

## **OCCUPATIONAL EMPLOYMENT FORECASTS 2012**

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**Price €5.00**

*(Special rate for students) €12.50*

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FÁS – THE TRAINING AND EMPLOYMENT AUTHORITY

THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE  
DUBLIN, 2007

ISBN 0 7070 0255 9

## *ACKNOWLEDGEMENTS*

This report would not have been possible without the assistance of a number of individuals and organisations, who are due the authors' thanks. The Central Statistics Office supplied the bulk of the data and responded helpfully and promptly to queries. All members of the project steering group made a number of useful comments on an earlier draft of the report. In particular, Roger Fox at FÁS made a large number of detailed and helpful remarks that led to some important amendments. The report was also improved by the observations and thoughts of a number of colleagues at the ESRI, most notably John Fitz Gerald, Philip O'Connell and Alan Barrett. Finally, the work of Deirdre Whitaker, Regina Moore and Mary Cleary in preparing the report for publication is very much appreciated.

The content, including any mistakes or omissions, is solely the responsibility of the authors.

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# EXECUTIVE SUMMARY

## 1. AIM

This report offers detailed forecasts for the structure of the Irish labour market in 2012. The primary aim is to forecast levels of employment by occupation. A secondary aim is to provide a further breakdown of occupations by gender.

The starting-point is The Economic and Social Research Institute's (ESRI) 2005 *Medium-Term Review* (MTR), which provides forecasts for employment in 2012 by 11 industrial sectors, derived from the ESRI macroeconomic model.<sup>1</sup> The present report expands this to 20 sectors and combines the MTR forecasts with projections of the occupational structure within each sector, based on occupational trends from 1991 to 2005. The outcome is a set of forecasts for the occupational structure of the entire Irish labour market in 2012. In addition, projections are given for the female share of employment within each occupational classification.

An economic forecast should not be treated as a scientifically validated peek into the future. Rather, it is a scientifically informed assessment of the likely outcome given a certain set of assumptions. The forecasts presented in this report are based on the following specific assumptions: that the ESRI macroeconomic model provides an accurate picture of employment levels in 2012; that occupational trends from 1991 to 2005 within sectors continue; and that trends in the share of female employment within occupations also continue.

Events, policy and, in particular, changes in the international economic environment could violate these assumptions and result in the occupational employment forecasts being wide of the mark. Such is the nature of economic forecasting. Nevertheless, the exercise is useful, because it produces forecasts for what is likely to happen if current trends continue and, therefore, provides a benchmark against which the impact of policy changes or other changes in the economic environment can be judged.

## 2. ECONOMIC BACKGROUND

These occupational employment forecasts are produced at a time of considerable uncertainty within the international economy. Specifically, the deficit in the US current account is considered by the large majority of economists to be unsustainable. At some point, probably over the medium term, an adjustment in the US current account is likely. However, the timing and nature of such an adjustment is uncertain. A significant adjustment would affect the prospects for growth and employment in Ireland.

Given this uncertain international environment, two different sets of forecasts are provided by the MTR: a *High Growth* scenario and a *Low Growth* scenario. The former scenario is based on the assumption that the US economy continues to experience strong growth up to 2012, despite the theoretical unsustainability of its growth path. The latter scenario is based on the assumption that the US current account deficit is cut in the short-to-

<sup>1</sup> *Medium-Term Review 2005-2012*, J. Fitz Gerald, A. Bergin, I. Kearney, A. Barrett, D. Duffy, S. Garrett, Y. McCarthy, ESRI, December (2005).

medium term and that US growth declines to a sustainable long-run path. The present report adopts the same strategy of providing separate forecasts for these two scenarios.

