Skills needs in the Irish economy: The role of migration

A submission by the Expert Group on Future Skills Needs and Forfás to the Minister for Enterprise, Trade & Employment

Acknowledgements

This report is based on contributions from both individuals and organisations, the principal of which are outlined here and others are identified throughout the text. The report was overseen by a Steering Committee the membership of which is set out in *Appendix 1*. Consultations were undertaken with many organisations and individuals who gave their time willingly. A list of the consultations that took place during the course of the study is set out in *Appendix 2*.

Contributions

The report was prepared by Conor Hand and Martin Shanahan of Forfás on behalf of the Expert Group on Future Skills Needs

Chapter 3, *Overview of Skills Shortages by Occupation* is a partial reproduction of work carried out by the Skills and Labour Market Research Unit of FÁS on behalf of the Expert Group on Future Skills Needs, which is being published in its entirety in the National Skills Bulletin 2005.

Chapter 4, *Overview of Skills Shortages by Key Sector* uses previous reports of the EGFSN as a base, supplemented by work undertaken by Publica Consulting and Forfás

The *Potential of EEA Countries to Meet Skills Demands in Ireland* set out in Chapter 5 is based on work undertaken by Farrell Grant Sparks on behalf of Forfás and the Expert Group on Future Skills Needs.

Sean Murray from the Department of Enterprise, Trade and Employment assisted with the review of models used to regulate migration in other jurisdictions.

Foreword by Ms Anne Heraty, Chairperson, Expert Group on Future Skills Needs

Over recent years, Ireland has undergone a dramatic transformation from being a country of net emigration to a country of substantial net immigration. This change is to be welcomed, reflecting as it does an upturn in Ireland's economic fortunes. Immigrants have contributed to Ireland's development. Immigration now poses new challenges for policymakers and society which must be addressed.

As in many other developed western economies, the issue of migration has received much attention in Ireland from policymakers, the media and the general public. There is now a need for a comprehensive debate on economic immigration. It is important that the immigration debate is informed, balanced and discerning. The immigration debate needs to be 'informed' in the sense that immigration is a complex issue which requires a complex understanding of the many facets of society and the economy that it impacts upon. It needs to be 'balanced' in the sense that there needs to be an acknowledgement that immigration in itself cannot be characterised as being either positive or negative without an informed and in-depth debate. Finally, it should be 'discerning' in the sense that there needs to be a clear understanding of the language of immigration and an avoidance of unhelpful rhetoric.

There are many aspects to migration policy, its impact on the host country, its impact on the sending country, its impact on individuals, both migrants and the resident population of the host country. These aspects are all equally worthy of study. This report studies the impact of immigration on skills primarily from the perspective of the host country and the resident population.

Ireland is unique in its approach to date in relation to immigration policy. In 2004, Ireland chose not to impose restrictions on the free movement of labour from the ten EU accession states. This means that a population of 456 million Europeans have the right come and work and live in Ireland without restriction. This access to a significant pool of labour is of major benefit to Irish business.

Therefore, in discussing immigration policy, it is useful to make the distinction between immigration from within the European Economic Area which can take place without restriction and immigration from outside the European Economic Area, referred to as third country migration. The report examines the potential for Ireland's skills needs to be met from within the EEA region. The report also considers the role of third country migration from a skills perspective.

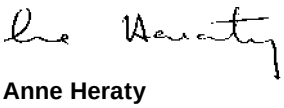
Ireland's individuality in terms of its relative size in a European and global context and its access to a large EU labour market sets it apart from other countries and requires us to think originally and creatively from a skills perspective as to what our third country economic migration policy should be.

In approaching this task, the Expert Group on Future Skills Needs has endeavoured to maintain a balanced approach, considering both the need to remain flexible and competitive in terms of skills availability and the wider economic and social impact of high levels of third country migration.

There are two key underpinning principles in this document. Firstly, that priority should be given to upskilling the resident population, a matter which the Expert Group on Future Skills Needs has made many recommendations on previously. Secondly, that preference should be given to migration from within the EEA region.

The tenets underpinning the development of the policy approach to third country migration set out in this document reflect the need for a migration policy to be transparent, to be reactive to the needs of the labour market, to be flexible, to be user friendly, to facilitate integration and be cognisant of all relevant interests.

I hope the report will contribute positively to the economic migration debate. I would like to thank all those who contributed to the research and preparation of this report.



Anne Heraty
Chairperson
Expert Group on Future Skills Needs

Contents

Executive Summary

Introduction

The development of a world-class base of skills has become the key driver of economic growth in the developed world. There is recognition that it is only through enhancing people's skills that future competitive advantage will emerge. Ireland's early recognition of this factor has been one of the outstanding contributors to the sustained economic growth it has enjoyed over the last decade or so. With this success comes the challenge of avoiding complacency and remaining vigilant in retaining that key competitive advantage. Successive Governments have given, and continue to give, priority to taking policy decisions to this end.

The primary source of continuing skilled labour supply is, and will continue to be, achieved through the skills development of both Irish nationals and other long-term resident migrants. However, it will also continue to be in the national interest to seek out and compete for highly skilled individuals and attract them to work in Ireland, whatever their nationality or residence. For this reason, efficient and effective migration procedures which ensure that Irish companies can compete successfully for the finite pool of highly skilled and highly mobile skilled labour available internationally, are essential. This requirement, combined with the recent enlargement of the European Union (EU) and the effects of both changing Irish demographics and the significant increase in inward migration have led to the Government decision to examine its existing third-country migration policy, with a view to ensuring that this important policy framework remains coherent, relevant and operates at maximum efficiency. Such policies need not compromise the continued operation of EU community preference. Indeed the availability of a large stock of European labour all of whom are entitled to move to Ireland without any administrative procedures, permits or restrictions on family reunification offers a significant resource for Irish employers.

Expert Group on Future Skills Needs Submission

As part of the review of economic migration policy, the Department of Enterprise, Trade and Employment (DETE) has requested the assistance of the *Expert Group on Future Skills Needs* (EGFSN) and *Forfás*. Specifically, the EGFSN was requested to produce a document outlining:

(i) Current and ongoing skills shortages in key sectors of the Irish economy;
(ii) To identify where such skills may be sourced;
(iii) To contribute to the development of an appropriate skills-based economic migration policy in conjunction with DETE.

In agreement with DETE, while fully cognisant of the complex range of issues and policy considerations that need to be addressed in fully considering this topic, the input being provided in this report focuses exclusively on the skills dimension of migration as an effective element of economic policy.

Since the recent enlargement of the EU, citizens from all 25 member states and from the four EEA countries currently have the right to live and work in Ireland without restriction. Ireland, consequently, is now part of a combined European labour market of 208 million people. Ireland's economic migration policy, therefore, currently does not affect the flow of individuals from within the EU and only impacts on the inflow of individuals from outside of these countries. For the purpose of this report, such migrants are referred to as **third country nationals**. Prior to 1st May 2004, nationals from the ten new accession countries[1] were regarded as third country nationals and

1 Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovenia and Slovakia.

therefore care is required when comparing statistics compiled before and after the accession date.

For the purposes of this report, it is also important to differentiate between a **skills shortage** and a **labour shortage**. The key distinction used in this report is that a **skills shortage** refers to a situation where there are an insufficient number of trained/qualified individuals in the domestic market to meet the demand for an occupation. Skills shortages arise for occupations associated with specific skills which are usually acquired through education and training. On the other hand, a **labour shortage** refers to a situation where there are an insufficient number of individuals willing to take up employment opportunities at the prevailing wage and conditions. The wage level does not adjust because of certain institutional arrangements or rigidities in the market. In addition, rather than viewing skills as a binary situation where individuals or sectors are characterised by either high skilled or low skilled, it is preferable to consider a skills continuum, encompassing a range of skill levels.

Methodology

This report is divided into an Executive Summary and four distinct sections.

The first Section comprises two chapters which serve as a **general introduction to Irish migration issues**. *Chapter 1* explores recent developments in Ireland's experience of migration. *Chapter 2* examines the economic rationale for migration, as well as looking at likely future labour market developments at a broad, macro level.

The second section of the document focuses on the **identification of skills gaps in Ireland.** *Chapter 3* examines skills shortages for 125 occupations, categorised into 16 occupational groups. The data and analysis used is based on the work of the *Skills and Labour Market Research Unit* as published in the EGFSN's *National Skills Bulletin 2005*. *Chapter 4* produces detailed analysis of skills gaps in key sectors. The sectors examined were chosen due to their importance to the Irish economy. Much of the analysis is based on previously published EGFSN reports, informed by consultations with a wide range of stakeholders.

The third section of the report, contained in *Chapter 5*[2] examines **potential sources of labour supply** to fill the skills shortages identified in *Chapters 3* and *4*. The underlying priority of this chapter is to identify to the greatest extent possible the likelihood of sourcing sufficient labour from within the EEA to meet the needs of Irish industry.

The final section of the report, in *Chapters 6 and 7,* focuses on **the policy issues of economic migration**. *Chapter 6* provides a brief overview of Ireland's existing migration framework and is based on information provided by the Departments of Enterprise, Trade and Employment and Justice, Equality and Law Reform. *Chapter 7* contains an in-depth discussion around Ireland's policy objectives, principles and options.

Chapters 1 and 2: Economics of Migration

Economic migration is not a substitute for the up-skilling and training of the resident population, and indeed, if used incorrectly can result in temporary skills shortages being made permanent and can result in the suppression of domestic wages. There is a case, however, for limited migration, particularly for high skills and for company-specific skills. While there is no definitive methodology available to measure the full impact or value of migration, it is known that inward migration tends to contribute positively to GDP and has a somewhat neutral impact on GDP per capita. Furthermore, the skills mix of the migrant community is an important determinant of the impact of immigration of national income: the more highly skilled the migrants, the greater the positive impact on GDP.

2 Produced in conjunction with *Farrell Grant Sparks.*

High levels of immigration will increase aggregate variables such as the size of the labour force, investment and gross incomes but do not necessarily impact on per capita income. Furthermore, reliance on immigration to relieve labour shortages can become a self-perpetuating phenomenon: labour shortages generally only occur in situations where wages do not react to market forces. In such scenarios, immigration can be used as a tool to suppress real wage growth. The suppression of real wages can then dis-incentivise the resident workforce from upskilling themselves as wage differentials are narrowed.

While the entry of migrant labour into an economy is intended to tackle labour shortages, what occurs in reality, is that the additional demand created by the migrants approximately matches the increased capacity/output of the expanded labour force. As a consequence, the same level of labour shortages will occur following the migration of foreign labour into an economy as would have existed in the absence of immigration, albeit in different sectors. Thus, a policy that attempts to address labour shortages through inward migration will result in a constant spiral, with immigration being used to address existing labour shortages, followed by an increase in consumer demand, finally resulting in new calls for even more migration.

Although there are limits to the economic benefits, migration does offer a range of other benefits to the host country:

- *Lazear (2000)* suggests that gains from trade are facilitated by the interaction of individuals from diverse backgrounds who possess different knowledge sets;
- Economists also attribute a value to ethnic diversity in terms of an improvement in innovation capability through knowledge sharing; and
- A policy of attracting high skilled migrants increases the likelihood that migrants will be equipped with the necessary tools to facilitate integration (e.g. local language skills), minimising social costs.

In parallel with the economic case for immigration, it is also important to consider the social costs attributed to migration. These primarily concern issues such as integration, healthcare costs, housing requirements and the impact that migration has on the sending countries. The consequences of immigration are felt over several generations and so, policies encouraging integration must extend over the long term. As already indicated, in-depth analysis of these aspects falls outside the scope of this report.

Chapter 3: Overview of Skills Shortages by Occupation

Based on a reproduction of work carried out by the *Skills and Labour Market Research Unit* in FÁS on behalf of the EGFSN[3], a number of skills shortages have been identified at occupational level.

- **Construction:** Current skills shortages in construction include architects, civil engineers, planners, and quantity surveyors, as well as project managers and experienced site managers. Many of the construction trades are also experiencing shortages, most noticeably bricklayers, plasterers, carpenters, floorers, and painters & decorators.
- **Financial:** There is evidence of a current shortage of accountants & tax experts, actuaries and financial analysts, investment and risk analysts, and fund managers.

