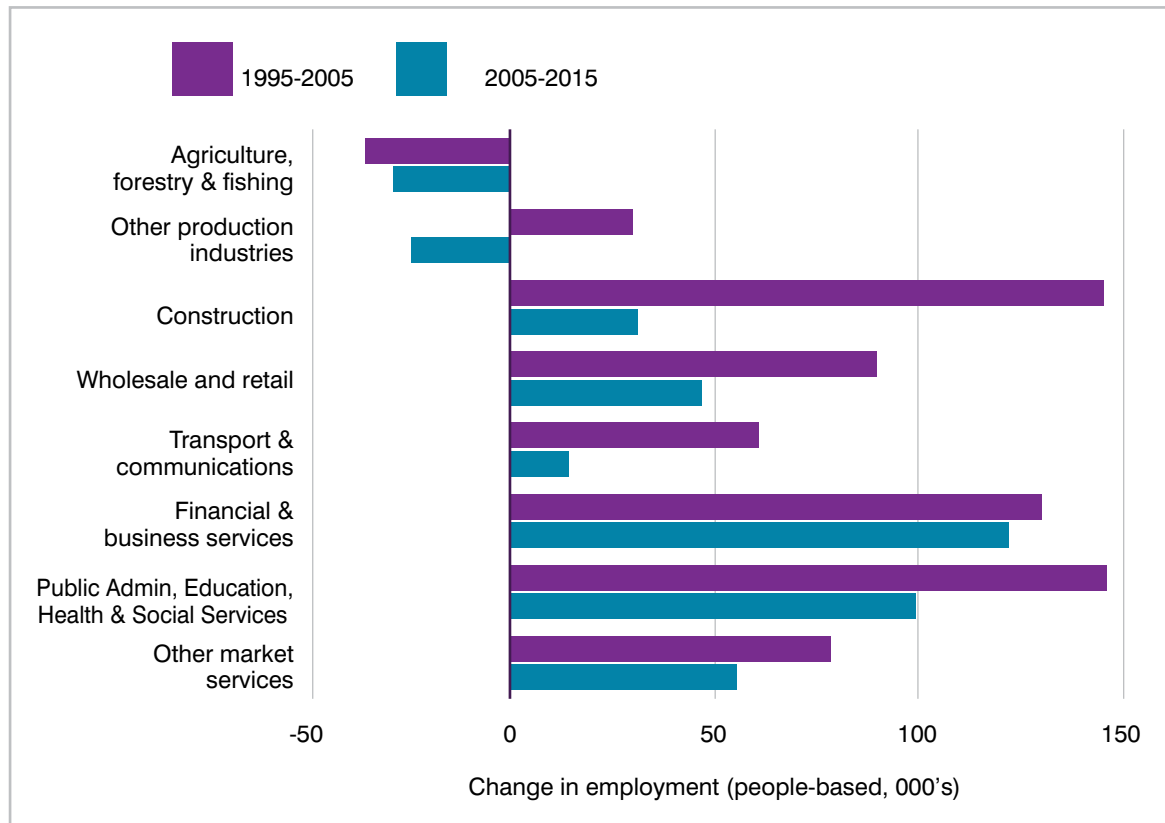
Over the next decade financial and businesses services are projected to create more employment than any other single sector in the South (Figure 4.26). The wider public sector, which includes here education and health, is still projected to expand strongly as population continues to grow although slower than the expansion over the past decade. Growth in all sectors is expected to slow down though remain robust, with construction forecast to slow down significantly even before the recent difficulties emerged. In fact as highlighted in Part C, a forthcoming report by EGFSN predicts that given new house building is forecast to fall by approximately 70,000 in the short-term, construction employment is expected to be 11,000 lower than in 2006.

### Northern Ireland

Employment growth in NI has similarly relied on financial and business services and public administration/education health & social services but less so construction (Figure 4.27). Manufacturing has declined as unlike Ireland, NI has not been able to attract sufficient hi-tech manufacturing to compensate for losses in less competitive sub-sectors.

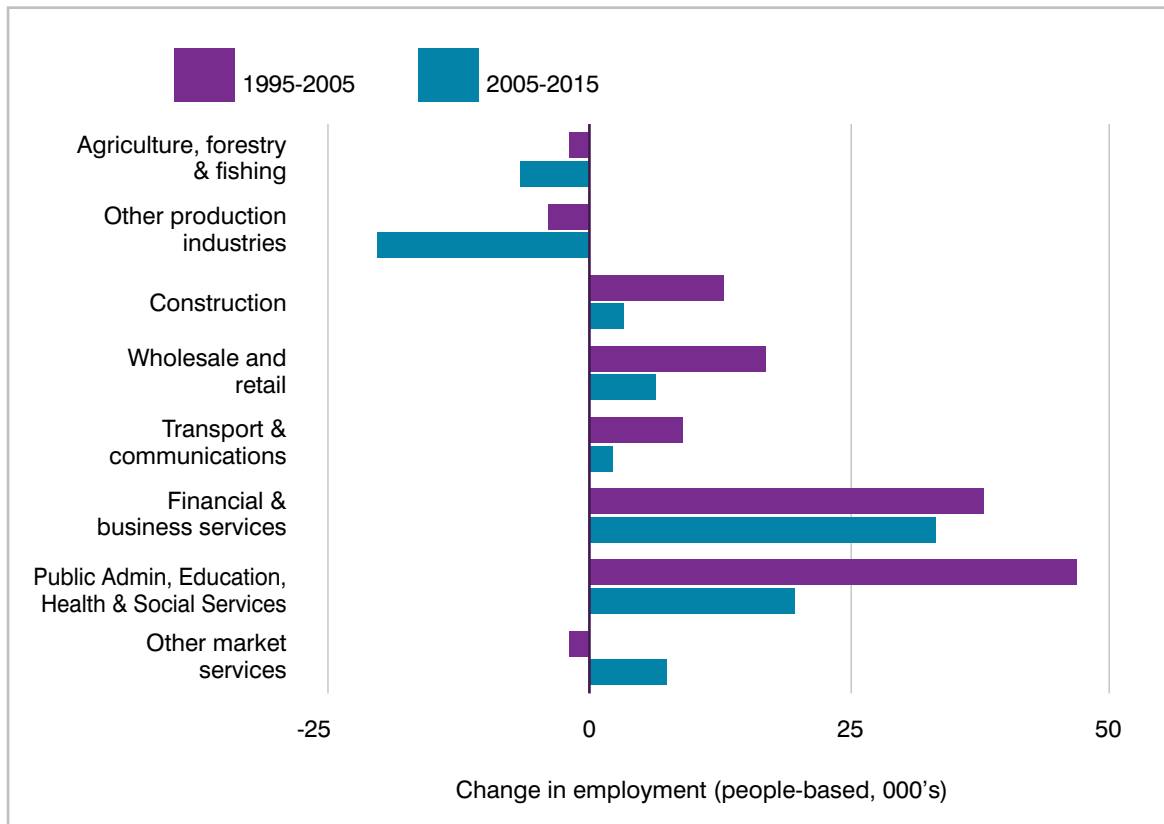
Employment growth in the North, like the South is forecast to slow down across sectors, due to factors such as an end in retail 'catch up', slowdown in public spending and shake out in construction. Growth will continue to be led by financial and business services and the wider public sector, primarily education and health, which is a similar forecast pattern to the South.