The MTR highlights three factors driving economic growth at present: a shift from agriculture and manufacturing towards services, economically beneficial demographics (including net inward migration), and increases in the educational attainment and skills of workers. These factors mean that employment growth is forecast to continue under both scenarios, but to be curtailed under the *Low Growth* scenario. Under the *High Growth* scenario, overall employment in 2012 is forecast to be 2,187,000 – a rise of 17.7 per cent on the 2005 figure. Under the more pessimistic *Low Growth* assumptions, a smaller rise of 10.2 per cent, to 2,047,000 is forecast.<sup>2</sup>

An adjustment in the US current account would not rebound evenly across sectors of the Irish economy – some would fare worse than others. Under the *Low Growth* scenario, anticipated employment growth in services and construction is considerably reduced. This results from the interplay between the tradable and non-tradable sectors in the ESRI macro-economic model. The immediate effect of lower world demand is felt in high-tech manufacturing, which mostly produces for export, but the knock-on effect for domestic demand has a bigger impact on employment in construction and services, which are largely produced and consumed domestically and are more labour intensive.

The performance of the economy as a whole and the relative performance of individual industrial sectors, as just described, are two of the driving forces behind the occupational employment forecasts. The third significant force is occupational trends within industries. It is projections of these trends that the present analysis adds to the MTR forecasts to produce the primary output reported here.

### 3. PRINCIPAL TRENDS IN OCCUPATIONAL EMPLOYMENT

Employment forecasts for 18 broadly defined occupational groups are presented in Table 1, for both *High Growth* and *Low Growth* scenarios. By international standards the levels of employment growth envisaged under both scenarios, as given in the totals at the bottom of the table, are high. That said, the increases are not of the same order as for the period 1998-2005, when employment across the economy as a whole grew by more than 30 per cent.

This strong overall growth translates into employment growth within almost all occupations. Only one classification, *Agricultural Occupations*, is forecast to experience reduced employment under the *High Growth* scenario, although under the more pessimistic *Low Growth* assumptions, the *Unskilled Manual* category also contracts.

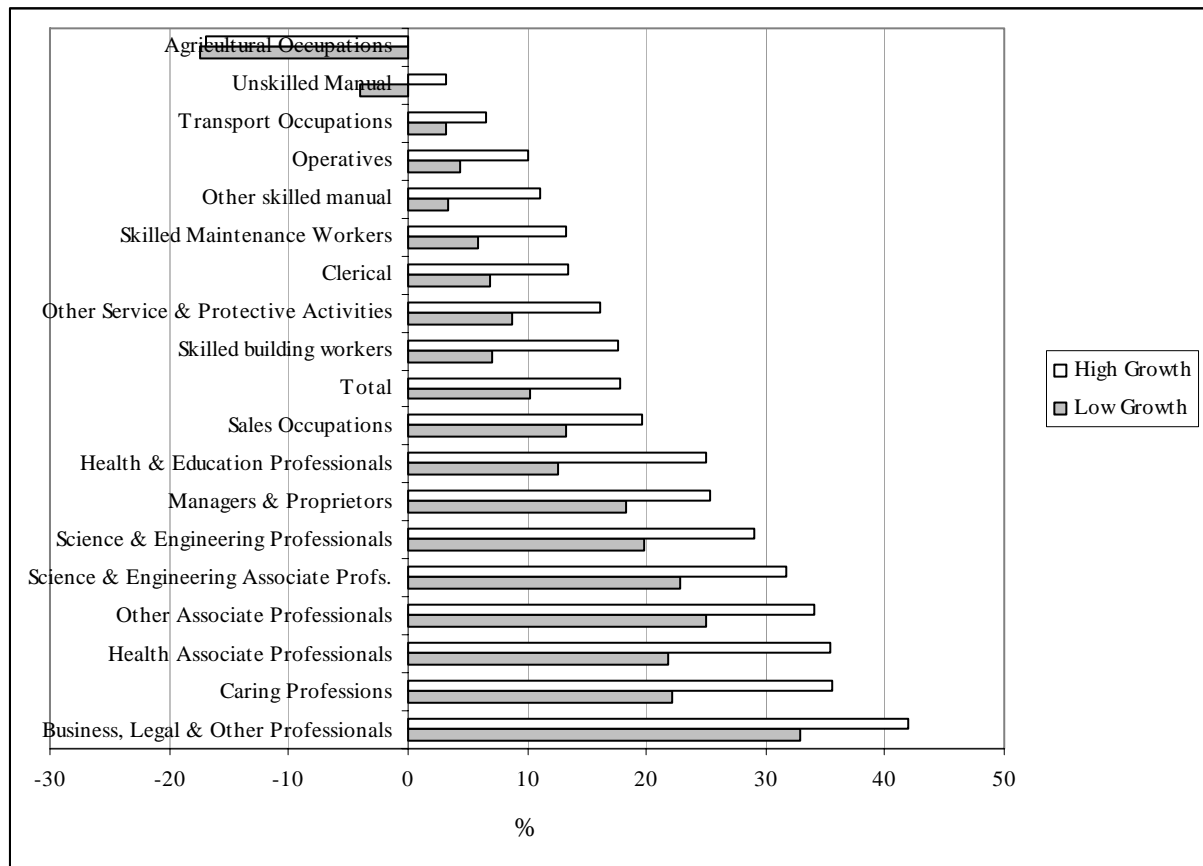
<sup>2</sup> Note that the definition of ‘employment’ used in this report is the PES (Principle Economic Status) measure, not the ILO (International Labour Organisation) measure now adopted by the Central Statistics Office. Thus, these figures are somewhat lower than official figures released by the CSO. For further explanation and a comparison between definitions, see Section 2.3 and Appendix D.



