

1 Introduction and Background

1.1 Introduction and Purpose of the All-Island Skills Study

- A Comprehensive Study on the All-Island Economy was commissioned by the British-Irish Inter-Governmental Conference and published in October 2006. The study emphasised the critical economic and social role of skills development and the benefits of working in a co-ordinated way to ensure sufficient and appropriate skills across the Island.
- As a result, the Expert Group on Future Skills Needs in Ireland and the NI Skills Expert Group agreed to work together to ensure the evidence is available to underpin policies which will deliver the necessary workforce skills across the Island. This study provides a robust evidence base for future partnership and effective working between the two skills expert groups by providing a comprehensive picture of skills demand on an all-island basis.

The purpose of this study is therefore to:

- Extend the understanding of skills demand across the Island of Ireland (drawing attention to key synergies and differentials where appropriate); and
- Provide a robust evidence base for future partnership and effective working between the two skills expert groups.

1.2 Benefits of North-South Skills Collaboration

While in certain areas both economies, North and South, differ – some of which are highlighted in this report – in several other areas, there are important similarities and challenges. With growing and ever-changing global competition, Ireland’s National Development Plan (NDP) notes that “All-Island collaboration offers a unique and relatively unexploited source of competitive advantage for both the North and South”.

North-South collaboration is already well advanced in a number of areas. This includes the creation of six North-South bodies, establishment of cross-border organisations and research programmes and closer integration of industrial development and technology policy. Furthermore, Ireland’s National Development Plan (NDP) has a specific chapter on All-Island Co-Operation, with key areas identified for cooperation including infrastructure; science, technology & innovation; trade, tourism & investment; human capital; enterprise promotion and the provision of public services (health and education). The cited potential benefits of North-South collaboration in these areas include: gains in trade and investment, both in terms of intra North-South flows and external trade and FDI; exploitation of economies of scale; delivery of and access to more efficient and effective public services; reduced market failures caused largely by an imperfect flow of relevant business information; development of world-class infrastructure; and removal of barriers to physical, labour and academic mobility.

In terms of human capital/skills formation co-operation, the initial benefit of all-island skills collaboration will be the provision of North-South labour market information. This will allow for improvements in information available to the public, assisting employment and education providers in both the North and South and aiding career decisions. Over the long-term, it is intended that collaboration will contribute towards ensuring the all-island economy has a flexible, well-trained, well-educated and adaptable workforce to enable it to compete in the global economy.

The Comprehensive Study of the All-Island economy noted that:

'As the Governments North and South respond to labour market failures, there is clear potential for strong collaborative action to enhance the efficiency of the Island's labour market and ensure that sufficient and appropriate skills are in place to encourage sustained growth. A key objective is to optimise the utilisation of the skills pool on the Island, particularly in high growth sectors such as ICT and financial services, and to address any obstacles, regulatory or otherwise, that might inhibit such optimal use of available skills.'

As this study reveals, there are strong similarities in terms of skill strategies, ambitions and institutional structures to meet skill needs. With global economic conditions becoming more challenging and emerging economies ever more competitive, it is essential that the competitive advantage offered by collaboration is exploited so that the skills potential of the Island can be realised.

1.3 Importance of Skills to Economic Performance

The development of skills is critical to the pursuit of robust and sustainable economic growth and for positioning an economy to take advantage of new developments and innovations in the global marketplace. Consequently, it is important to recognise that investment in – and support for – the knowledge economy (i.e. education, training and upskilling) has the potential to drive an economy forward and yields real benefits, both for individuals and for communities.

Skills drive productivity, attract FDI, are a determinant of economic returns (both at a personal and economy wide level) and are commonly accepted as the key 'raw material' in the modern knowledge-based economy. To this end, skills have taken centre stage of modern economic development policy, alongside other drivers such as infrastructure and innovation. Furthermore, the changing global economic context – technological change, market liberalisation and increased global FDI flows – will ensure that skills development will become even more important to economic performance going forward. The importance of skills to economic performance and the capacity to attract FDI is rooted in the positive effects of a highly-skilled labour force on productivity, competitiveness and innovation.

1.3.1 Skills, Productivity and Innovation

Economic growth theories support the view that improving the skills and qualifications of workers both improves economic performance and drives social progress. The importance of the relationship between skills, productivity and innovation is a recurrent theme in the skills literature and policy documentation. Indeed, the EGFSN National Skills Strategy report published in 2007 notes that economic and productivity growth increasingly depend on the synergies between new knowledge and human capital.