**Figure 4.26: Ireland recent employment trends and forecasts by sector**



Source: CSO QHNS and ESRI.

Note: Based on NACE industrial classification. Historical data from QHNS. Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). 2015 figures average of 2010 and 2020 figures from ESRI report.

**Figure 4.27: Northern Ireland recent employment trends and forecasts by sector**

Source: DETI QES, LFS and Regional Forecasts/Oxford Economics.

Note: Based on SIC 2003 industrial classification. Employment refers to people in employment for historical trends and for most sectors in the forecasts. Historical data from LFS as presented earlier in the report. Forecasts from Regional Forecasts 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on historical employment series from QES and only uses LFS for self-employment so not directly comparable to historical LFS series.

### 4.12.3 Occupation Forecasts

#### All-Island

The sectoral pattern of employment growth described above will result in employment growth being largely concentrated in managerial and professional occupations and also in service & shop/market sale occupations. Minimal employment growth is forecast for elementary and plant & machine operative occupations (Figure 4.28). The forecast concentration of employment in higher grade occupations is more pronounced than the recent past, partly due to the changing performance of the construction industry.

**Figure 4.28: All-Island indicative employment forecasts by occupation (next five years)**



Source: Oxford Economics.

Note: Based on ISCO 88 occupation classification.

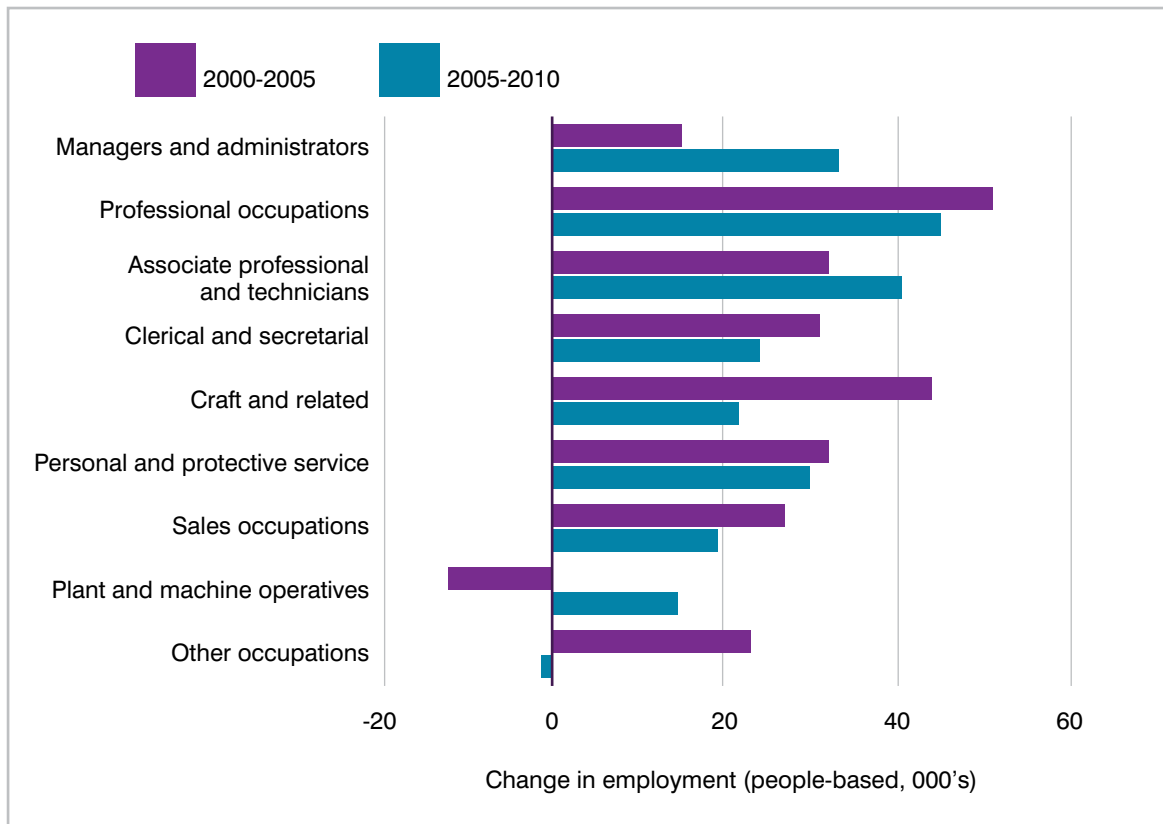
**Ireland**

In terms of demand for occupations in Ireland, professional, associate professional and managerial occupations are forecast to grow strongest with more moderate growth in demand for lower grade occupations. Robust growth is also forecast for personal and protective service occupations. This means that there is a strong upward skills profile gradient in employment growth (see below) – that is, employment growth is forecast to be stronger in more highly skilled occupations. According to FÁS/ ESRI, this difference between growth for higher and lower skilled occupations is forecast to be greater than in the past.