**Table 1: Employment by Occupation, 2005-2012**

	2005 000s	2012 (Forecast)			
		<i>High Growth</i>		<i>Low Growth</i>	
		000s	% Increase	000s	% Increase
Agricultural Occupations	99.2	82.4	-16.9	81.85	-17.5
Managers & Proprietors	228.2	286.2	25.4	269.97	18.3
Health & Education Professionals	100.1	125.1	25.0	112.64	12.6
Science & Engineering Professionals	55.0	70.9	29.1	65.81	19.7
Business, Legal & Other Professionals	79.6	113.0	41.9	105.84	32.9
Health Associate Professionals	66.1	89.5	35.4	80.52	21.8
Science & Engineering Associate Profs.	41.3	54.4	31.6	50.78	22.8
Other Associate Professionals	57.6	77.3	34.1	72.04	25.1
Clerical	235.8	267.6	13.5	252.23	7.0
Skilled Building Workers	84.6	99.5	17.6	90.57	7.1
Skilled Maintenance Workers	74.1	83.9	13.3	78.43	5.9
Other Skilled Manual	80.4	89.3	11.1	83.07	3.3
Operatives	125.4	138.0	10.1	130.83	4.4
Transport Occupations	82.8	88.3	6.6	85.51	3.3
Sales Occupations	154.8	185.2	19.6	175.45	13.3
Caring Occupations	60.9	82.6	35.6	74.43	22.2
Other Service & Protective Activities	114.2	132.5	16.1	124.18	8.8
Unskilled Manual	117.3	121.1	3.2	112.57	-4.1
<b>Total</b>	<b>1,857.4</b>	<b>2,186.8</b>	<b>17.7</b>	<b>2,046.73</b>	<b>10.2</b>

**Figure 1: Employment Growth, Low v. High Growth Scenarios, 2005-2012**



The most striking aspect of the forecasts is that there exists considerable variation between occupations, leading to a strong ‘skills gradient’ in employment growth. That is, employment growth is anticipated to be much stronger in the more highly skilled occupations. This aspect of the forecasts is brought out in Figure 1, which shows the percentage changes in employment by occupation ordered from lowest to highest under both scenarios. The highest anticipated growth is among the professional and associate professional occupations, plus managers, regardless of which scenario is considered. More moderate increases are forecast for skilled manual occupations, while unskilled occupations are anticipated to experience the lowest employment increases.

Insight into the forces underpinning the forecasts can be had by considering the occupational group predicted to experience the strongest growth. The *Business, Legal & Other Professionals* group is anticipated to expand by 42 per cent and 33 per cent under the *High Growth* and *Low Growth* scenarios respectively. This expected performance is due to two influences. First, workers in this class are mostly employed in the service sector of the economy, which is predicted to benefit from a further sectoral shift from agriculture and manufacturing. Second, within each industry, the share of *Business, Legal & Other Professionals* is growing, reflecting a combination of the need for their skills across sectors and an increasing supply of qualified people. Because the category benefits from both these trends, sectoral and occupational, it is forecast to expand strongly.