The related themes of skills, productivity and innovation have been revisited by the UK Government on numerous occasions over the past decade. One of the latest UK Government reviews – the *Leitch Review of Skills* (2006) – sets out the role of skills in the UK economy and the value of acquiring additional skills, both to individuals and the wider economy. Improvement in skills has been identified by the UK Government as one of the key ways to meet its objective of raising the sustainable rate of economic growth, as skills improvement can contribute to increasing economic growth by both boosting productivity and increasing the overall employment rate. Indeed, skills have been selected as one of the 5 main drivers of productivity within the UK Government’s framework for considering policies to improve productivity. The Leitch review also found that poor skills have constrained productivity, innovation and investment and have prevented employment from rising further. Moreover, this report goes on to articulate clearly the importance of skills to future productivity growth:

“In the 21st Century, our natural resource is our people – and their potential is both untapped and vast. Skills will unlock that potential. The prize for our country will be enormous – higher productivity, the creation of wealth...Without increased skills, we would condemn ourselves to a lingering decline in competitiveness, diminishing economic growth and a bleaker future for all”.

Indeed, the available evidence indicates that where skills gaps exist between economies, potential productivity is unfulfilled. For instance, a serious skills gap has been found to exist between the UK and other economies such as France and Germany. The UK Treasury (2004) has previously noted that the lower level of skills in the UK could explain up to 20 per cent in the productivity gap between the UK and elsewhere with the remaining 80 per cent attributable to factors such as capital investment (or the available stock of physical capital) and total factor productivity (or the efficient use of resources) (CFE, 2007). On the basis of this estimation of the relationship between skills and productivity, the Leitch review stated: *‘if the UK had similar skills levels as these countries, its national income would be significantly higher’.*

1.3.2 Skills and Wages

Education and increased skills levels have a significantly positive effect on wages. Skilled workers have seen the wage premium (or real return) to higher education and training rise in recent years whilst unskilled workers have become increasingly vulnerable to job losses and declining real wages. Consequently, the extent of the wage differential between skilled and unskilled workers has risen sharply in many economies (Tan, 2005). The impact of higher skills on average wages is clear from OECD statistics which shows higher wage levels for people with tertiary level education compared to those with lower level skills. This link between wages and skills has been further demonstrated in recent work undertaken by Oxford Economics on behalf of the Department for Employment and Learning (2007) which showed that where a high percentage of the employed labour force has graduate qualifications this is associated with high wages and productivity. This report noted that average wage levels are strongly associated with the proportion of graduates and that as wage levels are generally underpinned by productivity (at least in the private sector), graduates tend to be strongly associated with higher productivity.

A key driver of these rising wage premiums for skilled labour is the complementarity between the broader effects of globalisation and the demand for skills. The former has brought about a rapid increase in technological change and increased global FDI flows. These factors, in turn, have created a higher demand for skilled labour with a consequent increase in the returns to skills (i.e. greater output and wages). Indeed, the changing economic environment has placed a greater emphasis upon the need to have the skilled labour base, which will allow an economy to take advantage of innovation.

1.3.3 Demand for Skilled Labour

The process of global economic change and development ensures that the skills requirements of any given economy will change over time and in particular, that *'as the economy increases its dependence on services and high technology manufacturing, and traditional sectors decline in importance, there will be a corresponding change in the particular skills and the balance of skills needed in the economy'* (EGFSN, 2007). To this end, the importance of training and education and the need to develop a highly skilled labour force that can compete on a global scale has been identified as an area in which the all-island economy can continue to develop competitive advantage.

Many countries and both jurisdictions on the Island included, will continue to experience a long-term trend whereby the profile and relative importance of many sectors within the economy undergo a process of significant change. According to the EGFSN (2007) sectors such as ICT, medical devices, pharmaceuticals/biotechnology, food and drink and high-value engineering will hold the potential for future economic growth, whilst services such as finance, business and marketing can be expected to continue to grow strongly.

Given the expectation that services and high value added manufacturing sectors will increase in relative importance while traditional manufacturing and agriculture will continue to decline, the Enterprise Strategy Group (2004) has previously emphasised the importance of R&D, innovation and marketing skills. Indeed, this group has noted that the rise in the incidence of knowledge-intensive occupations will result in a rise in the requirement for qualifications, skills and knowledge.