**Northern Ireland**

In NI employment growth is forecast across most occupations, bar occupations associated with the declining agriculture and manufacturing sectors. Professional and associate professional occupations are expected to grow fastest. Personal service occupations are also expected to show large increases as recent growth in child care and residential care for the elderly continues.

**Figure 4.29: Ireland recent employment trends and forecasts by occupation**

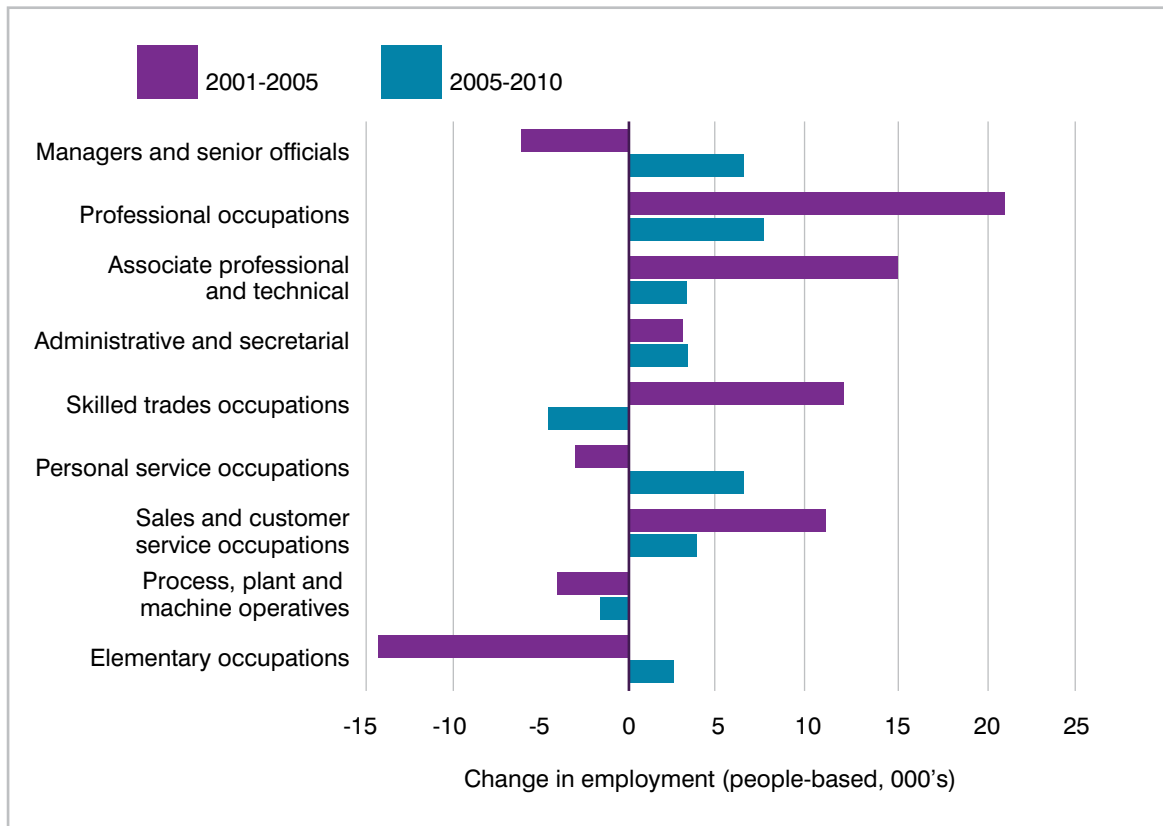


Source: CSO QHNS and ESRI.

Note: Based on SOC 1990 occupation classification. Employment refers to people in employment as opposed to jobs. Historical data from QHNS. Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). Only 5-year performance and forecasts presented as ESRI report does not present 1995 figures.



**Figure 4.30: Northern Ireland recent employment trends and forecasts by occupation**



Source: Census Office for NI, LFS and Regional Forecasts/Oxford Economics.

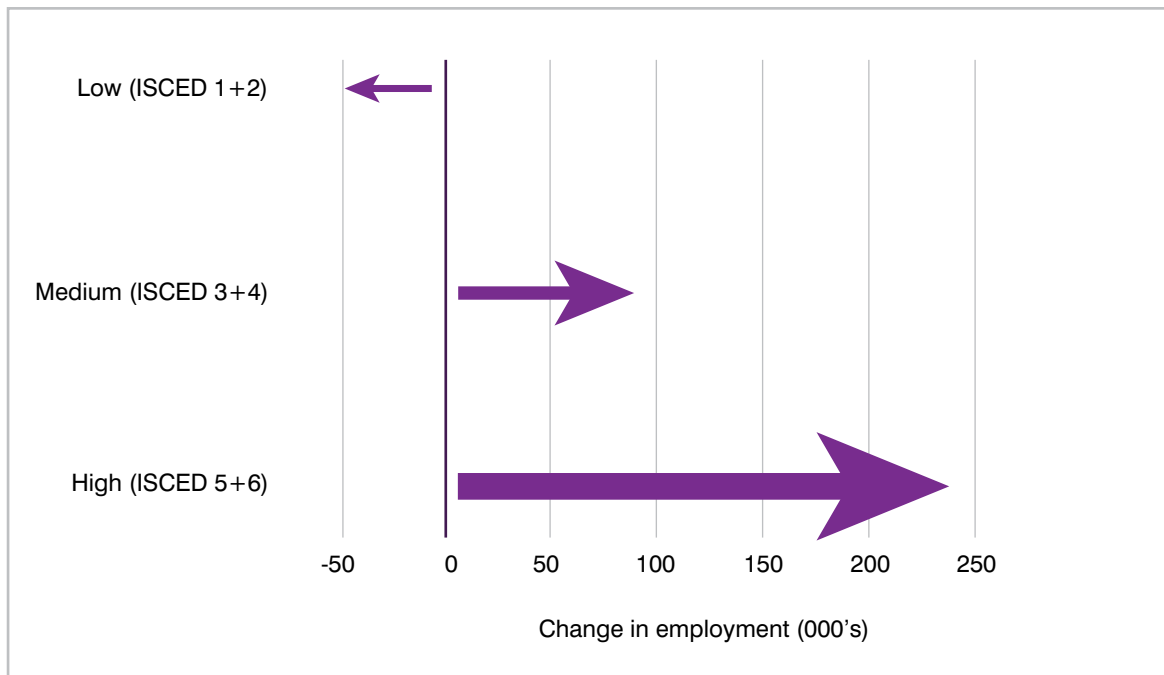
Note: Based on SOC 2000 occupation classification. Employment refers to people in employment. Historical data from LFS. Forecasts from Regional Forecasts 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on Regional Forecasts' constructed occupation figures which are not directly comparable to historical LFS series.