3 This work is published separately and in its entirety in the EGFSN / SLMRU *National Skills Bulletin 2005.*

- **Engineering:** There is some evidence that the current output of electrical, electronic, design and production engineers from the education system is insufficient to meet demand. At technician level, there is evidence of a shortage of manufacturing and multi-skilled maintenance technicians. Some of the metal forming, welding and related trades are also in short supply.
- **Information technology:** There is evidence of a current shortage of computer analysts/programmers and there are currently shortages of software engineers.
- **Pharmaceuticals:** For chemical engineers, there is evidence that there is a significant shortage and that this will continue into the future. There are also shortages of biologists and physicists.
- **Healthcare:** There are clear shortages in a number of healthcare occupations including medical practitioners, dentists, various types of therapists (including dieticians) and radiographers. There is a widespread perception of shortages of nurses. However, this shortage may reflect a combination of factors, such as a high attrition rate and issues with work practices. Finally, social workers are experiencing some shortages and there is evidence that a large number of social workers are non-nationals.
- **Transport:** There is a shortage of integrated supply chain managers. There are also shortages of heavy goods vehicle (HGV) drivers and, to some extent, freight forwarding officers. Clerical skills in short supply include freight forwarding, customs clearance, import/export documentation processing and logistics planning.
- **Sales:** The difficulties which have been reported by some employers in filling vacancies for technical sales representatives and marketing personnel are indicative of a skills shortage.
- **Catering:** The highest number of work permits in the first half of 2005 was issued to chefs, pointing at shortages in this area.

In addition, to the skills shortages, a number of labour shortages have been identified in following occupations:

- **Financial:** Credit controllers, financial clerks;
- **Services:** Security guards, waiters/waitresses;
- **Food manufacturing:** De-boners;
- **Healthcare:** Care assistant;
- **Sales:** Sales assistant; and
- Other shortages were identified in **agriculture, forestry** and **fishing**.

The above does not represent a definitive list and should be read in conjunction with the detailed analysis in *Chapter 3* and *Chapter 4*.

Chapter 4: Overview of Skills Shortages by Key Sector

Having examined skill shortages at occupation level, this report then examines skills and labour shortages in certain key sectors. Additionally, three key skills that are required by a variety of industries, rather than distinct sectors in themselves, are also examined, namely research & development, languages and sales & marketing.

The chapter does not seek to provide a definitive figure on the number of immigrants required over the next few years; rather it is intended to provide a general impression of the possible scenarios confronting policymakers. In particular, attention is drawn to areas of concern or opportunity.

The analysis in this section is based on a combination of previous EGFSN forecasts, current SLMRU data, industry consultation, and is cognisant of sectoral forecasts and plans where they exist. In general, the findings from this analysis mirror the output from the SLMRU exercise outlined previously. Specifically, the following skills shortages were identified.

- **Information Communications Technology:** Degree level ICT graduates in disciplines relating to IT analysts, programmers and software engineers.
- **Biotechnology:** Graduates with science degrees, particularly at primary degree and diploma/certificate level.
- **Engineering:** At degree level: electronic engineering telecommunications engineering, biomedical engineering and chemical engineering, particularly about 2006 onwards. A shortage of chemical and production engineers is likely to emerge later in the forecast period. At diploma and certificate levels: potential shortage of graduates in electronic engineering and civil engineering.
- **Financial:** Fund accountants, fund administrators and shareholder services staff. Specialized skills in the area of accounting, risk, compliance, quantitative finance and actuaries. In accounting: auditors and tax experts. There is strong evidence of a shortage of risk analysts and managers, but also of other job titles that combine finance, risk and quantitative skills, namely, financial analysts, senior underwriters and fund managers. Finally, there is overwhelming evidence of shortages of compliance officers.
- **Internationally Traded Services (ITS):** A wide range of industries are included in the definition of ITS. The main skills shortages highlighted in this report include individuals possessing good management skills, technical and e-business skills and a range of *soft* skills. Other areas of skills shortages included sales and marketing and language skills.
- **Research and Development:** PhD and non-PhD researchers. The most significant negative balances occurred in relation to computing and material sciences
- Skills and labour shortages in the following sectors are also discussed: tourism, construction, healthcare, agriculture and food processing.

Chapter 5: Potential of EEA Countries to Meet Skills demands in Ireland

This chapter identifies possible sources of skilled immigrant labour relevant to Irish enterprises. It examines possible migrant flows at three levels: at overall economy wide level, in terms of graduate labour supply and in a number of key sectors.

At each level, the potential for migration from within the EU-24 member states, (i.e. the EU-25 countries excluding Ireland) is considered. In addition, the availability of labour supply in countries that are part of the European Economic Area (EEA) is also examined since citizens from these countries do not require work permits to seek employment in Ireland. The potential skilled labour supply from Bulgaria and Romania is also examined since both of these countries are due to join the EU in the next phase of EU expansion, due in 2007. In identifying and describing possible sources of immigration labour supply, three key aspects of supply are considered:

- **Labour Availability**: The quantity of labour supply as measured by the size of the labour force, i.e. those employed and those unemployed but looking for work;
- **Labour Ability:** The quality of labour supply, as measured by the educational attainment levels of the labour force and the educational attainment of recent graduates;

- **Labour Mobility:** The likely mobility of labour supply in each country, as gauged by past migration flows and by differences in relative earnings in Ireland and each of the EU-24 countries. Of course, we acknowledge that other factors influence mobility and the attractiveness of a country to migrants. These factors include geography, history, long-term migration trends, similarities in culture and legislative frameworks.

The chapter concludes that while the EU and the EEA countries will provide a substantial proportion of Ireland's skill requirements, continued non-EEA immigration will be needed to meet some of Ireland's high-skill demands over the next number of years.

Chapter 6 and 7: Findings: A Model to Regulate Migration

Ireland currently operates one of the most open systems of economic migration in Europe. Ireland's decision in 2004 not to impose any restrictions in relation to the free movement of labour from the ten EU accession countries in effect gave Ireland access to a potential labour market of 208 million people. As discussed in *Chapter 5*, however, only a relatively small proportion of that amount is likely to migrate to Ireland. All EU citizens currently enjoy the right to live and work in Ireland without restriction. It is envisaged that much of Ireland's future migratory labour needs will be met from within this labour market. In discussing the regulation of migration in this context, it is third country nationals from outside the EEA region which this policy and associated regulatory system attempts to address.

It is important to point out the individuality of Ireland's situation in relation to migration. Ireland is a small country with a relatively small population by European and world standards. While Ireland does require significant migrant labour relative to its size, it does not require similar volumes in absolute terms to larger countries such as the US and Australia. There are also significant differences which set it aside from countries of similar size such as New Zealand. The primary difference is Ireland's open access to the EEA labour market, which provides it with a large labour resource.

Chapter 7 sets out the findings of this report and discusses policy objectives, principles and options facing policy makers. It is clear from the analysis in earlier chapters that immigration, whether from within the EEA or from third countries, will continue to play a vital roll in the evolution of the Irish economy over the coming years and indeed, decades. High skilled migration will be required to fill many of the skill shortages identified in the short and medium term. At the same time, as the high skilled sector grows, demand for services is likely to increase, thus creating demand for the supply of unskilled labour, and low to medium skilled labour. How these demands will be met is the subject of this chapter. The discussion in this chapter does not aim to be overly prescriptive, rather it sets out to discuss policy options and outlines possible regulatory systems for achieving them with the aim of stimulating and informing the economic migration debate.

A number of key principles were identified that should be reflected in Ireland's skilled migration policy. In particular, it was emphasised that a successful skilled migration policy must be:

- Transparent;
- Reactive to the labour market;
- Flexible;
- Facilitative of integration;
- Cognisant of all interests; and
- Enforced.

Policy Considerations, Findings and Underpinning Principles

Underpinning Principles

In developing an economic migration policy and system for Ireland the following were the underpinning principles observed:

- Ireland's economic migration policy has to be addressed in a context relative to our overall population size and the free movement of labour from within the EEA region;
- Economic policy makers and enterprise should be cognisant of the social impact and cost resulting from economic migration;
- In an effectively functioning labour market, real wages adjust to address *labour shortages*[4] and *skill shortages*[5]. Wage levels should be free to move in both directions. This does not always occur due to rigidities in the market e.g., government intervention (minimum wage) lack of information, mobility issues etc.;
- Migration alone is not a sustainable long-term solution to *skills shortages;*
- Economic migration does not have an observable effect on GDP per capita but does impact on the distribution of income;
- Migration can in some circumstances help to perpetuate skills shortages in the economy;
- The primary policy objective of Government should be the upskilling of the resident population at all levels;
- The observance of *Community Preference*[6] over third country nationals;
- A narrowing of the occupational gap which currently exists i.e. maximising the full potential of migrants currently working within Ireland would significantly reduce skills shortages and increase productivity;
- Ireland has to compete with other countries for migrant labour, particularly at the high end of the skills continuum;
- Migration is justified for the following categories of skills: those with very high skills; entrepreneurs; those with company specific skills; those with knowledge and skills emanating from their host nationality which can be employed e.g. knowledge of markets, culture, and native language.

Key Findings of Report

The following key findings have acted as a guide to discussing the policy options set out in the report:

- Managed economic migration is of benefit to the Irish economy;
- Ireland currently possesses a relatively open and '*laissez faire*' system of economic migration compared to its European counterparts;

4 A labour shortage refers to a situation where there are an insufficient number of individuals willing to take up employment opportunities at the prevailing wage and conditions.

5 Skills shortages refer to a situation where there are an insufficient number of trained/qualified individuals in the domestic market to meet the demand for an occupation. Skills shortages arise for occupations associated with specific skills which are usually acquired through education and training.

6 Preference given to workers from within the EEA region.

- In general, a sufficient pool of potential migrant labour exists within the EEA to meet Ireland's skills requirements at the lower end of the skills continuum;
- The ten new EU accession countries offer the best potential for Ireland in attracting labour at the lower end of the skills continuum;
- The pool of labour available from within the EEA region which is likely to migrate to Ireland contracts significantly at the higher end of the skills continuum;
- Within the EEA, Poland, Lithuania, Latvia, Slovakia, Czech Republic and the UK offer the best opportunity for attracting graduate labour;
- All of Ireland's high skilled migration needs are unlikely to be filled from within the EEA;
- The attractiveness of Ireland to potential migrants in specific sectors varies significantly from country to country;
- Shortages currently exist within the Irish labour market. These shortages can be broadly characterised as skill shortages and labour shortages.

Irish Economic Migration Policy & System for Third Country Nationals

Outlined in this section are proposed economic migration policy options for Ireland and suggested alternative procedures as to how it might be implemented. At a broad level, it suggests that consideration should be given to a dual system of dealing with economic migration i.e. a *Green Card System*[7] leading to permanent residency and a *Work Permit System* which offers temporary employment opportunity in Ireland.

The current economic migration system in Ireland whereby skilled migrants are offered a temporary employment permit with the possibility of acquiring permanent residency only through the cumbersome and time-consuming naturalisation process, (or through a series of work permit renewals) is a competitive disadvantage to Irish employers. Therefore, it would be beneficial to the enterprise sector and potential migrants if certain pre-defined categories of migrants were offered an opportunity to gain permanent residency (or 'indefinite leave to remain') after a minimum, stated period. While the idea of creating a category of permanent migrants brings with it fresh challenges (concerning integration etc.) it also offers more of an incentive to potential migrants to consider building their entire career and life in Ireland.

The introduction of a permanent *Green Card* system is intended to address *skills shortages*. Any work permit system should aim to further constrict the flow of low-skilled or unskilled labour into the economy from outside the EEA. A set of migration procedures that differentiate between the various categories of migrants and types of migration would not be out of step with other developed countries' systems.

The following sections outline the possible systems and procedures which could be used to regulate economic migration into Ireland.

Permanent Green Card System

Proposed Entitlements

An Irish *Green Card* might encompass the following elements:

(i) Long term residence status immediately which is confirmed after a two year probation period;

7 There is no universal understanding of what constitutes a *Green Card* system. In general, a *Green Card* system can refer to any system whereby the migrant attains permanent residence in a country. Various administrative mechanisms can be used to determine who is awarded a *Green Card.*

(ii) A single, combined residence permit and work visa;

(iii) Family reunification, preferably immediately, but certainly no later than six weeks after the *Green Card* is issued;

(iv) Entitlement for spouses and dependants to work without a work permit or to automatically receive work permits.