This logic also underlies the general skills gradient that is to be found in the forecasts. Professional and associate professional occupations are more concentrated in service industries, which are benefiting from strong domestic demand and, with respect to market services, improving international terms of trade. Meanwhile, within these industries, there is a trend of growing professionalisation, such that high-skill occupations are accounting for an increasing share of employees. Again, both sectoral and occupational trends are upwards.

Figure 1 also permits comparison in terms of which occupations are most affected by the more pessimistic assumptions of the *Low Growth* scenario. The strong skills gradient remains in the forecasts, but certain occupations experience a greater reduction in expected growth. The forecasts for the categories of *Health & Education Professionals*, *Associate Health Professionals*, *Caring Occupations* and *Skilled Building Workers* are most severely reduced by the less favourable economic circumstances envisaged. These occupations are most affected because while a more difficult international trading environment would initially hit the manufacturing-oriented tradable sector, the subsequent reduction in domestic demand would rebound into the non-tradable sector, hitting services and investment in housing, and hence reducing employment in associated occupational categories.

Table 2 translates the forecasts (*High Growth* only) into a distribution of employment by occupation and shows the evolution of the distribution since 1991. There has been a marked decline in the *Agricultural Occupations* and *Unskilled Manual* categories, which covered over 20 per cent of the workforce in 1991, just 12 per cent by 2005, and are forecast to account for less than 10 per cent by 2012. The skills gradient in employment growth is evident from the increasing proportion of the workforce in professional and associate professional occupations, which between them covered roughly one-in-six employees in 1991, one-in-five by 2005, and are forecast to amount to very nearly one-quarter of all workers by 2012. (This general pattern of change is similar for the *Low Growth* scenario, but slightly less severe.)

**Table 2: Distribution of Employment by Occupation, 1991-2012 (*High Growth*)**

	1991	1998	2005	2012
			%	(Forecast)
Agricultural Occupations	10.7	8.0	5.3	3.8
Managers & Proprietors	11.2	12.7	12.3	13.1
Health & Education Professionals	5.7	5.4	5.4	5.7
Science & Engineering Professionals	1.4	2.3	3.0	3.2
Business, Legal & Other Professionals	2.5	3.5	4.3	5.2
Health Associate Professionals	3.2	3.1	3.6	4.1
Science & Engineering Associate Profs.	1.6	2.0	2.2	2.5
Other Associate Professionals	2.1	3.0	3.1	3.5
Clerical	14.1	12.7	12.7	12.2
Skilled Building Workers	2.0	2.9	4.6	4.5
Skilled Maintenance Workers	4.4	4.3	4.0	3.8
Other Skilled Manual	5.1	4.3	4.3	4.1
Operatives	8.0	9.6	6.7	6.3
Transport Occupations	4.2	4.3	4.5	4.0
Sales Occupations	7.6	8.0	8.3	8.5
Caring Occupations	1.0	1.8	3.3	3.8
Other Service & Protective Activities	6.0	6.2	6.1	6.1
Unskilled Manual	9.1	6.0	6.3	5.5
Total	100.0	100.0	100.0	100.0

Table 3 presents the occupational employment forecasts for a more detailed set of 43 occupations, for both the *High Growth* and *Low Growth* scenarios. This more disaggregated set of forecasts displays similar patterns, in terms of the difference between the two scenarios and the skills gradient. Other notable employment increases are forecast for certain occupations in services, including for *Care Assistants* and *Security Personnel*. *Agricultural Occupations* is no longer the lone category in which employment is forecast to decrease. It is joined by a handful of categories associated with traditional manufacturing, such as *Clothing/Textile Workers* and *Printers*. Under the *Low Growth* scenario, some specific groups of operatives are also expected to see reduced employment.