#### 4.12.4 Employed skills forecasts

##### *All-Island*

This future pattern of sectoral and occupation growth, much as over the last decade, has a strong skills profile gradient with a high proportion of jobs forecast to need higher level graduate qualifications and job losses predicted overall for employment requiring low qualifications. Although there will be some specific lower grade and low skilled occupations with growth opportunities, for example 'luxury' employment occupations (e.g. private housekeepers and gardeners) as both economies become wealthier.

**Figure 4.31: All-Island indicative employment forecasts by skill level (next five years)**



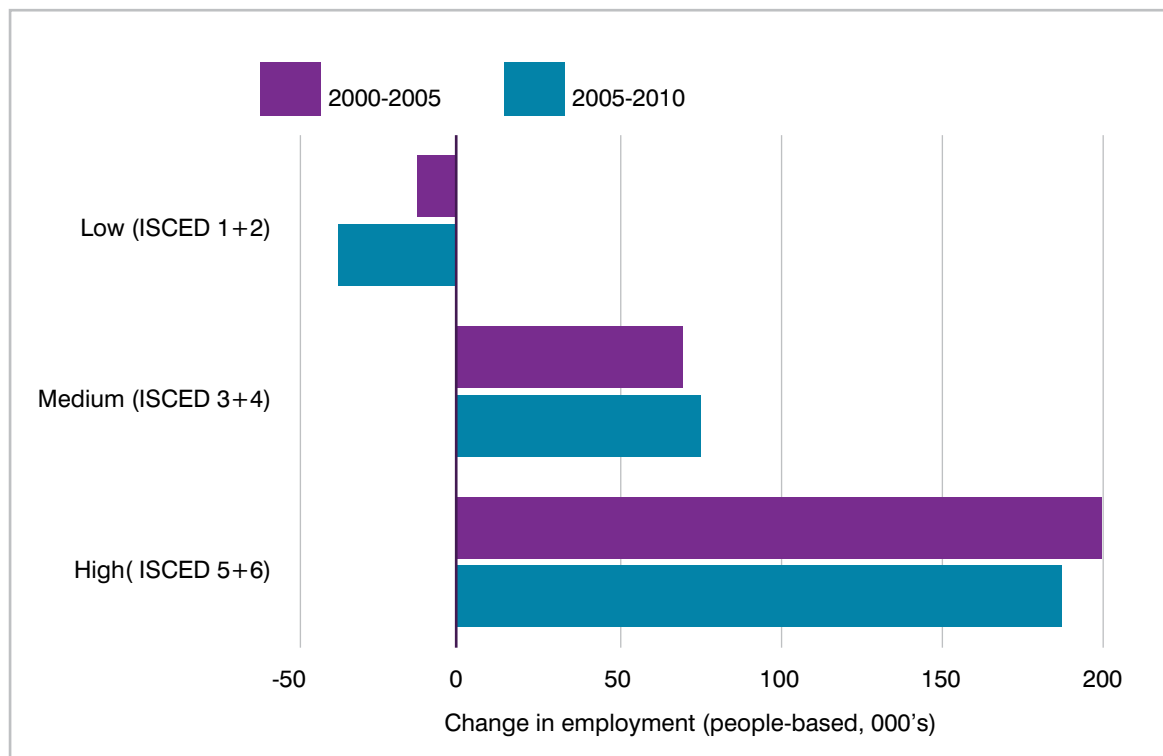
Source: CSO QHNS and ESRI.

## Ireland

The skills gradient in Ireland’s employment growth, both recent and forecast, is clearly illustrated by Figure 4.32 below. This is broadly consistent with the baseline skills profile from ‘Tomorrow’s Skills – Towards a National Strategy’ (2007) though not directly comparable as the forecasts presented here are not based around the Ireland’s National Qualification Framework and the forecast period differs. Recall again that the forecasts presented are not the ambitious targets set out in Chapter 1.

A key point however to note is that historical and forecast qualification levels of persons employed may not reflect the desired or minimum level of qualification required by employers, merely that achieved and supplied by the education system and migrants. This can mask both an under-employment of workers in jobs that do not require their level of skills for example migrants with graduate qualifications working in food processing, and an over-employment of workers whose skills are below that desired for their occupation in a particular industry, known as an internal skill gap. This is why information on skills gaps and utilisation of skills is important to enhance understanding of true skills demand.