Determination of Eligibility for Award of Green Card

There are a number of considerations in developing an appropriate system to determine eligibility for a *Green Card* at the outset.

(i) Receipt of an Offer of Employment

There are two main options in relation to how to regulate applications for a *Green Card*. These are demand driven i.e. based on labour market/employer requirements or supply driven through individual led application. During the course of this study both options were considered. Following consultations, there appears to be little likelihood that those at the highest end of the skills continuum would engage in a supply led approach i.e. they are likely to have a firm job offer in advance of application. It is therefore proposed that the *Green Card* system should be demand led by enterprise needs. In order to qualify for a *Green Card*, a potential migrant must be in receipt of an offer of employment.

(ii) Determination of Skill Level

As already outlined in this report, a *Green Card* system should facilitate high skilled migrants. The determination of skill level of applicants remains a problematic issue. There are three proxies which have been identified as possibilities in determining skills level and therefore eligibility for a *Green Card*. The three proxies are salary level of employment offer, destination occupation i.e. occupation applied for in Ireland and qualification level. There are advantages and disadvantages to all three.

In arriving at a system to determine eligibility for a *Green Card*, policymakers may wish to employ more than one option outlined above in tandem.

(iii) Administrative Procedures

It is vital that the *Green Card* is reactive to changes in economic circumstances. Therefore, in order to adequately control the flow of skilled migrants into the country, it will be necessary to be able to amend eligible sectors, occupations, salary levels or qualifications on a regular basis, in accordance with the changing needs of the enterprise sector (for example offering *Green Cards* to an emerging sector in the light of a significant new investment). In order for such adjustments to be made in a timely fashion, the determination of eligible sectors should remain as an administrative function of the relevant Department and should not become part of the actual legislation.

(iv) Application for a Green card

It may be desirable that applications for a *Green Card* could emanate for either an individual or an employing organisation. In either case, the *Green Card* should be awarded to the individual. The reason for allowing organisations to instigate the application is that organisations based in Ireland are better positioned than individuals (based abroad) to progress an application through the appropriate channels. This is likely to reduce administration and time delays.

Options Relating to a Temporary Work Permit System

It is proposed that in tandem with a permanent *Green Card* system, the Government would employ a system which would facilitate temporary migration. In preparing this report a number of alternative procedures were considered. The option which is given consideration in this section is reform to the existing work permits system to facilitate temporary migration. The existence of a temporary migration system has

the advantage of increased flexibility vis-à-vis a permanent system, which would be an important element in the case of an economic downturn. The options for regulating and determining eligibility for a work permit broadly mirrors those set out above for a green card system although clearly the criteria used is likely to be different i.e. eligibility could be based on a minimum salary level, prescribed occupation or based on qualifications.

Proposed Entitlements Accruing from a Temporary Work Permit

(i) Length of Stay

In the case of the work permit system, the employer would still apply for the permit on behalf of the migrant. Consideration should be given, however, to awarding a permit for a two-year period, rather than the current one-year permit given the level of costs involved in sourcing foreign labour. This would also have the benefit of reducing administration costs on both sides and provide greater stability for migrant workers.

(ii) Changing Employer

For migrants who enter Ireland through the reformed work permit system immediate job mobility may not be practical. Nevertheless, the Irish skilled immigration system should offer the potential migrant the opportunity of changing employers, thus giving them the ability to maximise their earnings, once a certain time period has elapsed[8]. The duration of the period during which a migrant remains tied to their initial employer ought to take account of the time it would take an employer to recoup part of their investment in that migrant. While this will vary on a case-by-case basis, it seems reasonable that an initial period of one year should apply. The ability to change employer is an important element in combating the abuse of migrants, and in exceptional circumstances, the one year restriction may not apply.

(iii) Permanent Residency

Provisions are in place to grant non-EEA nationals long-term residency status in Ireland once they have been resident in the country for over eight years. In addition, provisions are also in place to gain Irish citizenship after five years residence in Ireland. It is not proposed that these conditions be changed. In effect this means that there is a progression mechanism from temporary work permits to permanent residency where migrants work permits have been continuously renewed due to continued shortages. These cases should be regarded as exceptional rather than an alternative route to permanancy.

(iv) Family Reunification

At present, temporary migrants have limited family reunification rights. It is advised that no significant change should be made to the present system at this time. However, current policy should be clarified and applied uniformly. The government should adopt a wait and see approach and reconsider the issue of family reunification for work permit holders in 2008 when the effects of migration from EU accession countries are better known.

Proposed amendments to current Procedures for Award of Work Permits

(i) Elimination of Ineligible Lists

The current work permits system publishes lists of categories that are ineligible to apply for permits. Consideration should be given under a reformed work permit system to removing this method of regulation. It is proposed that all categories of

8 The restriction on labour portability ensures that migrants do not misuse the fast-track system as a means to gain access to an open Irish labour market.

firms be eligible to apply for a work permit in the first instance. A decision regarding the issuing of a permit would then be made using agreed criteria, such as salary level, occupation or qualifications.

(ii) Central Labour Market Assessment

Consideration should be given to an eligible list of occupations which do not require an individual labour market test to prove that there is need for certain occupational categories. Such a system would amount to a central labour market assessment.

Not all high skilled migrants will choose to apply for a *Green Card*. It is likely that many high skill migrants may wish to work in Ireland only for a limited period, regardless of the possibility of acquiring permanent residency. In such cases, it is necessary to design a temporary system that facilitates the swift entry of such individuals into the labour force; after all, although they are temporary migrants, they remain vital to Ireland's economic development.

(iii) Individual Labour Market Test

The continued requirement for an individual labour market test is dependent on the procedure chosen to assess eligibility for a Work Permit. If continued, the individual labour market test should be strengthened to make it more relevant. Strengthening the test would include increasing the demands to demonstrate that adequate steps had been taken to endeavour to fill positions from within the EEA region.

A work permits system should remain a temporary system in spirit. Consideration should be given to (i) renewals being required to repeat the labour market test, prior to approval or (ii) the Minister retaining powers to introduce such a measure at a future point in time. It is important to manage expectations regarding the work permit. So long as the work permit is marketed from the outset as a temporary solution to labour market rigidities (e.g. similar to US H-1B visa), and not as a quasi-permanent system, industrial relations difficulties should be avoided. It is not envisaged that migrants already in Ireland would be subject to this condition.

Other Categories of Migrants

Non-EEA Students

There are currently over 28,000 registered non-EEA students in Ireland, enrolled at a variety of private, second level and third level educational institutions. Aside from the fact that these students contribute significantly to the earnings potential of the educational sector, there is an obvious benefit to facilitating non-EEA students who achieve a high level of educational attainment to remain in Ireland to seek employment upon completion of their studies. Not only would they add to the stock of human capital in the country, these individuals are also likely to find integration into Irish society somewhat easier having already been educated here, than someone who has no previous experience of living in Ireland.

The introduction of a system that encourages foreign students to stay in Ireland after their graduation would significantly improve the country's image abroad and would give potential students added incentive to study in Ireland. Currently, international experience indicates that on average, international students account for approximately 12-15 per cent of all third level enrolments. An *Interdepartmental Working Group* in the *Department of Education and Science* has indicated that this is an appropriate medium term target for Irish institutions. In order to achieve this target, educational institutions will have to increase their capacity and their attractiveness. The failure to develop a system that allows students to transfer into the labour market would adversely impact on Ireland's ability to meet this target and would represent a significant lost opportunity. A system that facilitates the entry of Irish-educated students from non-EEA countries is particularly relevant for

researchers, who are known to be in short supply. Many foreign students are currently engaged in courses that offer the potential to graduate to doctoral level.

The existing system whereby non-EEA students must leave the country and then apply for a work visa is particularly inefficient and represents a significant disadvantage to the Irish enterprise sector. It is conceived that non-EEA students who having studied in Ireland have attained a sufficiently high level of educational attainment (e.g. a Primary Honour Degree or above) would be eligible to remain in Ireland for a defined period after graduation to look for employment. Once a student has received an offer of employment in an eligible sector as determined by the central labour market assessment, they would be free to apply for either a *Green Card* or temporary work permit. Such a facility would mirror the *Fresh Talent: Working in Scotland Scheme* currently employed in Scotland, which allows non-EEA students to remain in Scotland for up to two years after graduation[9].

In order to ensure that any such scheme delivers the appropriate skills set, it would be necessary to distinguish between the categories of qualifications that are deemed eligible. The *National Framework of Qualifications* could be used as an instrument to determine the appropriate level of qualification required.

Entrepreneurs and Business Permissions
It is envisaged that non-EEA entrepreneurs would continue to avail of the existing *business permit* system.

Intra-company Transfers
The legitimate reasons for the suspension of the intra-company transfer scheme are recognised. The importance of this scheme to multinationals, however, has been repeatedly emphasised throughout the consultation process, particularly in relation to company-specific skills. It is recommended that the scheme be re-launched, albeit with a number of added safeguards to minimise fraudulent applications. In particular, applicants ought to submit similar declarations and documentation as is the case for companies applying for either *Green Card* or work permits to the validating authority before such a transfer is authorised.

Employees entering Ireland under this scheme should be entitled to similar rights and benefits as those using entering Ireland through the *Green Card* scheme.

The level at which intra-company transfer is available is important to enterprise. It would appear that in general it is high skilled people who require this facility. However, the intra-company transfer of individuals that would not necessarily meet the *Green Card* eligibility level should be facilitated where it is for the purpose of staff rotation, staff training and development or where they possess company specific skills. Intra-company transfer on this basis should only be for short duration until such time as EEA individuals are developed to undertake the work.

Researchers
The EU has agreed a directive to facilitate the admittance and mobility of third country nationals for the purpose of carrying our scientific research. In particular, it seeks to speed up the admissions process by providing authorised research organisations, who have been designated by a competent authority, with a role in the procedure for the issuing of residence permits. Specifically, these authorised research organisations will be responsible for certifying whether the research project is credible, including financially, and whether the person has the necessary skills. A hosting agreement will be signed between the research organisation and researcher which will offer guarantees concerning the conditions under which the research will be carried out and the researcher's ability to complete the project.

9 In order to be eligible to apply for the *Fresh Talent Scheme* applicants must have graduated with a Higher National Diploma for a Scottish Further Education College or a first degree, Master's degree or Ph.D. from a Scottish Higher Education Institution.

Absolute Numbers

Policymakers may wish to consider supplementing the above with the imposition of overall limits on the issuing of Work Permits and *Green Cards*. Such a policy would provide the State with an additional mechanism for control. The *Employment Permits Bill* already contains a provision to allow the Minister for Enterprise, Trade and Employment to set an annual limit on inward migration. In arriving at an appropriate level, a number of options might be considered. For instance, the level of third country migration prior to 2004 was bolstered by the ten EU accession states so by the end of 2005, the system should have reached its equilibrium for a full year in terms of non-EEA migration. Given that the policy aim is to realign the equilibrium within the work permit system from low or unskilled labour to high skilled labour, it would be reasonable to assume that the absolute numbers of *Green Cards* and Work Permits combined, issued in future years should not be greater the number issued in 2005 (using it as a base year). The current level of non-EEA migration i.e. 2005 might be considered as the upper limit of the level.

Fees for Green Cards and Work Permits

The intention of the *Green Card* scheme is to make Ireland as attractive as possible to potential high skilled migrants. The cost of a *Green Card* application should, therefore, be internationally competitive. Likewise, the cost of work permits should not be overly prohibitive. Permit charging must not be seen as a means to raise revenue. Rather, where possible, charges should reflect the level and costs of the service provided. Charging substantial fees clearly can be used as a mechanism in itself to regulate migration flow.

Advantages and Disadvantages of Alternative Systems are outlined

The final section in *Chapter 7* sets out the advantages and disadvantages of the alternative systems considered in the preparation of this report. The alternative systems include points systems, work permits, bilateral agreements and a quota system.