**Table 3: Employment by 43 Detailed Occupations, 2005-2012**

	2005	2012			
	000s	<i>High Growth</i> 000s % Increase	<i>Low Growth</i> 000s % Increase		
Agricultural	99.2	82.4	-16.9	81.9	-17.5
Managers	190.4	240.1	26.1	226.4	18.9
Proprietors in Services	37.8	46.1	22.0	43.5	15.2
Health Professionals	15.5	20.7	33.3	18.8	21.1
Educational Professionals	80.9	101.0	24.8	90.7	12.1
Clergy	3.6	3.3	-8.1	3.1	-14.4
Science Professionals	8.3	10.9	31.2	10.0	20.1
Software Engineering Professionals	6.7	9.8	45.8	9.2	36.7
Other Engineering Professionals	39.9	50.2	25.8	46.6	16.8
Business/Finance/Legal Profs.	52.6	77.9	48.3	73.2	39.3
Other Professionals	27.1	35.1	29.5	32.6	20.4
Health Associate Professionals	66.1	89.5	35.4	80.5	21.8
Science Associate Professionals	15.9	20.3	27.5	18.9	18.5
Computer Associate Professionals	15.9	22.4	40.7	21.0	31.9
Engineering Associate Professionals	9.5	11.7	23.4	10.9	14.8
Catering Associate Professionals	19.9	25.0	25.5	23.3	17.1
Other Associate Professionals	37.7	52.3	38.7	48.8	29.3
Clerks/Typists/Telephonists	235.8	267.6	13.5	252.2	7.0
Skilled Building Workers	84.6	99.5	17.6	90.6	7.1
Electricians, Electrical Fitters	34.3	39.1	13.7	36.1	5.1
Fitters and Mechanics	39.7	44.8	12.9	42.3	6.6
Metal/Engineering Craft Workers	22.3	24.1	8.2	22.2	-0.7
Wood Craft Workers	42.2	49.4	17.1	45.5	7.9
Clothing/Textiles Workers	4.4	4.1	-7.9	4.0	-9.4
Printers	6.8	6.3	-7.0	6.3	-7.7
Other Skilled Workers	4.7	5.4	14.7	5.2	8.7
Electrical/Electronic Operatives	13.9	11.7	-15.9	10.8	-22.1
Metal/Engineering Operatives	15.9	16.3	2.9	15.0	-5.7
Food/Drink/Tobacco Operatives	24.4	24.9	2.0	24.8	1.6
Other Production Operatives	71.2	85.1	19.6	80.2	12.8
Drivers	69.6	75.0	7.7	72.5	4.2
Other Transport Workers	13.2	13.3	0.9	13.0	-1.6
Sales Agents	37.0	43.3	16.8	40.9	10.5
Sales Assistants	106.9	128.6	20.3	121.9	14.0
Other Sales Workers	10.8	13.3	22.7	12.6	16.9
Childcare and Related Services	23.7	31.9	35.0	28.9	22.0
Care Assistants	37.2	50.6	36.0	45.6	22.4
Army/Gardaí/Prison Officers etc.	22.5	23.1	2.6	22.0	-2.3
Other Security Personnel	17.4	23.1	32.6	21.5	23.6
Catering Occupations	26.1	28.6	9.6	26.7	2.2
Other Personal Services	31.3	42.4	35.5	39.7	26.7
Occupation Unstated	16.8	15.3	-9.0	14.3	-15.0
Unskilled Manual	117.3	121.1	3.2	112.6	-4.1
<b>Total</b>	<b>1,857.4</b>	<b>2,186.8</b>	<b>17.7</b>	<b>2,046.7</b>	<b>10.2</b>

#### 4. FEMALE OCCUPATIONAL EMPLOYMENT FORECASTS

Forecasts for the aggregate female share of employment are provided in Table 4. In 1998, 38.6 per cent of the Irish workforce were women. By 2005, the figure was 41.8 per cent – a rise of 3.2 percentage points. Under the *High Growth* scenario, the forecast for the female share of employment in 2012 is for a somewhat smaller but still sizeable increase of 2.6 percentage points, to 44.4 per cent, while under the *Low Growth* scenario the share climbs to 44.1 per cent.