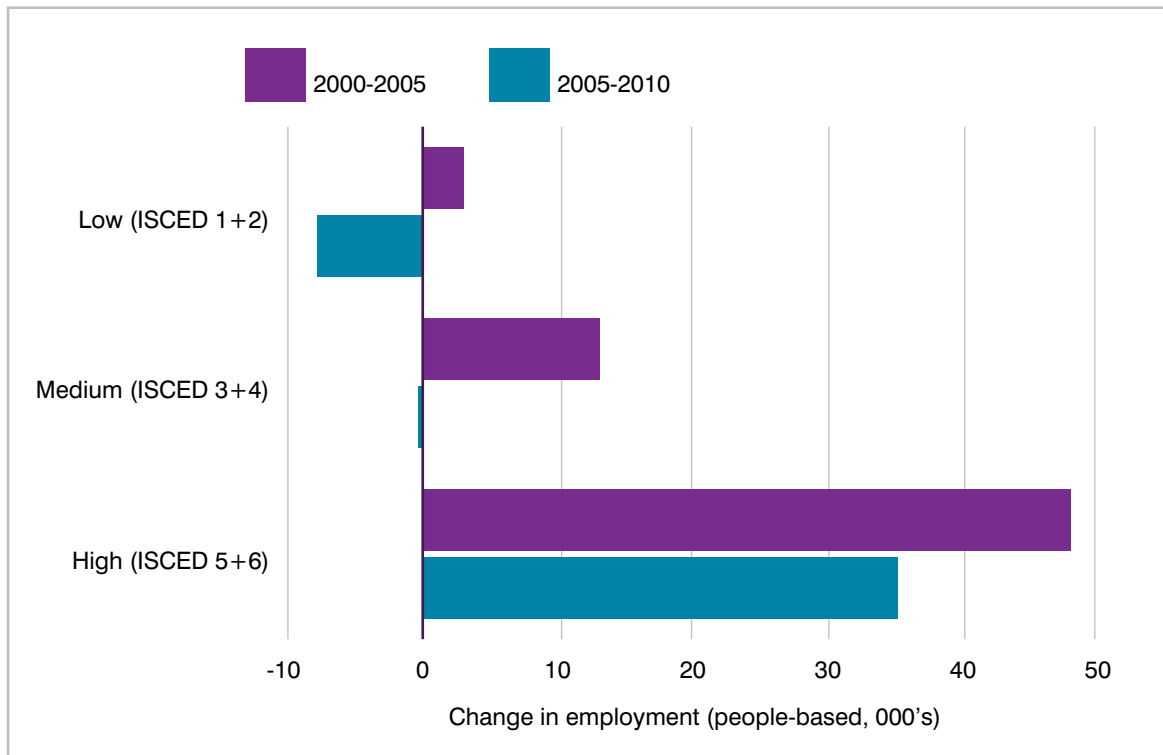
**Figure 4.32: Ireland recent employment trends and forecasts by skill level**



Source: CSO QHNS and ESRI.

## Northern Ireland

The skills profile gradient in the NI employment forecasts is broadly the same as for Ireland, except for less forecast growth for employment requiring medium qualifications (Figure 4.33). As explained below, NI skill forecasts are indicative and should be treated with caution.

**Figure 4.33: Northern Ireland recent employment trends and forecasts by skill level**

Source: LFS and Regional Forecasts/Oxford Economics.

#### 4.12.5 Employed Skill Stock Forecasts

##### Ireland

The impact of the above recent employment trends by skill level on the stock of persons employed has been to increase the share of university qualified workers in Ireland from 25 per cent in 2000 to 32 per cent in 2005 (Figure 4.34). The share is forecast to rise further to 41 per cent by 2015 under the baseline forecast. The shares of persons employed with lower education attainment are consequently declining, though the rate of decline is much more marked for persons with lower qualifications.

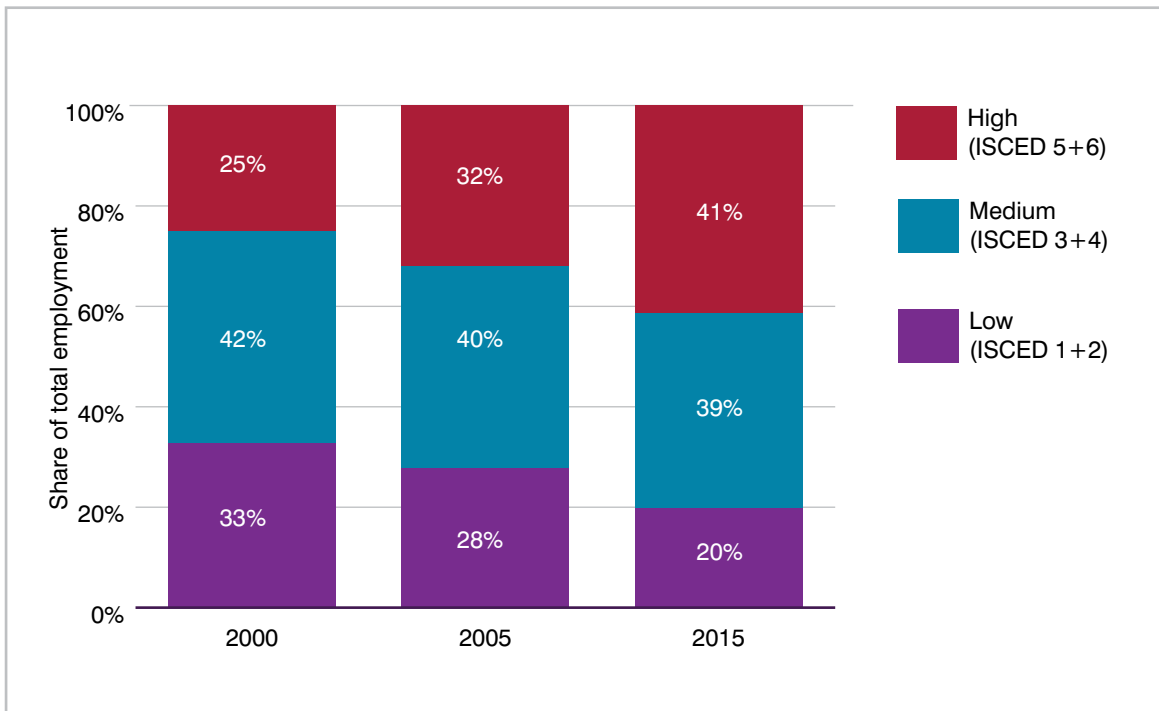
##### Northern Ireland

The trend in stock of employed skills is similar in NI, though the share of persons employed with higher qualifications is not forecast to grow as quickly (Figure 4.35).

It should be noted that NI skill stock forecasts were not previously estimated in the original Regional Forecasts research and have been roughly estimated for use in this report<sup>11</sup>. Ideally additional primary research would have been undertaken to do this more accurately. Caution should thus be exercised in quoting the NI skill stock forecasts.