1 Introduction

Chapter 1: Summary

- The Department of Enterprise, Trade and Employment (DETE) and the Department of Justice, Equality and Law Reform (DJELR) are currently undertaking the reform of existing migration legislation and are developing new systems, processes and procedures to regulate the flow of third country labour
- DETE have requested the assistance of the Expert Group on Future Skills Needs (EGFSN) and Forfás to produce a document outlining current and ongoing skills shortages in key sectors of the Irish economy and to identify where such skills may be sourced
- The focus of this submission is entirely on migration for economic purposes
- This report differentiates between a skills shortage and a labour shortage.
- A skills shortage refers to a situation where there are an insufficient number of trained/qualified individuals in the domestic market to meet the demand for an occupation.
- A labour shortage refers to a situation where there are an insufficient number of individuals willing to take up employment opportunities at the prevailing wage and conditions.
- Since the late 1980's, Ireland has been transformed from a country of long-standing, traditional emigration to a country of net immigration
- The rapid expansion of the Irish economy and the improved employment opportunities generated as a result meant that Ireland has become significantly more attractive to migrants
- Since EU enlargement in May 2004, 208 million workers now have access to the single European labour market. Consequently, many individuals who prior to accession required work permits or work visas/authorisations to come to Ireland, no longer do so.
- Ireland generally attracts highly skilled immigrants, relative to the foreign-born residents of other European countries
- Over 54 per cent of immigrants have a third level qualification compared with just 27 per cent of the native population. Nevertheless, despite such impressive standards of educational attainment amongst the non-national population, evidence exists which suggests that highly qualified immigrants are not being employed at a level that reflects their educational status

1.0 Expert Group Submission

The development of a world-class base of skills has become the key driver of economic growth in the developed world. There is recognition that it is only through enhancing people's skills that future competitive advantage will emerge. Ireland's early recognition of this factor has been one of the outstanding contributors to the sustained economic growth it has enjoyed over the last decade or so. With this success comes the challenge of avoiding complacency and remaining vigilant in retaining that key competitive advantage. Successive Governments have given, and continue to give, priority to taking policy decisions to this end.

The primary source of continuing skilled labour supply is, and will continue to be, achieved through the skills development of the resident population. However, it will also continue to be in the national interest to seek out and compete for highly skilled individuals and attract them to work in Ireland, whatever their nationality or residence. For this reason, efficient and effective migration procedures, which ensure that Irish companies can compete successfully for the finite pool of highly skilled and highly mobile skilled labour available internationally, are essential. This requirement, combined with the recent enlargement of the European Union (EU)[10] and the effects of both changing Irish demographics and the significant increase in inward migration have led to the Government decision to examine its existing third-country migration policy, with a view to ensuring that this important policy framework remains coherent, relevant and at maximum efficiency. Such policies need not compromise the continued operation of EU community preference. Indeed the availability of a large stock of European labour all of whom are entitled to move to Ireland without any administrative procedures, permits or restrictions on family reunification offers a significant resource for Irish employers.

The reform of existing legislation and the development of new systems, processes and procedures are being progressed in parallel by the two primary Government departments concerned, namely the Department of Enterprise, Trade and Employment (DETE) and the Department of Justice, Equality and Law Reform (DJELR).

The principle elements of the legislative reform being undertaken in the medium term are as follows:

i The **Employment Permit Bill 2005** has been published by the Minister for Enterprise, Trade and Employment to put Ireland's existing employment permit system on a sound legislative footing and thereby provide greater accountability and transparency. It lays down the conditions relating to the application and granting of employment permits, the grounds for refusal, and an appeals mechanism. It also provides for penalties to the employer or employee for breaches of the legislation. The Bill includes a provision that allows a more managed control of economic migration in Ireland through Ministerial regulations in accordance with the prevailing economic climate. This empowers the Minister to provide quotas on the number of work permits issued and to determine what particular categories of employment will be eligible for permits. Such powers have not been available to date.

ii The **Immigration and Residence Bill** is the second piece of legislation, which is due to be passed by the end of 2005. In preparation for this, a discussion document on future immigration issues was launched in April 2005 by the Department of Justice, Equality and Law Reform[11]. The

10 Despite the enlargement of the EU, only Ireland, the UK and Sweden currently allow unrestricted access to their labour markets. Citizens from within the European Economic Area (EEA) also have unrestricted access to the EU labour market. The EEA is an area of free trade and free movement of peoples comprising the member states of the European Union, in addition to: Norway, Iceland and Liechtenstein. Switzerland, although not a member of the EEA is accorded similar rights regarding the movement of labour. Henceforth, references to the EEA include Switzerland, unless otherwise stated.

11 Department of Justice, Equality & Law Reform, Immigration and residence in Ireland: Outline policy proposals for an Immigration and Residence Bill – A discussion document, April 2005.

> primary aims of the forthcoming bill are to implement a new legislative basis for the visa system, to improve customer service and to define clearer procedures for the admission of migrants for both employment and non-employment purposes. The bill will also address issues such as migrant's entitlements in relation to public services.

In addition to the proposed legislative reform, the Government are also considering some administrative changes in order to improve the efficiency of the migration infrastructure. The primary proposal here is the creation of a 'one stop shop' service, which will process all applications for work permits, and visas. This will be known as the *Irish Naturalisation and Immigration Service* (INIS) and will operate from within the Department of Justice. However, DETE will retain its policy role in this area and the number of work permits and sectors to which they will apply will be at the discretion of the Minister for Enterprise, Trade & Employment. It would also appear at this stage that the DETE will continue to process and issue these permits, with a virtual link to INIS.

As part of the overall review of migration matters, DETE have requested the assistance of the *Expert Group on Future Skills Needs* (EGFSN) and *Forfás* to produce a document outlining current and ongoing skills shortages in key sectors of the Irish economy and to identify where such skills may be sourced. Furthermore, DETE have requested the EGFSN and Forfás to contribute to the development of an appropriate skills-based economic migration policy. The EGFSN has in conjunction with DETE, reviewed examples of skills-based migration procedures that have been applied in other jurisdictions and developed options in relation to policies and procedures which could be used to regulate and facilitate skilled migration.

Separate to the actions undertaken by the Irish Government, but equally prescient, the European Commission has recently adopted a Green Paper on migration in order to stimulate public debate on the need to develop a comprehensive EU strategy to manage migration for economic reasons[12]. The Commission intends to formulate a policy plan by the end of the year. These deliberations at European level need to be borne in mind when considering legislative action relating to migration.

1.1 Content and Focus of Expert Group Submission

The Irish Government established the *Expert Group on Future Skills Needs* in 1997 with a mandate to advise it on the future skills requirements of the Irish economy. With this in mind, this submission focuses on the impact that migration policy has on the *skills* base of the Irish economy. At the same time, the members of the EGFSN acknowledge the complexity of the issue at hand and accept that any decisions in relation to migration policy will also be determined by a myriad of other factors.

The focus of this submission is entirely on migration for economic purposes. Nevertheless, the EGFSN recognises that there are other ways of entering Ireland and eventually gaining the right to work, whether through the asylum process, marriage to an Irish citizen etc. Therefore, in order to engage in meaningful debate about the merits and most appropriate manner to regulate economic migration, it is vital to distinguish between the various forms of migration.

Immigration refers to a process by which non-nationals move into a country for the purpose of settlement. An **immigrant** is an all-encompassing term usually taken to mean someone who leaves their native land and goes to another country as a permanent resident (as distinct from a holidaymaker, for example). The term encompasses **economic migrants**, **asylum seekers** and **refugees**. The term **migrant**, however, is usually understood to cover all cases where the decision to migrate is taken freely by the individual concerned for reasons of 'personal convenience' and without intervention of an external compelling factor. This term therefore applies to persons,

12 European Commission, On an EU approach to managing economic migration, January 2005.

and family members, moving to another country or region to better their material or social conditions and improve the prospect for themselves or their family.

An **economic migrant** is an individual who leaves behind their country of origin in order to improve their quality of life, usually by seeking employment in another country. The term **labour migrant** can also be applied to an individual who moves countries for the purpose of employment. An **asylum seeker**, on the other hand, is described by the UN as someone who has made a claim that he or she is a **refugee** and is awaiting the determination of his or her status. The term contains no presumption either way; it simply describes the fact that someone has lodged the claim. Some asylum seekers will be judged refugees and others will not. An individual can be considered a **refugee** if they are a person who is outside his/her country of nationality or habitual residence; has a well-founded fear of persecution because of his/her race, religion, nationality, membership in a particular social group or political opinion; and is unable or unwilling to avail himself/herself of the protection of that country, or to return there, for fear of persecution.

It must be borne in mind that since the recent enlargement of the EU, citizens from all 25 member states and from the EEA countries currently have the right to live and work in Ireland without restriction. Ireland's decision not to impose restrictions on migration from the 10 new member states means that Irish economic migration policy currently does not affect the flow of individuals from within the EU and only impacts on the inflow of individuals from outside of these countries. For the purpose of this report, such migrants are referred to as **third country nationals**.

It is important to differentiate between a **skills shortage** and a **labour shortage**. The key distinction used in this report is that a **skills shortage** refers to a situation where there are an insufficient number of trained/qualified individuals in the domestic market to meet the demand for an occupation. Skills shortages arise for occupations associated with specific skills which are usually acquired through education and training. A **labour shortage** refers to a situation where there are an insufficient number of individuals willing to take up employment opportunities at the prevailing wage and conditions. The wage level does not adjust because of certain institutional arrangements or rigidities in the market.

Increased training and skilled-based immigration can be used to relieve the adverse impact of a skills shortage. Labour shortages, however, represent more of a structural problem. In order to attract new workers into such an industry, an adjustment in wages or conditions may be required. This poses distinct challenges for low skilled industries that already operate on narrow profit margins. While in the short term, immigration of low skilled, low paid workers might be used to maintain the profitability of an industry, such an approach is not sustainable in the medium term, suggesting that more fundamental reform of the industry is required, involving improvements in productivity etc.

Finally, rather than viewing skills as a binary situation where individuals or sectors are characterised by either high skilled or low skilled, it is preferable to consider a **skills continuum**, encompassing a range of skill levels. Such a continuum is not static, individuals can move up the continuum through additional experience, education and training, while the range of skills captured by such a continuum is constantly changing as industry evolves and the knowledge economy becomes embedded in Ireland. Consequently, the skills of the Irish labour force must also evolve. This is primarily facilitated by a commitment to life long learning and training.

1.2 Methodology

This report is divided into four distinct sections. The first section serves as a general introduction to Irish migration issues. *Chapter 1* explores recent developments in Ireland's experience of migration, and looks briefly at the impact immigration has had on the labour force. *Chapter 2* examines the economic rationale for migration, as well

as looking at likely future labour market developments at a broad, macro level. This analysis relies primarily on a number of forward looking reports produced by the ESRI, FÁS and the CSO. It also draws on the work of the *Enterprise Strategy Group* which has set out a blueprint for Ireland's economic development over the next decade.

The second section of the document focuses on the identification of skills shortages in Ireland. *Chapter 3* examines skills shortages for 125 occupations, categorised into 16 occupational groups. Each occupation is examined in terms of employment profile (age, education, nationality etc.), employment levels and employment growth rates. Where applicable, the numbers of issued work permits/visas/authorisations is also considered. In addition, the difficulty of filling positions for an occupation is incorporated into the analysis, where available. The data and analysis herein is based on the work of the *Skills and Labour Market Research Unit* (SMLRU) in FÁS and is published in the EGFSN's *National Skills Bulletin 2005*. The chosen variables give an indication of occupations where shortages exist. The identified shortage is then defined in relation to the type (i.e. skill vs. labour), expected duration and significance. Due to the extent and nature of occupations covered in the section, it was not feasible to produce detailed measures of labour supply. The conclusions, therefore, rely on broad supply data and to some extent on qualitative judgements.

Chapter 4 is divided into two sections. The first section looks at the skill requirements of enterprise sectors that were previously identified by the EGFSN as being of economic importance to Ireland. The analysis is concentrated at the higher end of the skills continuum, primarily at occupations requiring graduate entry level and is based on previous EGFSN forecasts, current SLMRU data and industry consultation.

The second section examines skills and labour shortages in high employment sectors of the economy (both traded and non-traded) in which the EGFSN has not previously identified skills or labour shortages. This section is based on current SLMRU data, previous SLMRU reports, industry consultation and is cognisant of sectoral forecasts and plans where they exist.