The gender difference between the two growth scenarios is small for two reasons. First, while the *Low Growth* scenario foresees reduced employment growth in health-related occupations, which have high female shares, the scenario also envisages significantly lower growth in construction-related occupations, which have low female shares. But the second, and more important, factor is the distinction between expansion demand and replacement demand. That is, even though the *Low Growth* scenario forecasts less overall employment growth, many workers will retire or leave occupations for other reasons and be replaced by new entrants to the labour force, a much higher proportion of whom are women.

**Table 4: Forecast Employment by Gender for 2012**

	1998	2005	2012 (Forecast)	
			<i>High Growth</i>	<i>Low Growth</i>
Female employment (000s)	550.5	776.8	971.1	903.2
Female share (%)	38.6	41.8	44.4	44.1
Male employment (000s)	874.7	1080.6	1215.7	1143.5
Male share (%)	61.4	58.2	55.6	55.9
Total	1,425.3	1,857.4	2,186.8	2,046.7

These aggregate numbers hide strong differences in the occupations filled by men and women. Table 5 shows the distribution of employment for males and females by 5 broad occupational categories. A much higher proportion of women work in professional and associate professional occupations. Although fewer women than men work, those that do are, on average, of higher educational attainment. The forecasts for 2012 see this gender difference widening further.

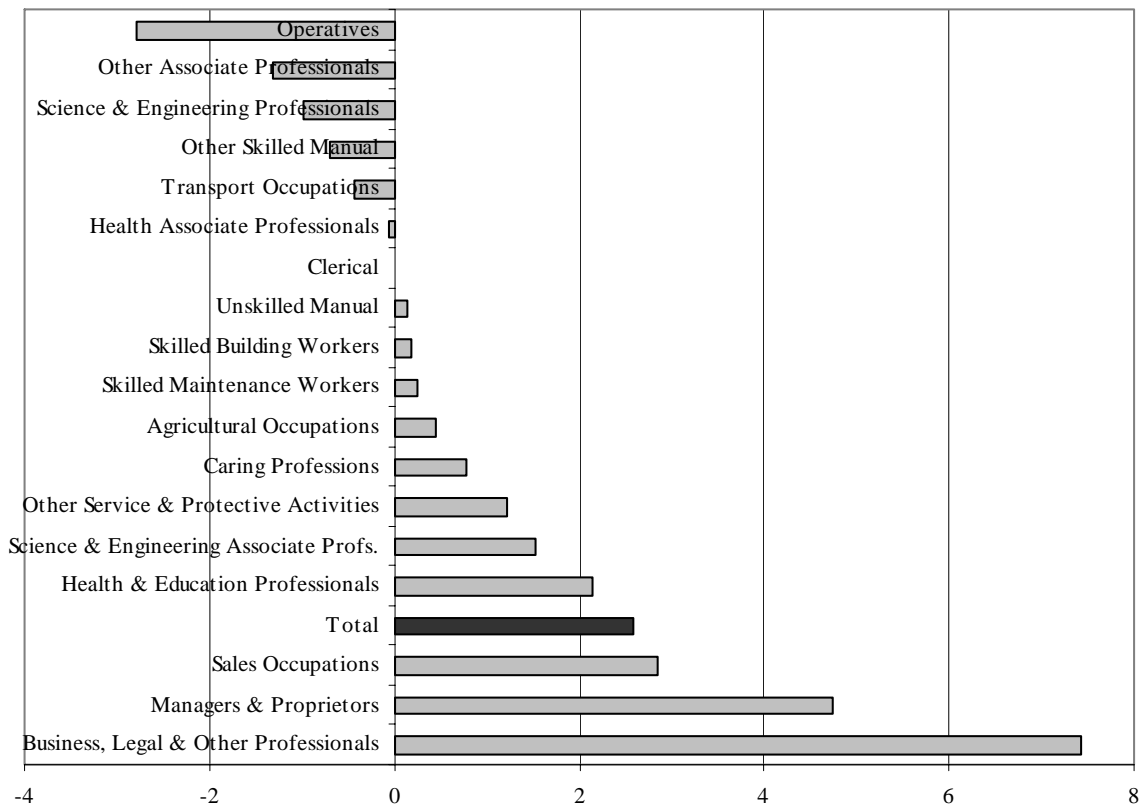
**Table 5: Distribution of Female and Male Employment (*High Growth*)**