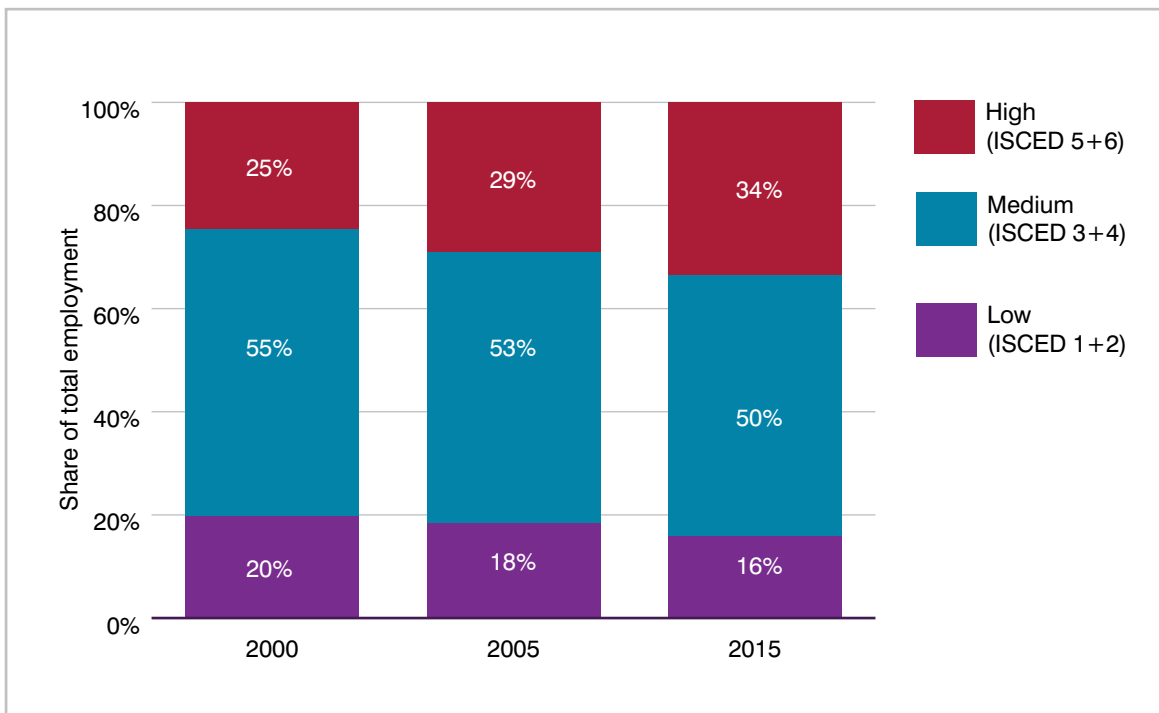
<sup>11</sup> The approach used was to translate occupation stock forecasts into skill forecasts using the occupation-skill matrix from the 2001 Census and basing up-skilling assumptions within occupations on recent economy-side LFS trends.

**Figure 4.34: Ireland recent employment trends and forecasts by stock of skills**



Source: CSO QHNS and ESRI.

**Figure 4.35: Northern Ireland recent employment trends and forecasts by stock of skills**



Source: LFS and Regional Forecasts/Oxford Economics.

#### 4.12.6 Replacement Demand Forecasts

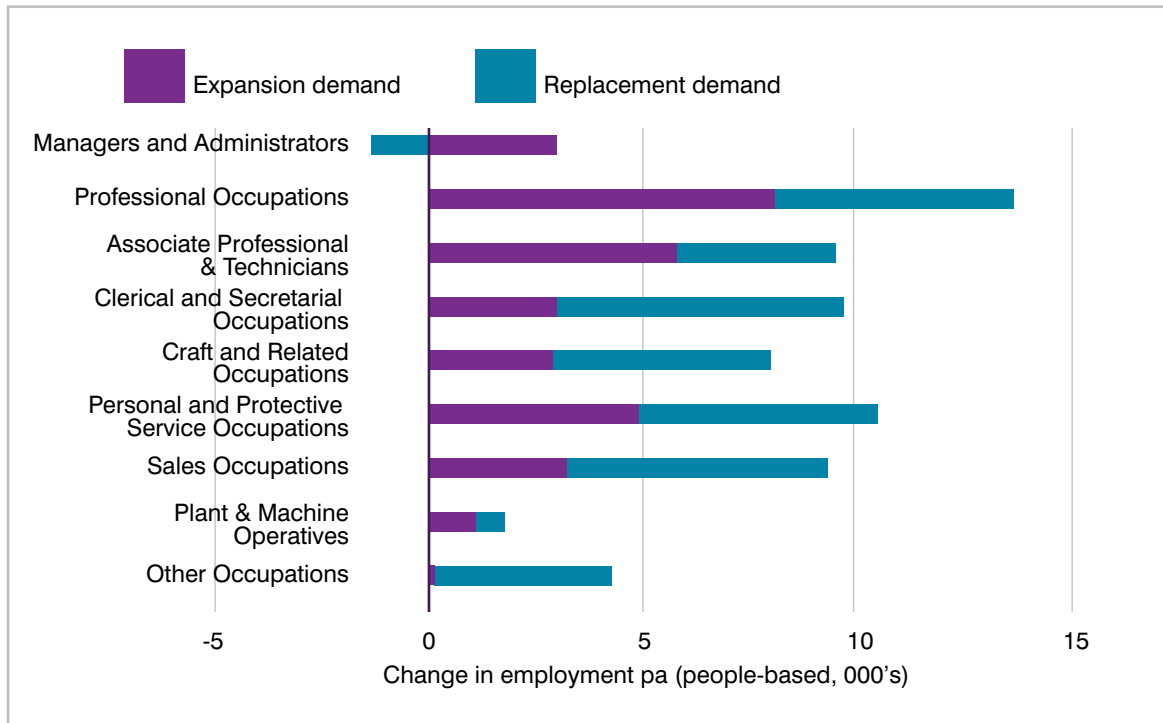
The final analysis of this section is replacement demand analysis. Annex D provides a detailed explanation of what replacement demand analysis is and why it is important. Essentially replacement demand estimates the number of people required in each occupation and skill category to replace leavers. The net requirement for workforce skills at economy-wide level is then the sum of:

- **Expansion demand** – the increase (or decrease) in employment stock (known as expansion demand); and
- **Net replacement demand** – the number of jobs vacated by those leaving employment to (1) retirement; (2) death; (3) unemployment/inactivity; (4) out migration, minus the number of people joining employment from unemployment/inactivity.