The third section of the report, contained in *Chapter 5* was produced in conjunction with *Farrell Grant Sparks* and examines potential sources of labour supply to fill the skills shortages identified in *Chapters 3* and *4*. The purpose of this chapter is to identify the likelihood of sourcing sufficient labour from within the EEA to meet the needs of Irish industry. Where it is determined that the European labour market will not be able to supply the quantity of labour demanded, a number of other countries are highlighted as potential sources of the required labour. In order to ensure comparability across a wide range of countries, this section utilises widely available data from recognised sources such as the *OECD* and *Eurostat*. The analysis focuses on three aspects of labour supply, namely labour availability, labour ability and finally, labour mobility in order to develop a comprehensive overview of likely labour sources. This section also provides policymakers with information on the relative attractiveness of each country's labour supply and, therefore, where efforts might best be concentrated in attracting labour.

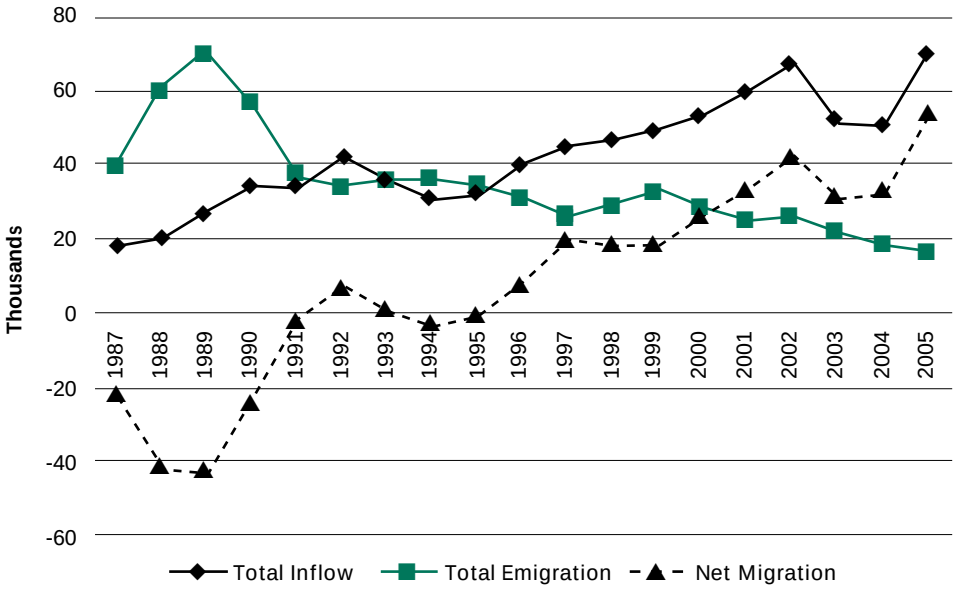
Having identified the skills shortages and possible sources of skills supply, *Chapter 6* introduces the fourth and final section of the document and focuses on the policy issues of economic migration. This chapter provides a brief overview of Ireland's existing migration framework and is based on information provided by DETE and DJELR.

Finally, *Chapter 7* contains an in-depth discussion around Ireland's policy objectives, principles and options. This chapter was produced following a review of skilled migration policy and procedures in other jurisdictions, extensive consultations and literature review. DETE assisted with the research undertaken to produce this chapter.

1.3 Migration and Irish Population Demographics

As both a cause of and a consequence of rapid economic growth since the mid 1990's, Ireland has witnessed significant growth in migrant inflows over recent years. In fact, since the late 1980's, there has been a dramatic about face in Ireland's migrant flows, a change that has transformed Ireland from a country of long-standing, traditional emigration to a country of net immigration. These developments have already been well documented by many authors[13]. *Figure 1.1* below illustrates that although emigration continues to have a significant impact on Irish demographics, total immigration has increased substantially over the past 15 years. In fact, the 12 months to April 2005 saw 70,000 migrants enter the country; this was the highest annual figure since migration estimates began in 1987.

Figure 1.1 Immigration, emigration and net migration in Ireland, 1989-2005



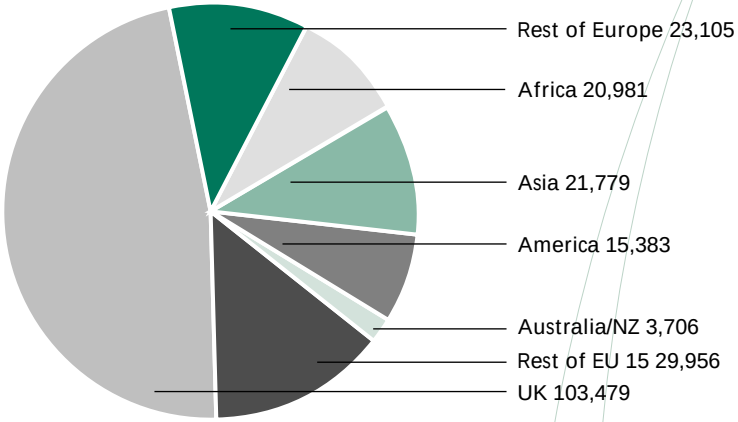
Source: CSO, Population & Migration Estimates, April 2005

According to *Census 2002,* there are approximately 225,000 non-Irish residents, accounting for over 6 per cent of the total population. *Figure 1.2* below illustrates the non-Irish population by nationality and emphasises the large number of migrants from within the EU15[14], and in particular from the UK.

13 For example *Tansey (2002)* and *Ruhs (2003).*

14 It must be noted that pre-2004 data differs substantially from post-2004 data: prior to the accession of 10 new EU members in May 2004, significant numbers of migrants came to Ireland from the 10 accession states. These migrants were captured in the *rest of world* data by the CSO. Post accession data now includes migrants from these countries in *EU25* data. Similar issues exist for all data sources.

Figure 1.2 Non-National Population; Persons Usually Resident in Ireland Classified by Nationality 2002



Source: CSO, Census 2002

1.3.1 Recent Irish Labour Market Performance

The golden era of Irish economic growth in the 1990's saw a rapid increase in employment in Ireland (and conversely a dramatic fall in unemployment). In fact, the unemployment rate has recently stabilised around the 4 per cent mark, down from a high of 15.7 per cent in April 1993. At the same time, employment in Ireland has increased from 1.1 million in 1991 to over 1.9 million in 2005[15].

Looking at the performance of the labour market over the last year, employment growth in Ireland remained strong, with an additional 93,000 individuals finding work. This represented annual employment growth of 5.1 per cent, and was in fact, the highest year-on-year growth in absolute terms since the QNHS began. The construction (+36,400) and financial and other business services (+20,100) sectors of the economy accounted for the bulk of the increase in employment. Within the service sector, the public sector remains a significant contributor to overall growth levels.

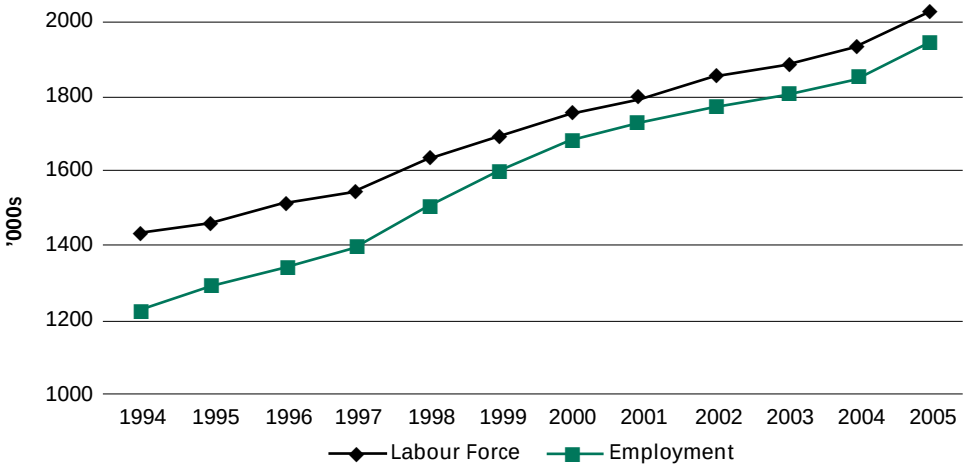
In parallel with this impressive growth in employment, unemployment remained low, at a relatively constant 4.2 per cent, representing the lowest level amongst all 25 EU member states.

Looking to the future, total employment is forecast to grow by 2.7 per cent in 2005 and by 1.7 per cent in 2006[16]. These figures reflect the generally positive forecasts for overall economic growth, as published by both the Central Bank and the ESRI. Once again, the construction and services sectors are expected to be the primary drivers of this growth.

The increase in the numbers employed in Ireland over the past decade has greatly exceeded the fall in unemployment and was only made possible by a significant expansion in the labour force participation rate (the proportion of the population aged 15 to 64 year olds either in employment or actively looking for employment). In fact, the labour force participation rate in Ireland increased from 60 per cent in 1990 to 68.6 per cent in 2004[17]. This exceptional turn around in performance is illustrated in *Figure 1.3* below.

15 CSO, Quarterly National Household Survey, September 2005.
16 FÁS, Quarterly Labour Market Update, Second Quarter, 2005.
17 OECD, Employment Outlook 2005, OECD Publishing. According to the National Competitiveness Council's (NCC) *Annual Competitiveness Report 2005* Ireland is ranked 8th out of the 15 countries benchmarked (the higher the participation rate, the better the ranking) in terms of labour force participation rates. Participation rates in Ireland remain a long way behind Switzerland (87.6 per cent) and other leading countries.

Figure 1.3 Ireland's Labour Market 1994-2005



Source: CSO, QNHS, Q2 2005

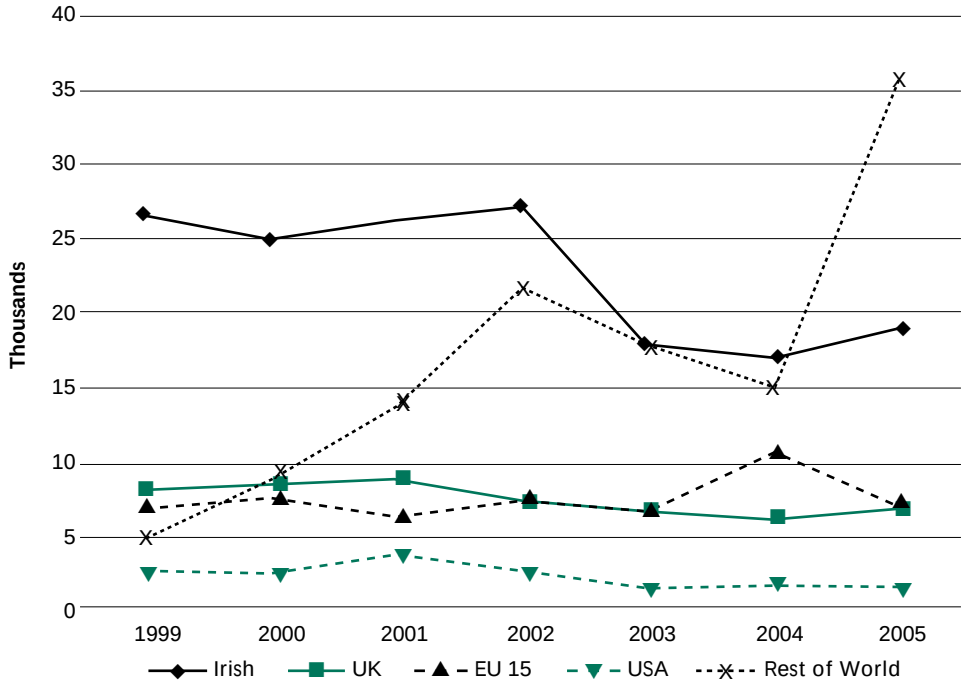
While the increase in labour force participation rates was the primary driver of the expansion in the Irish labour market over the last few years, inflows of migrant workers also contributed generously, providing additional supply.

1.3.2 Trends and Composition of Irish Immigration

The rapid expansion of the Irish economy and the improved employment opportunities generated as a result meant that a significant proportion of migrant inflows in the mid 1990's were composed of Irish returnees. However, the flow of former Irish emigrants wishing to return home has already peaked and an increasing proportion of inflows are now coming from outside of the EU15.

Figure 1.4 below illustrates migrant inflows based on nationality using *Central Statistics Office* data and demonstrates the changing pattern of immigration over the last few years.