	<i>Female</i>			<i>Male</i>		
	1998	2005	2012 (Forecast)	1998	2005	2012 (Forecast)
Professionals	13.0	14.7	16.4	10.0	11.2	12.3
Associate Professionals	11.9	12.7	13.6	5.6	6.2	7.3
Non-professionals	63.2	60.3	56.4	58.2	61.3	60.9
Agricultural Occupations	1.4	0.9	0.7	12.1	8.5	6.2
Managers & Proprietors	10.5	11.4	12.9	14.1	12.9	13.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

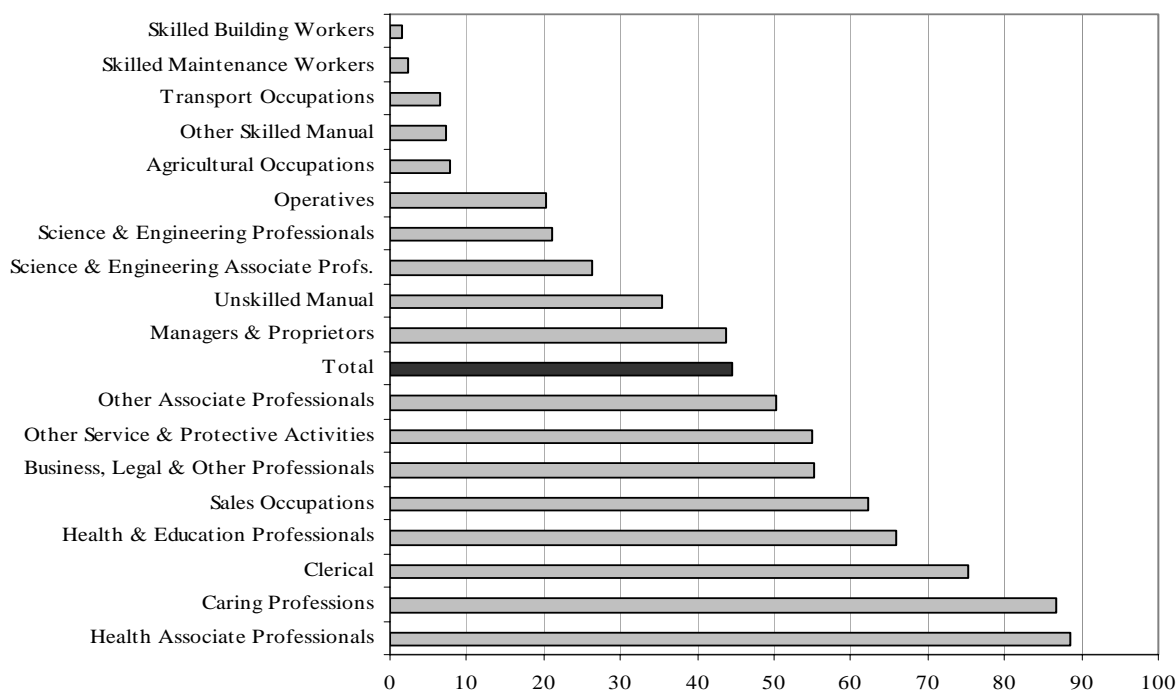
Figure 2 shows forecasts for the percentage-point increase in the female share across 18 occupations. There is again a skills gradient, although not quite as pronounced as the gradient for occupational employment growth above. Nevertheless, women are increasing their share of employment faster in professional, associate professional and managerial occupations, as well as in sales. The notable exception to this trend is in the category of *Science & Engineering Professionals*.

The impact of these changes on the female share by occupation is given in Figure 3. If these predictions based on current trends prove accurate, by 2012 women will form the majority of *Business, Legal & Other Professionals* and the proportion of women among *Managers & Proprietors* will almost match the proportion of women in the workforce as a whole.