For both Ireland and Northern Ireland replacement demand flows are an important component of overall demand for occupations and skills and at economy wide level, are larger than expansion demand, particularly for lower grade occupations as shown in Figure 4.36 and Figure 4.37. However a comparison of the ratio of replacement to expansion demand between the North and South is not advised due to possible differences in what inflows and outflows are included in the calculations.

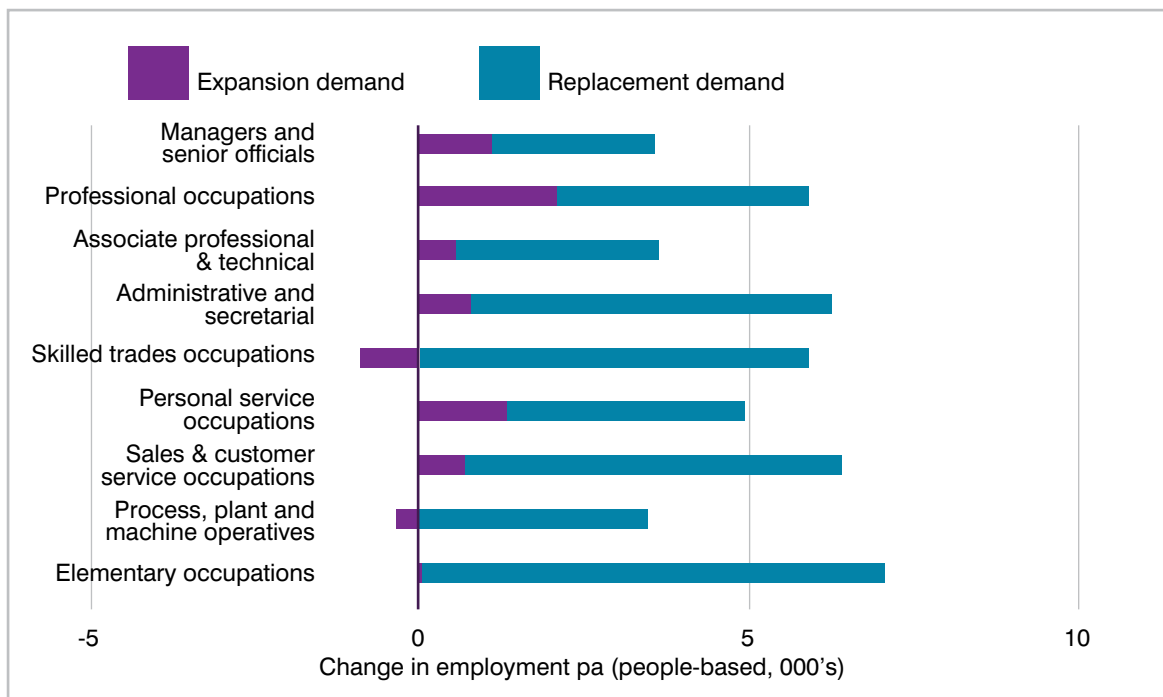
Replacement demand analysis helps to explain why a large number of vacancies arise for low skilled jobs in declining sectors. It also influences the pattern of future skill needs as indicated by Figures 4.38 and 4.39. As leaving rates tend to be greater for lower skilled occupations and joining rates higher for higher skilled occupations, the dynamics of the labour market means that the future need for lower qualifications will be higher than predicted by expansion demand forecasts alone.

**Figure 4.36: Ireland expansion demand and replacement demand forecasts by occupation (annual average demand 2005-2015)**



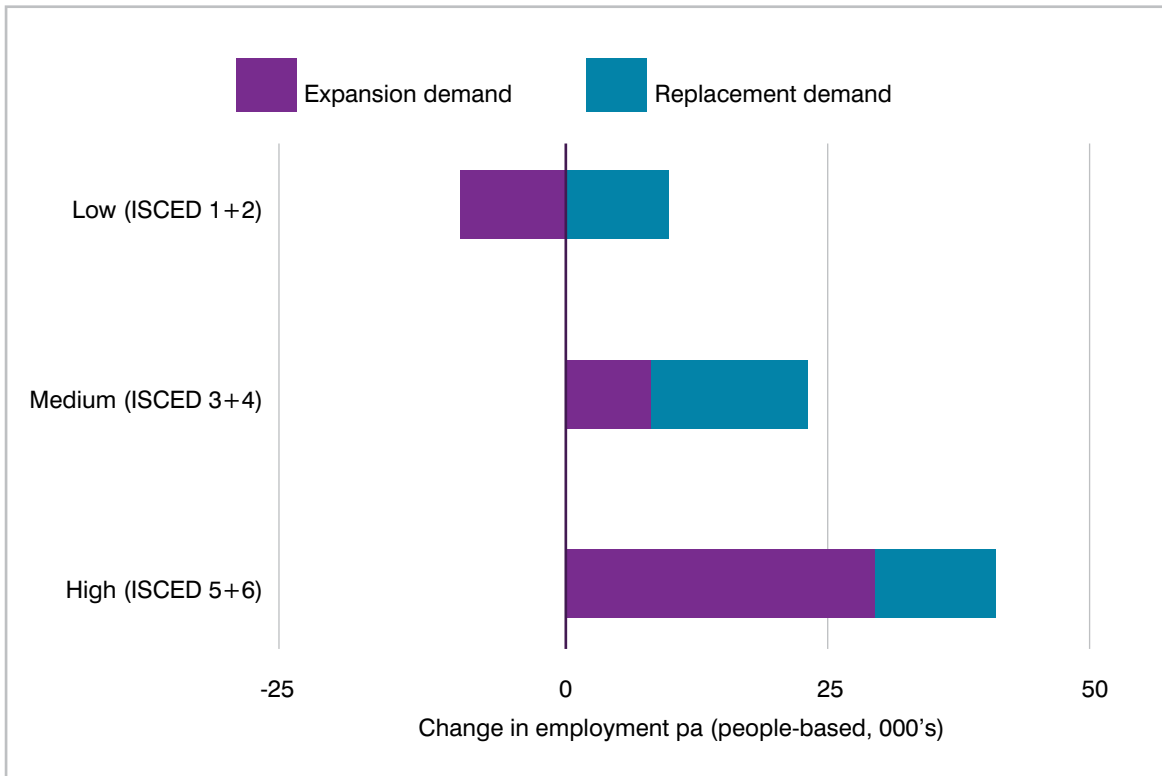
Source: ESRI.