Figure 1.4 Estimated immigration classified by nationality 1999-2005



Source: CSO, Population and Migration Estimates, April 2005

In particular, the growing impact of migration from the accession countries and indeed countries outside of the EU is emphasised. The number of migrants arriving in Ireland from outside of the EU15, increased from under 15,000 in 2004 to 35,400 in 2005. The bulk of this increase was accounted for by nationals from the 10 new EU member states, 26,400 of whom came to Ireland in the twelve months to April 2005. This is primarily reflects the fact that nationals from these countries no longer require work permits or visas to move to Ireland.

1.3.3 Working in Ireland

It is important to note, however, that not all migrants captured by these CSO data are eligible to work in Ireland. According to figures released by the SLMRU in FÁS, there were 111,000 non-nationals in employment in Ireland in 2004[18]. Approximately half of these came from within the EU. While EU and EEA citizens can automatically work here without restrictions, citizens of all other countries require permission to work, either through a work permit or through a work visa/authorisation.

Therefore, in order to capture the true impact of non-EEA immigration on labour supply, data concerning work permits and work visas/authorisations is required. According to data released by DETE, the number of work permits issued to non-EU nationals increased from 6,250 in 1999 to 47,551 in 2003, before falling back to 34,067 in 2004[19]. By the end of August 2005, a further 18,108 permits had been issued[20]. Furthermore, 1,317 work visas and authorisations were approved between January and December 2004, with another 556 being issued in the first three months of 2005. Thus, non-EU nationals accounted for approximately 2.6 per cent of the labour force in Ireland in December 2004[21].

1.3.4 The Impact of EU Enlargement

In May 2004, ten new members joined the European Union, adding an additional 74 million people to the EU, and resulting in a combined EU population of 451.7 million[22]. The accession of these countries has also greatly expanded the size of the European labour market. In total, 208 million workers now have access to the single European labour market[23]. Consequently, many individuals who prior to accession required work permits or work visas/authorisations to come to Ireland, no longer do so[24]. As illustrated above, this has already resulted in a decline in the number of work permits granted.

Figure 1.5 below illustrates the impact that EU enlargement has had on immigration into Ireland, utilising work permit data in conjunction with data on the number of *Personal Public Service* (PPS)[25] numbers issued to nationals from the 10 new EU member states. In 2002 and 2003, over 8,000 new work permits were issued annually to citizens from the accession countries. In May 2004, however, the requirement to attain a work permit was dropped upon accession to the EU, and this is reflected in the sharp decrease in the number of work permits issued in 2004. At the same time,

18 Fás / SLMRU, National Skills Bulletin 2005.

19 Work permits are valid for a maximum of 1 year and must be renewed thereafter on a yearly basis. The number of permits issued annually, therefore, is a good measure of the *stock* of legally employed non-EU nationals. In 2004, 10,020 new permits and 23,246 renewals were issued. A further 801 group permits were also issued.

20 This figure encompasses 4,937 new permits, 12,611 renewals and 560 group permits.

21 Ruhs (2005).

22 Eurostat Statistics in Focus, Population and Social Conditions, 9/2005, EU Labour Force Survey, Principal Results 2004.

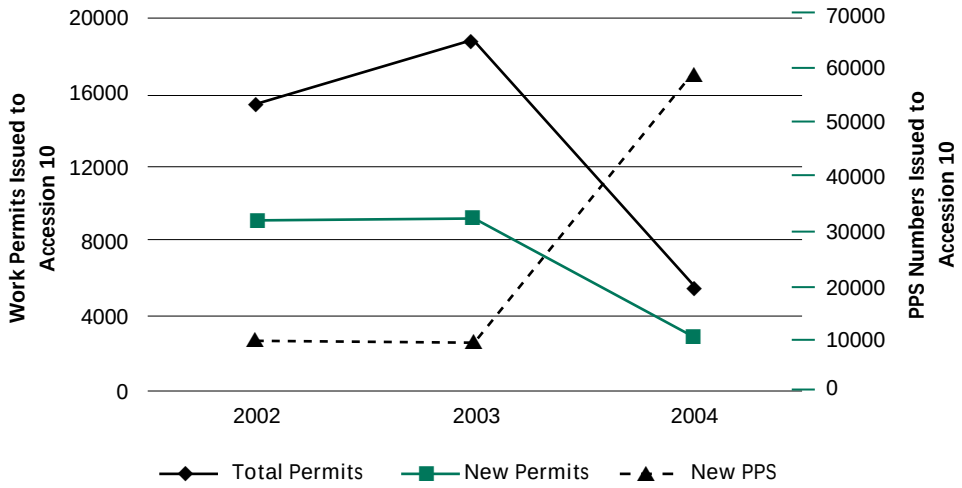
23 It should be noted that this figure does not include the 163.6 million individuals classified as *economically inactive* by Eurostat's labour force survey.

24 In fact, only Ireland, the UK and Sweden have granted unlimited access to their labour markets to citizens from the 10 new Member States. All of the other 12 existing members have imposed certain transitional arrangements and restrictions on the movement of labour from the accession countries. These transitional arrangements are due to expire in 2011 at the latest.

25 A Personal Public Service Number is a unique identifier for use in any transactions you may have with public bodies or persons authorised by those bodies to act on their behalf. It is required to have a PPS number in order to take up employment in the state.

the number of individuals from the 10 new member states applying for a PPS number has increased dramatically. In 2002 and 2003, just over 9,000 PPS numbers were issued annually to citizens from the accession states. This subsequently increased to almost 59,000 in 2004 when free movement of labour was introduced. The most recent data indicates that this number is likely to rise again: over 75,000 PPS numbers had been issued by August 2005. This indicates that there has been a significant increase in migration from these countries into Ireland. This is also reflected in the fact that since 2003, citizens from the 10 new member states now account for a greater proportion of new PPS numbers being issued to non-Irish nationals; between 2001 and 2003, approximately 10 per cent of all new PPS numbers issued to non-Irish citizens went to nationals from these states. In 2004, this figure rose to over 47 per cent.

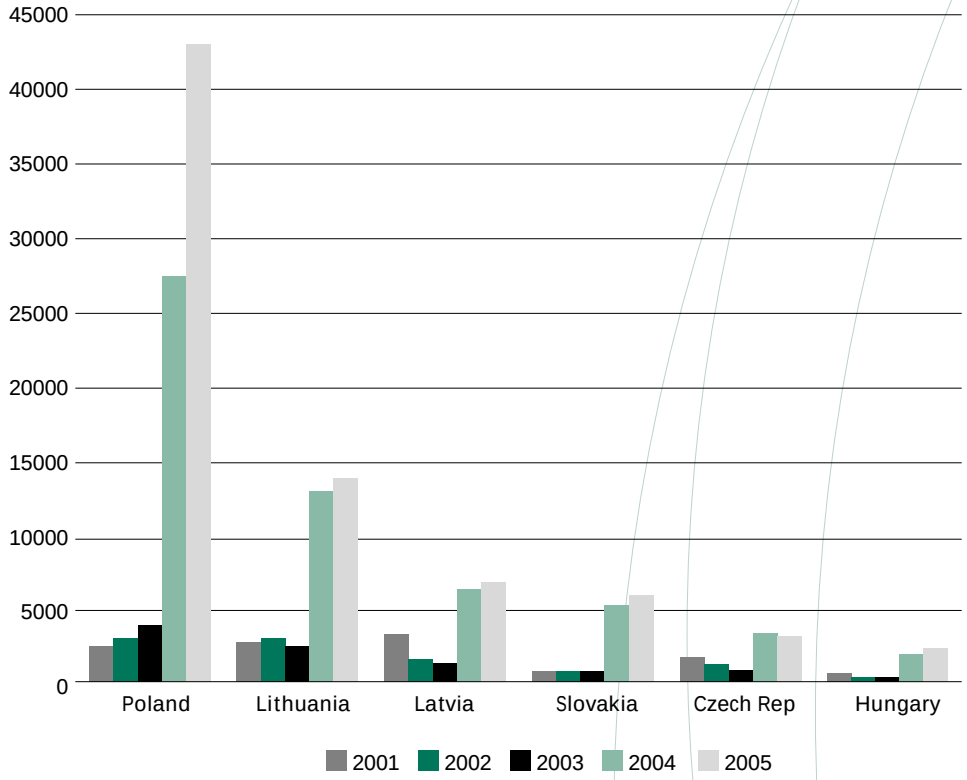
Figure 1.5 Impact of EU Enlargement



Source: DETE / Department of Social and Family Affairs

Using data from the Deparment of Social and Family Affairs, *Figure 1.6* below illustrates the dramatic increase in the quantity of PPS numbers issued to nationals from a selection of the new EU member states. Furthermore, the data shows that the majority of migrants from the 10 accession countries are coming from Poland, Lithuania and Latvia. It is interesting to note that immigration from countries such as Lithuania and Latvia exceeds the level of immigration from larger countries such as the Czech Republic and Hungary. This issue will be discussed further in *Chapter 5*.

Figure 1.6 PSS Numbers Issued to Selected Accession Counries 2001-2005

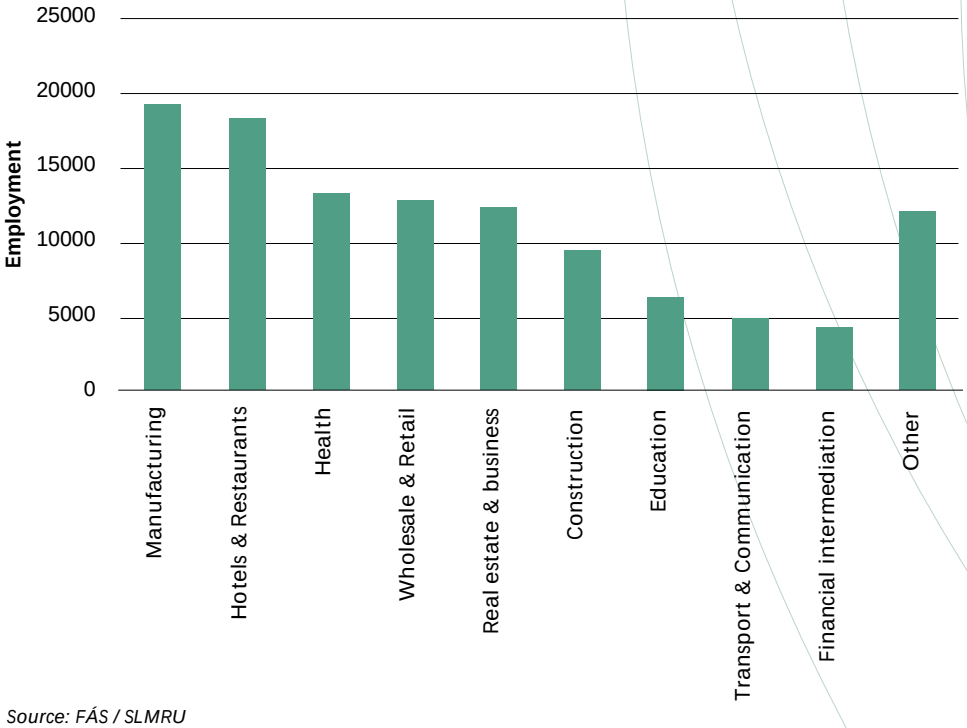


Source: Department of Social and Family Affairs

1.3.5 Characteristics of Migrants in Ireland

Employment: *Table 1.7* below illustrates the distribution of non-nationals in Ireland across various NACE sectors.

Figure 1.7 Employment of Non-nationals by NACE Sector, 2004

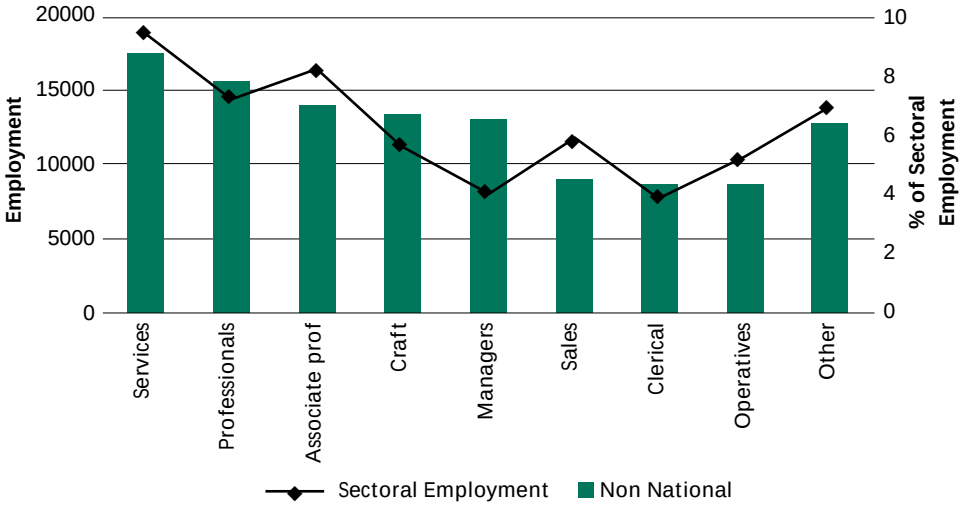


Source: FÁS / SLMRU

The majority of work permit holders are employed in the services sector of the economy, with a significant concentration of foreign labour involved in the hotel and restaurant industry. Substantial numbers of immigrants are also employed in the health sector.