**Figure 2: Forecast Change in Female Employment Share (%-points), 2005-2012  
(High Growth)**



**Figure 3: Forecast Female Employment Share (%) in 2012 (*High Growth*)**



## 5. SOME IMPLICATIONS OF THE FORECASTS

An economic forecast should not be regarded as a straightforward prediction of what will happen to us, economically speaking. It is an indication of where the present direction of travel is taking us, not an advance look at our inevitable destination. If policymakers like what they see ahead, they can act to sustain the driving forces that are taking us there. If the vista is less desirable, policymakers can act to change the direction of travel. In the latter case, a successful policy would be one that changed direction and thereby avoided what the forecast anticipated. Although ultimately proven wrong, such a forecast would nevertheless have proved very useful – an economic ‘Danger Ahead’ sign.

In the present case, however, the view ahead is not uninviting. The forecasts predict a continuation of the high rate of employment growth by international standards, but with the rate of growth moderating somewhat in comparison with recent times. This slowdown of employment growth is anticipated to affect some occupations more than others. The primary result arising from the analysis contained in this report is the strong skills gradient in likely employment growth for the period 2005 to 2012. High-skill occupations are anticipated to continue with strong employment growth under both growth scenarios considered. The implication is that the policy challenge is, therefore, largely to sustain the current trends on which the forecasts are based. This means, in particular, sustaining the increase in the share of high-skill occupations, but it may also mean anticipating threats to current trends posed by the international environment.

It is important to note that the *Low Growth* scenario represents only one out of a range of possibilities for adjustment in the US current account. The two growth scenarios are not intended to represent a ‘best case’ and a ‘worst case’. In particular, the *Low Growth* scenario assumes that the adjustment in the US current account is gradual. In reality, because the

adjustment path is dependent on the performance of asset markets, history has shown that adjustment could be sharp. In such circumstances, there is the possibility of a rapid change in people's expectations accompanied by a change in behaviour as it relates to major financial decisions, notably in the housing market. This may have serious implications for Ireland's recently expanded and proportionally large construction sector. The present analysis of occupational structure shows which occupations are most exposed to such a negative housing shock: *Skilled Building Workers, Wood Craft Workers, Metal/Engineering Craft Workers, Electricians & Electrical Fitters, Engineering Associate Professionals, Unskilled Manual*. Hence, the current international economic environment poses greater risks for workers in these occupations. In 2005, over 85 per cent of them were male.

The strong skills gradient in the forecasts implies a further increase in the educational attainment of the Irish workforce. In particular, with 40 per cent of the employment growth by 2012 anticipated to be in professional and associate professional occupations, the proportion of new jobs that require third-level qualifications is expected to be higher than in recent years. In part, this growth in high-skill labour is expected to be met by further increases in female labour supply. Women are increasing their share of high-skill occupations rapidly and levels of educational attainment among female workers are anticipated to continue to rise faster than among male workers.

However, the increase in female labour supply that has fuelled much of Ireland's employment boom is beginning to level off. Thus, the forecasts rely on further immigration to increase Ireland's labour supply. Migration is expected to account for almost half the increase in labour supply between 2005 and 2010, and the majority after 2010. Since the pool of Irish labour abroad has diminished, these migrant workers are increasingly likely to be non-Irish immigrants, rather than returning Irish emigrants. With respect to the issue of skill levels, on the one hand immigrant workers have generally higher educational attainment than domestic workers. But, on the other hand, there is evidence that many workers from non-English-speaking countries find themselves in occupations consistent with a lower level of educational attainment than they possess. Whether immigrants are able to supply the high-skill labour required, such that the occupational employment forecasts will be met depends partly on the environment they encounter on arrival in Ireland, but also on their perceptions of prospects in Ireland relative to other potential destinations.

Thus, in addition to the uncertainties of the international economy, and the potential vulnerability of the construction sector to shocks, there is a question mark as to whether the supply of high-skill employees will be sufficient for current occupational and sectoral trends to continue and, therefore, for the forecasts to be met. If the supply of high-skill workers is less than forecast, those industries most reliant on them, notably service industries, will be less competitive, with implications for overall economic performance. Policy has the capacity to help to sustain the trends on which the forecasts are based and, hence, the likelihood that the increased employment they envisage will come to pass, or even be surpassed. It is in this light that the forecasts should be viewed.