Moreover, the increasing importance of Science, Technology, Engineering, ICT and R&D – as integral elements of the knowledge-based economy – will ensure that the necessary skills will become ever more important. This has been recognised in NI through the establishment of the MATRIX panel, a business led expert group which is advising government on how best to maximise the commercial potential of R&D, science and technology capabilities.

The ongoing shift to services – whether financial services, marketing, etc. – and high-value manufacturing is likely to pose a challenge for employees, employers and policy-makers. This challenge is centred upon the need to ensure that the growing demand for skilled labour can be met and that the labour force is sufficiently equipped to adapt to changing needs and to capitalize upon the opportunities for increased competitiveness and productivity that will arise.

1.4 Ireland and Northern Ireland Skills Development Groups and Skill Strategies

In both jurisdictions, the relevant departments/agencies have developed skills strategies which set forth their ambitions with regard to skills development. In each case, these strategies provide an unambiguous declaration with regard to the importance attached to skills development and underpin this with a roadmap towards the implementation of ambitious targets. For instance, the national skills strategy for Ireland, *Tomorrow's Skills: Towards a National Skills Strategy (2007)*, sets out clear long-term objectives for the development of Ireland as 'a knowledge-based, innovation-driven, participative and inclusive economy with a highly skilled workforce by 2020' and sets out a road map for how the vision and objectives set out therein can be achieved.

Similarly, the skills strategy for NI *Success Through Skills (2006)* articulates the need to 'raise the skills level of the whole workforce; to help deliver high productivity and increased competitiveness; and to secure Northern Ireland's future in a global marketplace'. Once again, this strategy sets out a roadmap for taking these proposals forward in order to deliver on a long-term vision for skills in Northern Ireland.

As described next, the ambitious targets set by Forfás and DEL, and the strengthening North-South collaboration on skills development is a clear indication that both governments are giving the highest priority to skills development and have a clear vision of what skills are required to achieve this.

1.4.1 Ireland

Forfás, under the auspices of the Department of Enterprise, Trade and Employment, operates as the national policy advisory board for enterprise, trade, science, technology and innovation. Forfás provides secretariat and research support to the Expert Group on Future Skills Needs (EGFSN). EGFSN is a body appointed by the Irish Government to advise it on aspects of education and training related to the future skills requirements of the enterprise sector of the Irish economy. The group's mandate is to act as a central national resource on skills and labour supply for the enterprise sector and on overall strategy for enterprise training in Ireland. All Government requests for specific analysis,

sectoral or occupational, fall to the Group. Specifically, the EGFSN carries out systematic and detailed analyses in order to:

- advise Government on projected skills requirements at national and sectoral levels and make recommendations on how best to address identified needs;
- advise Government on associated priority training requirements and the most cost effective ways of responding to them;
- advise on any skills requirements that cannot be met internally at a given time and so must be met through inward migration;
- advise on developments in content and delivery systems that support excellence in training quality elsewhere and on adaptations necessary to incorporate such developments into training provision here;
- respond to any request for advice from the Minister for Enterprise, Trade and Employment on training programmes supported through the National Training Fund; and
- ensure that recommendations made are adequately assessed by the relevant and responsible authorities and periodically inform members of the EGFSN of progress made with regard to their implementation.

EGFSN has, since its inception, produced several strategic documents outlining the skills needs of key sectors. Most recently this has included the future requirement for high level skills in the ICT sector, future skills and research needs of the international financial services sector and skills needs in the medical devices.

As set out in 'Tomorrow's Skills: Towards a National Skills Strategy', if Ireland is to realise this vision of a new knowledge economy it requires enhancing the skills of the resident population, increasing participation in the workforce and continuing to attract highly skilled migrants. Key targets for 2020 outlined by the Expert Group of Future Skills Needs include:

- 48 per cent of the labour force should have qualifications at NFQ levels 6 to 10;
- 45 per cent should have qualifications at NFQ levels 4 and 5; and
- the remaining 7 per cent will have qualifications at NFQ levels 1 to 3.

In policy terms, this will require:

- an additional 500,000 individuals within the workforce will need to progress by at least an NFQ level: specifically upskill 70,000 from NFQ levels 1 & 2 to level 3; 260,000 up to levels 4 & 5 and 170,000 to levels 6 to 10;
- the proportion of the population aged 20-24 with NFQ level 4 or 5 awards should be increased to 94 per cent, either through completion of the Leaving Certificate or through equivalent, more vocationally oriented programmes. The retention rate at Leaving Certificate should reach 90 per cent by 2020;
- the progression rate to third level education will have to increase from 55 per cent to 72 per cent; and
- note the qualification mix of incoming and outgoing migrants will have a strong influence on the changing stock of skills.