**Figure 4.37: Northern Ireland expansion demand and replacement demand forecasts by occupation (annual average demand 2005-2015)**



Source: Regional Forecasts/Oxford Economics.

**Figure 4.38: Ireland expansion demand and replacement demand forecasts by skill level (annual average demand 2005-2015)**



Source: ESRI.

Note: Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). 2015 figures average of 2010 and 2020 figures from ESRI report. Replacement demand skill estimates estimated by Oxford Economics using ESRI occupation by skill forecast shares.



**Figure 4.39: Northern Ireland expansion demand and replacement demand forecasts by skill level (annual average demand 2005-2015)**



Source: Regional Forecasts/Oxford Economics.

Note: Forecasts from 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on Regional Forecasts' constructed occupation figures (used to forecast skill levels) which are not directly comparable to historical LFS series,

### 4.13 Summary

The key points to note on the All-Island economy from this chapter can be summarised as:

- Like most other developed economies, the all-island economy has undergone a transformation from traditional agriculture/manufacturing to services with strong growth in business and financial services employment and a shedding of jobs in less competitive manufacturing sub-sectors. This transformation has had a major influence on the nature of skill demand in the economy. The South has successfully developed its hi-tech manufacturing sector, which similar to financial and business services, tends to be graduate 'hungry'.
- The growth in construction, particularly in the South, has however been one of the main sources of demand for low skills and migrants, offsetting falling demand for low skills from the decline in more traditional production sectors.

- Recent all-island employment trends share some similarities with international comparators. The US, UK and France, like the all-island economy, have experienced employment growth in construction, retail, financial & business services and the public sector. The main difference, with the exception of rates of growth, is that the all-island economy has not shed jobs in other production industries. Also the scale of the contribution of construction growth to overall employment growth on the Island.
- The key occupational trends at all-island level are the strong growth in professional, craft & related trade and service & shop/market sale occupations and the decline in plant & machine operative occupations.
- The number of employed persons with low qualifications, while falling in share terms, has not fallen significantly in absolute numbers. As said above, this will partly be explained by the strong growth in construction over the last decade which creates demand for a whole range of skill levels.
- The most rapid employment expansion has been in the number persons with higher qualifications. This partly reflects the transformation of the economy, upskilling within sectors and occupations and the increased supply of third level qualified persons, including migrants. It should be noted that skill trends of persons in employment is not a complete picture of skill demand as it is very difficult to precisely ascertain if workforce skills reflect actual demand or available supply or a combination of both. Within an economy there can be instances of both skill gaps and under-utilised skills.
- The transformation from traditional agriculture/industry to services is forecast to continue apace, with financial & business services and public services expected to be the main sources of employment growth in the all-island economy. Importantly, construction employment growth is forecast to slow considerably, and indeed latest forecasts North and likewise the South predict short-term job losses in construction (though for methodological reasons these are not the forecasts used in the report).
- This sectoral pattern will result in employment growth being largely concentrated in managerial and professional occupations and also in service & shop/market sale occupations. Minimal employment growth is forecast for elementary and plant & machine operative occupations.
- Much as over the last decade, the pattern of future sectoral and occupational employment growth has a strong skills profile gradient with a high proportion of jobs forecast to need graduate qualifications and job losses predicted overall for employment requiring low qualifications. Although there will be some specific lower grade and low skilled occupations with growth opportunities, for example 'luxury' employment occupations.
- This pattern of skill needs from expansion demand analysis will however be altered to a degree when replacement demand needs are included. As leaving rates tend to be higher for lower grade and lower skilled occupations and joining rates higher for higher grade occupations, the dynamics of the labour market means that the future need for lower qualifications will be higher than predicted by expansion demand forecasts alone.

## North-South similarities/differences in sectoral, occupation and skill employment trends and forecasts

Similarities	Differences
<ul style="list-style-type: none"> <li>■ Both economies have undergone the transformation from traditional agriculture/manufacturing to services typical of most developed economies with similar strong growth in business and financial services.</li> <li>■ Both economies have consequently experienced similar occupational trends, with stronger growth in professional occupations, and similar trends in skill levels of persons employed with a declining share of those with lower qualifications and a rising share with higher qualifications (though the South's share of higher skilled employed persons has risen faster with the NI share in recent years remaining flat).</li> <li>■ Future employment growth North and South expected to continue to be led by financial and business services and education &amp; health with continued demand therefore for professional occupations and a similar future skills stock trend, with a high proportion of net additional jobs requiring higher qualifications.</li> <li>■ Replacement demand is an important component of skills demand across both jurisdictions.</li> </ul>	<ul style="list-style-type: none"> <li>■ In terms of economic structure, the public sector is relatively more important in the North, while the South economy is more dependent on business and financial services and construction.</li> <li>■ Within sectors, although not analysed in this study, there are likely to be important differences with implications for the nature of skill demand. For example the South's financial and business service sector has a larger international financial services element whereas NI will have a higher share of call centre employment.</li> <li>■ The South's growth in construction and retail employment has significantly outpaced growth in NI, which has had key implications for migrant labour.</li> <li>■ The South has been more successful in attracting hi-tech manufacturing FDI which has meant it has experienced a less pronounced decline in manufacturing employment.</li> </ul>