The level and type of employment that these individuals are engaged in is of particular importance to this study. According to *Ruhs (2003)* in the period February – December 2002, 74 per cent of all work permit holders in Ireland were employed in relatively unskilled professions. More recent analysis, conducted by the SLMRU, and illustrated below in *Figure 1.8* suggests that the largest proportion of non-national employment is concentrated in service industry. In fact, non-nationals account for over 9 per cent of all service sector employment in Ireland.

Figure 1.8 Employment of Non Nationals by Occupational Group, 2004



Source: FÁS / SLMRU

This conclusion is confirmed through analysis of work permits issued between January and May 2005 that was also performed by the SLMRU. Preliminary analysis suggests that the majority of permits are being issued in categories such as catering, health, caring and farming sectors, many of which require skills at the lower end if the skills continuum.

Skills: While the work permits database does capture information on the average earnings of permit holders, it does not, however, contain data on the educational attainment or work experience of migrants[26]. Such data is vital, both to determine the relationship between a migrants skill levels and their wages, and in order to shape a meaningful skills-based migration policy.

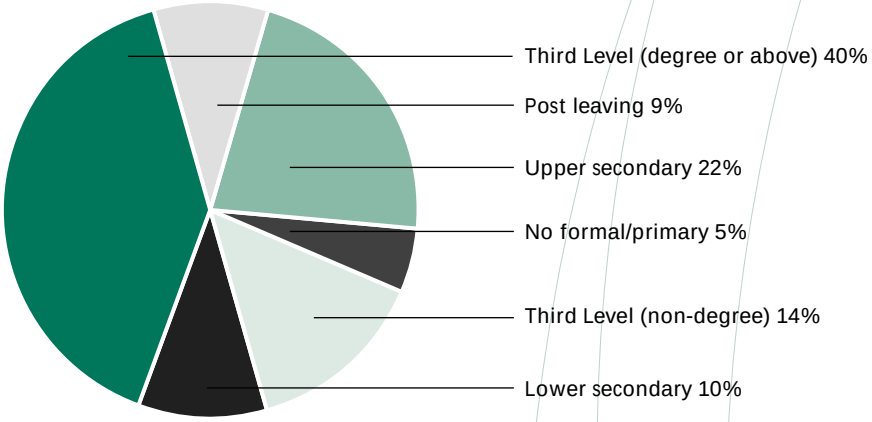
Nevertheless, it is possible to develop an overall picture of the education levels of immigrants into Ireland, relative to other developed EU economies, using data on *years of schooling*[27]. According to *Minns (2005)*, Ireland generally attracts highly skilled immigrants, relative to the foreign-born residents of other European countries. Whereas previously, this was attributed to the large stock of well-educated migrants from the US, it now appears that Ireland attracts high skilled individuals from both low and high-income countries.

26 Earnings are often used as a proxy for skills or educational attainment.

27 This analysis is based on *average years of schooling* in each source country among the population aged 15 years and above. The source is Barro and Lee (2000). There are a number of caveats when using this data: years of schooling is a self reported measure and as such may be overstated; the qualifications of immigrants may not be directly comparable to domestic qualifications; and demographic differences between immigrant groups within and between countries may distort comparison.

These findings were mirrored in a similar exercise by the *Economic and Social Research Institute* (ESRI). *Barrett, Bergin and Duffy (2005)* examined the distribution of educational attainment amongst migrants (based on CSO data) and found that the immigrant population in Ireland is characterised by high educational attainment. This is illustrated in *Figure 1.9* below.

Figure 1.9 Educational Attainment for Non-National Population



Source: ESRI

For instance, over 54 per cent of immigrants have a third level qualification compared with just 27 per cent of the native population. Nevertheless, despite such impressive standards of educational attainment amongst the non-national population, evidence exists which suggests that highly qualified immigrants are not being employed at a level that reflects their educational status.

Barrett, Bergin and Duffy (2005) examine the impact that under utilisation of migrant labour has on overall levels of national income. It is suggested that if all migrants resident in Ireland were employed at a level fitting their educational level, it would add between 3.5 and 3.7 per cent to GNP.

There are a number of possible explanations for this *occupation gap*. First, the immigrant population is generally quite young and somewhat lacking in experience. Second, it is possible that Irish employers attach less value to educational achievements awarded outside of Ireland. Third, there could be a lack of information about employment opportunities amongst the immigrant community. Finally, English language capability may constrain a migrant's ability to acquire appropriate employment.

Weiss (2000) notes that the integration of migrant workers into the economy takes time and that even highly skilled migrants face a gradual climb up the occupational ladder; in many instances migrants initially are employed at a lower wage or at a lower level of responsibility than might be expected by a native-born worker with similar characteristics. The long adjustment process can, for some highly skilled migrants equate to a substantial loss of earnings over the lifecycle.

2 The Case for Immigration

Chapter Two: Summary

- The economic argument in favour of immigration is somewhat limited: it is broadly agreed that in general, immigration has a small, positive impact on GDP. The impact on growth per capita (which is more reflective of improvements in living standards) is more ambiguous and it is likely that immigration has a neutral impact on GDP per capita.

- Reliance on immigration to relieve labour shortages can become a self-perpetuating phenomenon

- In an effectively functioning labour market, real wages adjust to address labour shortages and skill shortages. Wage levels should be free to move in both directions. This does not always occur due to rigidities in the market e.g. government intervention (minimum wage), lack of information, mobility issues etc. Immigration can also be used to suppress real wage growth.

- An immigration policy that targets individuals possessing high or scarce skills can have a significant, positive impact on economic performance.

- Immigration is an economically acceptable solution when company-specific skills are required. Likewise, immigration is deemed appropriate if there is a recognised shortage of skills which may take a significant period of training to acquire. Finally, certain skills (such as native level fluency in language skills can only be acquired from abroad) are both scarce and of undoubted benefit to a host economy

- Economic migration also results in potentially significant income distribution effects

- Immigration also has substantial social impacts and costs

- Immigration exposes a country's stock of infrastructure to increased demand pressure, and risks increased congestion. Likewise, immigration creates additional demand for housing and service provision

- The social impact of migration and issues of integration cannot be tackled quickly. The consequences of immigration are felt over several generations and so, policies encouraging integration must extend over the long term

- The National Economic and Social Council (NESC) is currently examining the economic and social implications of migration to Ireland. Their report will examine diverse issues such as the health and social welfare effects of migration, as well as the impact that migration to Ireland has on sending countries

2.0 Introduction

There is no definitive methodology available to measure the full impact or value of migration. Migration involves a vast array of variables and actors, and its inherent human dimension, means that it is not simply a matter of weighing up the immediate economic returns. What is clear, however, is that the issue is no longer whether to have migration, but rather how to manage migration in order to boost the positive effects and minimise the negative effects.

2.1 Economics of Immigration for the Host Country

Much of the economic debate in relation to migration including some outlined in this report is predicated on the assumption that individuals behave rationally i.e. they make choices based on economic reasoning. It would be misleading to present such arguments without acknowledging that there are other factors outside of the economic realm which impact on individuals' behaviour. Individuals have the power of agency and they may or may not decide to migrate to where wages and salaries are higher; they may or may not engage in education and training programs which will lead to better employment prospects; they may make career decisions which seem irrational from a purely economic prospective. It is therefore useful to acknowledge that it is better to talk in generalities rather than absolutes.

In general, economic migration is a voluntary market transaction and, therefore, at a global level should be economically efficient to the migrant, the receiving country and indeed, the global economy. From the perspective of both the migrant and the host country, so long as the marginal productivity of labour differs in various countries, labour migration can be welfare enhancing. From a global economy perspective, the free movement of people offers a more efficient allocation of labour as workers move to locations where they will be most productive.

At a national level, however, the case in favour of migration is somewhat more limited. It is broadly agreed that in general, immigration has a small, positive impact on GDP. Since migration in itself does not cause growth, the exact magnitude of the positive impact is difficult to quantify. In the UK, *Glover (2001)* has estimated that a one per cent increase in population through migration is associated with an increase in GDP of between 1.25 and 1.5 per cent. Likewise, *Bauer and Zimmerman (1999)* estimated a one per cent boost to GDP if migrant flows consist of skilled workers (and a similar negative impact if flows are predominantly unskilled). The impact on *growth per capita* (which is more reflective of improvements in living standards) is even more ambiguous and it is likely that immigration has a neutral impact on GDP per capita.

This is because high levels of immigration will increase aggregate variables such as the size of the labour force, investment and gross incomes but does not necessarily impact on per capita income. Furthermore, reliance on immigration to relieve labour shortages can become a self-perpetuating phenomenon: labour shortages generally only occur in situations where wages do not react to market forces. In such scenarios, immigration can be used as a tool to suppress real wage growth. The suppression of real wages can then dis-incentivise the resident workforce from upskilling themselves as wage differentials are narrowed.

While the entry of migrant labour into an economy is intended to tackle labour shortages, what occurs in reality, is that the additional demand created by the migrants approximately matches the increased capacity/output of the expanded labour force. As a consequence, a similar level of labour shortages will occur following the migration of foreign labour into an economy as would have existed in the absence of immigration, albeit in different sectors. Thus, a policy that attempts to address labour shortages through inward migration will result in a constant spiral, with immigration being used to address existing labour shortages, followed by an increase in consumer demand, finally resulting in new calls for even more migration.

In general, only an adjustment in real wages can adequately address a labour shortage, with an increase in wage levels resulting in an increase in the supply of labour. Migration used as a quick fix, can suppress domestic wages thus damaging the welfare of the existing population.

The measurement of the impact of migration on wage and employment levels in the host country has proved just as difficult to measure as its impact on GDP. Work by *Borjas (2002)*, for example, suggests that immigration induced increases in labour supply do influence domestic wages and employment. On the other hand, there is a body of research which suggests that migration, when properly managed, has little or no impact on local employment or wage levels. For example, *Weiss (2000)* has found in his study of high skilled migration into Israel that even a large wave of immigration can be absorbed without marked effects on wages or employment of natives. This is due to the entry of additional capital and the gradual entry of migrants into high skilled occupations, thus maintaining a constant labour/capital ratio. Similarly, a study in the UK found that migration does not have a statistically significant impact on overall unemployment for the existing population (*Kempton 2002*), particularly if migrants bring with them skills that complement the existing workforce.

This point is emphasised by *Griswold* (*2002*). According to the *segmentation hypothesis*, immigrants tend to be disproportionately represented in occupations where the gap between supply and demand for labour is greatest, typically in the highest and lowest skilled jobs. This phenomenon in fact compliments the domestic labour market.

Minns (2005) concludes that a 'sensible interpretation' of the various studies may be that migration has a moderate impact on the receiving labour market and a substantial effect on labour markets in the country of origin. Furthermore, he suggests that as long as immigrants are well skilled they are unlikely to impact seriously on the welfare state. In fact, the entry of highly skilled individuals into Ireland may serve to lower existing levels of income inequality.

The foregoing analysis, while cautionary about the economic benefits of immigration does not entirely dismiss the notion that some limited migration is beneficial. Specifically, economists have argued that an immigration policy that targets individuals possessing high or scarce skills can have a significant, positive impact on economic performance. *Bauer & Zimmerman (1999)* have argued that the skills mix of the migrant community is an important determinant of the impact of immigration of national income: the more highly skilled the migrants, the greater the positive impact on GDP. According to *Drinkwater et al (2002),* the migration of high skilled individuals has unambiguous positive effects on the growth rate in the host economy. Similar arguments are propagated by *Bretschger (2001)* and by *Levine et al (2002)*. After all, if migration is to do more than merely add to the aggregate variables of an economy, it should serve to boost productivity per worker. Ensuring migrants possess high or scarce, valuable skills is an important element in achieving this.