1.4.2 Northern Ireland

The recent Programme for Government's focus on growing a dynamic and innovative economy over the next 10 years has identified key skill targets. The Programme highlights skill targets that it aims to reach by 2015 including:

- increase the proportion of the working-age population who are qualified to skill level 2¹ and above to 80 per cent by 2015;
- increase the proportion of the working-age population who are qualified at skill level 3 and above to 60 per cent by 2015;
- increase the proportion of Further Education enrolments at Level 2 from 29 per cent in 2005/06 to 32 per cent in 2010/11;
- increase the proportion of Further Education enrolments at Level 3 from 57 per cent in 2005/06 to 60 per cent in 2010/11;
- increase Apprenticeship training completion rates under Training for Success (and residual Jobskills) to 44 per cent at Level 3 by 2009/10);
- increase by 25 per cent, the number of students, especially those from disadvantaged communities, at graduate and postgraduate level studying Science, Technology, Engineering and Mathematics; and
- linked to the skills target is a wider economic target to achieve an employment rate of 75 per cent by 2020. i.e. in excess of the 2010 Lisbon Agenda target.

¹ **Level 2:** 5+ CSEs (grade 1), 5+ GCSEs (grades A-C), 5+ O level passes, Senior Certificate, 1 A level, 1-3 AS levels, Advanced Senior Certificate, NVQ level 2, GNVQ Intermediate or equivalents.

Level 3: 2+ A levels, 4+ AS levels, NVQ level 3, GNVQ Advanced or equivalents.

In terms of government departments, the Department for Employment and Learning (DEL) has responsibility for taking forward and delivering Success through Skills, the Skills Strategy for Northern Ireland, and skills targets in the Northern Ireland Executive's Programme for Government. DEL is working with Sector Skills Councils who are developing sector skills agreements within a wide range of sectors. These agreements, many of which have been 'signed off' set out the actions which need to be taken by employers themselves and those who provide education and training, in order to ensure skills needs are met. The Skills Strategy reflects the importance of labour market information and highlights that understanding the demand for skills is vital to help improve the planning of skills training.

The role of the NI Skills Expert Group, which is similar to the EGFSN in the South, is to advise and make recommendations to DEL and other government agencies on matters affecting the Skills Strategy for Northern Ireland. The work of the group covers three main areas. These are:

- update of skills supply and demand on an ongoing and priority basis;
- identification of emerging skills needs; and
- advice on training strategy, and how to look for potential opportunities.

A further institutional development for NI is the creation of the new NI Employment and Skills Adviser. The Skills Adviser will represent NI on the new UK Commission for Employment and Skills. The adviser will also link with the NI Skills Expert Group.

Lastly, following the publication of the Leitch Report, 'Prosperity for All in the Global Economy – World Class Skills in the United Kingdom' (which was published after 'Success Through Skills'), and 'Tomorrow's Skills: Towards a National Skills Strategy in Ireland, DEL brought together a group of key stakeholders to review the potential implications, and possible lessons to be learned for NI from these contrasting strategies. A Statement of Skills was published to outline how DEL will continue to implement Success through Skills.

Following DEL's commitment to refresh the implementation plan for Success through Skills, evaluate programmes and assess progress towards achieving its vision, a report is due to be published by Spring 2009.

1.5 Existing Work Comparing North-South Economic Data

A considerable amount of statistical analysis exists for the Island economy. Much of this analysis has been compiled in the joint CSO-NISRA statistical profiles. These profiles present comparable statistics for Northern Ireland and Ireland across a range of policy areas including health, education, agriculture, the environment, the labour market and the economy.

The CSO-NISRA statistical profiles focus on areas where comparable data are readily available. The all-island Skills Study aims to build on the CSO-NISRA statistical profiles by matching data where possible, aggregating to all-island level and focusing on economic factors relevant to skills demand.

Another recent collaborative effort is the ‘Atlas of the Island of Ireland’ (the Atlas) – a joint venture between the All-Island Research Observatory (AIRO) and the International Centre for Local and Regional Development (ICLRD). The aim of the Atlas, which principally maps census data available in both Ireland and Northern Ireland at lower geography levels, is to present a set of data relating to the whole Island to provide an evidence base for thinking about social and economic questions affecting both jurisdictions and informing cross-border planning. As the Atlas spells out, for various technical and scientific reasons, one cannot simply add the two main sets of data together. One of the issues of most relevance to this study is that of data interoperability which concerns the extent to which datasets sourced separately can be used in conjunction with one another. If two sets of data cannot be used together because they do not share common attributes, then they are said to have poor interoperability.

The Atlas identifies datasets that can be exactly matched, part-matched or reclassified so they broadly match, and datasets that have no equivalent. This is broadly the approach adopted in this study and it is described in detail in Annex A: Technical Data Matching Annex.

1.6 Methodology Used to Compare and Match Relevant North-South Skill Demand Data

1.6.1 North-South Technical Data Issues

Technical issues surrounding North-South data are set out in Annex A. Key points to note are:

- Ireland has a statistical obligation to produce a full set of real, fiscal, external and monetary statistical accounts, as well as participate in European-wide economic surveys and produce EU-wide comparative national economic data across a range of themes. Notwithstanding devolution, Northern Ireland, as a region of the UK – has fewer statistical collection and dissemination obligations and does not have a full set of economic accounts.
- Related to these points, approaches to classifying data tend to be more aligned to European classifications e.g. NACE industrial classification with NI more aligned to UK classifications e.g. SIC industrial classification.
- Other comparability issues include the differences in occupation classification (SOC 1990 for Ireland and SOC 2000 for NI).
- Finally, both jurisdictions have quite different education and training systems and therefore different highest education categories and highest qualification classifications.

1.6.2 Matching North-South Data

The methodology adopted for investigating the comparability and matching North-South data has been rigorous. A full understanding of the methodology for collecting the data, time period referred to, classifications used and definition of indicators has been sought. Where data are part-comparable and can be matched with alignment or adjustment, the approach taken has been to use international statistical mapping guidelines and techniques. This is as opposed to providing a unique mapping technique. Below is a summary of the different classifications of data comparability and examples of where indicators fit into the classification.

- **Exactly (or almost exactly) matched data:** Consistent with the CSO-NISRA statistical profiles for All-Island, this study confirmed that several indicators can be exactly (or 99 per cent) matched (and added together) and can be benchmarked internationally e.g. population; components of population change; entrepreneurial activity and innovation; employment by broad industry and unemployment (ILO definitions); PISA student skill assessments; median wages by sector and graduate starting salaries.
- **Aligned to match data:** Several other indicators can be aligned to match exactly (in definition terms) and be added together. These include converting NI GVA at basic prices in £ sterling to GDP at market prices in Euro (notwithstanding GDP versus GNP issues for Ireland and purchasing power parity issues); aligning SOC 1990 occupational data (Ireland) and SOC 2000 occupational data (NI) to a common occupational classification (ISCO 88); and converting North-South highest education/qualification attainment levels of the working-age population and people in employment into an internationally recognised classification system (UNESCO's ISCED 1997 which is used in the OECD Education at a Glance reports).
- **Broadly matched data and credible to compare:** A number of other indicators broadly match and although it is not recommended to add many of them together at this stage, it is certainly worthwhile and credible to present a North-South comparison e.g. VAT registered business stock, registrations and de-registrations; highest education attainment of school leavers; employment by sector, occupational and skill demand forecasts; and total vacancies and hard-to-fill vacancies by occupation.

A detailed description of the methodology used in this research is set out in the Technical Annex. This focuses primarily on key data sources and North-South similarities/differences and the approach adopted to match data on a North-South basis (where alignments and adjustments are required).

1.7 Report Structure

The remainder of this report is structured as follows:

- Section 2 presents an economic context, placing the all-island economy in an international context in terms of key demographic and economic trends and forecasts;
- Section 3 presents a skills and labour market context, focusing on trends in economic activity and the skills profile of the working-age population;

Note sections 2 and 3 are essentially background context for the main section in the report on demand for skills;

- Section 4, the main focus of the report, presents the demand for skills across the Island, and is split into four parts:
 - Part A: Recent skills demand trends;
 - Part B: Current skills demand issues;
 - Part C: Skills demand in specific key industry sectors; and
 - Part D: Future skills demand trends.
- Annex A is the detailed Technical Annex;
- Annex B contains notes to charts and tables;
- Annex C presents sources of information on vacancies, skills shortages, gaps and utilisation of skills;
- Annex D critiques existing skills forecast research and explains replacement demand;
- Annex E is the bibliography of references;
- Annex F presents a glossary of acronyms;
- Annex G lists EGFSN membership;
- Annex H lists Northern Ireland Skill Expert Group membership; and
- Annex I lists Steering Group membership.