In addition to the immigration of very highly skilled individuals, economic literature outlines a number of scenarios that justify some level of migrant inflows. In particular, immigration is an economically acceptable solution when company-specific skills are required. Likewise, immigration is deemed appropriate if there is a recognised shortage of skills which may take a significant period of training to acquire. Finally, certain skills (such as native level fluency in language skills can only be acquired from abroad[28]) are both scarce and of undoubted benefit to a host economy.

Looking beyond the direct income effects, economic migration also results in potentially significant income distribution effects. High levels of immigration generally benefit those who own the factors of production (through increasing the

28 EGFSN, The Demand & Supply of Foreign Language Skills in the Enterprise Sector, May 2005.

returns to capital etc.) while reducing the wages of those who compete with the migrant workers[29]. It is important, therefore, that migration does not benefit one element of society at the expense of an other. Immigration should compliment the existing skills base, rather than compete with it. As an additional precaution, labour market regulation (e.g. minimum wage controls etc.) can negate some of the negative impacts of immigration.

In Ireland's case, our high level of income disparity[30] may in fact offer an initial competitive advantage when competing for high skilled migrants. *Minns (2005)* has suggested that high skilled migrants are generally more attracted to regions with a high-income inequality as such regions offer the greatest return to skilled labour. Conversely, low skilled migrants are attracted by countries with low-income inequality. Since Ireland is considered to have the greatest income disparity in Europe, this may unintentionally make Ireland more attractive to highly skilled migrants than economies with greater income equality. This advantage would only be a temporary phenomenon. Over time, inward migration can be expected to lower Ireland's income inequality, thus offering additional social benefits.

Despite the absence of a direct, positive correlation between migration and income per capita, immigration offers a number of other benefits to the receiving country.

- While the exact magnitude of the gains from trade which accrue as a result of migration are difficult to measure, *Lazear (2000)* suggests that such gains are facilitated by the interaction of individuals from diverse backgrounds who possess different knowledge sets.
- Economists also attribute a value to ethnic diversity in terms of an improvement in innovation capability through knowledge sharing.
- A policy of attracting high skilled migrants increases the likelihood that migrants will be equipped with the necessary tools to facilitate integration (e.g. local language skills), minimising social costs.

Nevertheless, despite the positive attributes engendered through immigration, a policy that deliberately encourages the inward flow of migrant labour does expose the country to a number of downside risks. In particular, immigration has substantial social impacts and costs. Immigration also exposes a country's stock of infrastructure to increased demand pressure, and risks increased congestion. Likewise, immigration creates additional demand for housing and service provision. These issues are discussed in more detail in *Section 2.2*.

Regardless of the economic and social arguments surrounding migration, it is not uncommon that concerns persist about the likely impact of increased flows of migrant labour. In particular, the expansion of the EU to 25 members, gave rise to a number of concerns about the impact that migration from the accession country migrants might have on the economies of the EU15. While enlargement certainly contributed to an increase in the level of migration, concerns regarding the numbers of anticipated migrants have, to date, proved unfounded. In most EU countries, this is a result of the restrictions imposed by many countries on the free movement of labour from the new Member States. In Ireland, however, even in the absence of labour market restrictions, free movement of labour from the new member states did not have any discernable negative impact on the economy, despite an increase in immigration. This is a reflection of the strength of the economy and the absorptive capacity of a buoyant labour market.

29 According to *Griswold (2002)*, evidence from the US suggests that migrants often compete with other, older migrants for employment and this minimises the impact that migration has on employment of natives. Many other studies emphasise the minimal impact immigration appears to have on local wage levels.

30 According to data published in the National Competitiveness Council's *Annual Competitiveness Report 2005*, Ireland's Gini Coefficient (which is a measure of income distribution) is 6th highest out of 16 countries benchmarked, indicating a high level of income inequality.

Looking to the future, research by the *International Organisation for Migration* (IOM) downplays the potential for detrimental large-scale migration from east-west even after the lifting of the current restrictions[31]. While it is likely that east-west migration will continue for the short-term, the expansion of the EU to include most of Central and Eastern Europe dictates that as incomes and living standards increase, this region too, will turn into area of large-scale immigration. This is borne out by the experience from previous EU enlargements which indicates that following an initial increase in emigration following the accession of countries with a below-average national income, levels of emigration return to previous levels. This is confirmed by research conducted by *Kunz and Leinonen (2004).* As a consequence, over the medium term, while low skilled migrants are likely to be sourced within the EEA, high skilled migrants will have to be recruited from alternative locations, outside of Europe. Europe will, therefore, have to compete with traditional immigration countries such as Canada, the US and Australia to fill labour and skills gaps. Pro-active policies that offer competitive advantage will be required on a European wide basis to address these issues.

2.2 Social Impact of Immigration on the Host Country

At an international level, significant research has been conducted examining the social impact of migration, both on host societies and sending countries. In particular, independent organisations such as the IOM and the *Migration Policy Group* (MPG) regularly publish studies examining these issues. Likewise, there is a substantial array of academic studies discussing the social impact of migration.

One of the key findings of the existing international research is that the social impact of migration and issues of integration cannot be tackled quickly. The consequences of immigration are felt over several generations and so, policies encouraging integration must extend over the long term. The integration process itself, is determined by a myriad of factors, notably language, culture, and religion, as well as the economic characteristics of the migrant community.

Notwithstanding the deep well of international literature, little study has been undertaken to date examining the social impact of immigration on Irish society. The information that does exist is primarily focused on the conditions of the immigrant community and on the role of the voluntary sector.

Nevertheless, despite the dearth of analysis, a number of initiatives have already been launched to facilitate the integration of non-national communities into Irish society. For example, the *National Consultative Committee on Racism and Interculturalism* (NCCRI) was established in 1998 as an independent expert body, primarily funded by the Department of Justice, Equality and Law Reform, focusing on racism and interculturalism. The *Immigrant Council of Ireland* (ICI) promotes the rights of immigrants through its information, legal and training services. It also actively undertakes policy/campaigning work and works in partnership with immigrant groups.

Aside from the voluntary sector, the Government has also demonstrated its commitment to protecting migrants and advancing the cause of integration. In January 2005, the Taoiseach and the Minister for Justice, Equality and Law Reform announced the launch of *Planning for Diversity: The National Action Plan Against Racism* (NPAR). The purpose of this plan is to ensure that there is effective protection and redress against racism, economic inclusion for all, recognition of diversity and full participation in Irish society. The NPAR also recognises the crosscutting nature of immigration and requires action from six different government departments.

31 International Organisation for Migration; World Migration 2005: Costs and Benefits of International Migration.

In parallel with this initiative, the *National Economic and Social Council* (NESC) is currently examining the economic and social implications of migration to Ireland. They are due to finalise their report towards the end of this year. This report will examine diverse issues such as the health and social welfare effects of migration, as well as the impact that migration to Ireland has on sending countries. The report will also outline a number of recommendations designed to foster integration.

At a general level, concerns exist regarding a number of issues relating to immigration. In particular, the consequences of migration for housing, infrastructure and service provision need to be understood. A policy that actively encourages a stream of permanent migration must be cognisant of the knock on effects that such a policy entails. While the increased population resulting from immigration serves to increase the overall output of the economy, it also creates additional demand for the aforementioned items. Consideration must be given to the level of demand for theses goods and services that is likely to be generated by additional migrants, and policies may be required to ensure that supply reacts in an appropriate manner.

The State is primarily concerned with the welfare of the existing population, and therefore, must ensure that the entry of migrants into the Irish economy does not damage the quality of life for current residents, whether through increased infrastructure congestion, or through longer waiting times for access to public services such as housing or healthcare. Housing and infrastructure provision will need to increase in line with population and this requires strong forward planning. Likewise, an increase in the population has resource implications for the Government's fiscal policy, as an increase in the number of residents will impact on both the income and expenditure columns.

Secondly, the State also has a responsibility to those migrants it attracts into the country. There is an implicit duty to ensure that the basic needs of the migrant communities can be satisfied. As well as ensuring that social infrastructure can accommodate the additional demand, it is in the interests of the State, the resident population and the immigrant community that integration is fostered and encouraged. Proactive educational policies are required from both the migrant's perspective as well as from the perspective of the existing population.

Finally, the State has a somewhat more esoteric duty to the sending country. While such a responsibility is, by its nature, difficult to define and uphold, the State in its role as a wealthy, developed economy, has a duty to encourage the economic development of poorer, sending countries. Furthermore, this duty may extend as far as ensuring that the sending country benefits to some degree from the migration process, whether through the sending of remittances, or through the prevention of brain drain.

2.3 Impact of Immigration on the Irish Economy and Labour Market

As previously outlined, the 1990's and early 2000's saw a rapid expansion in Irish employment levels, falling unemployment and overall, a tighter labour market than at any other time in recent Irish economic history. As manpower constraints threatened continued economic growth, migration served as a safety valve to release pressure, allowing employers to source additional resources from abroad. Undoubtedly, the flexibility of the labour market allowed the economy to react in a timely manner to changes in demand. Now that immigration has become an accepted part of the Irish economic landscape, it is important to understand the impact that migrants impose on the labour market, whether through wage effects, participation rates or overall economic growth.

2.3.1 Participation Rate

The expansion of the labour market throughout the past decade was facilitated by favourable demographics (i.e. a young population) and a significant increase in the

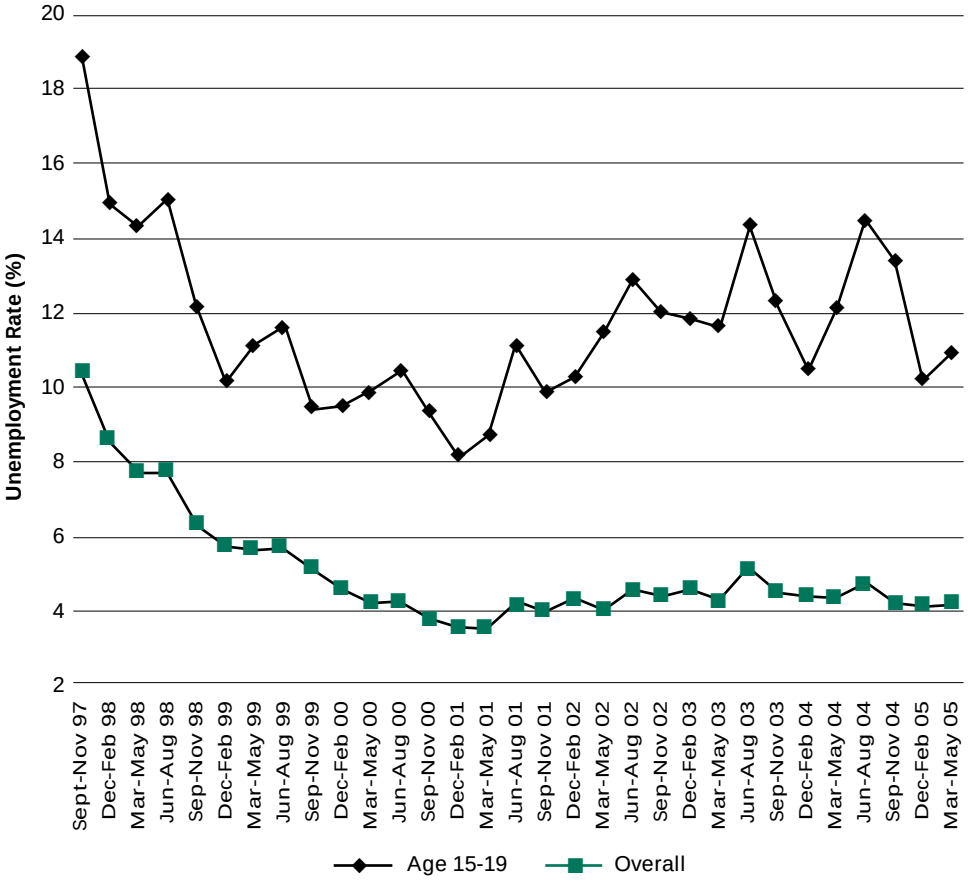
female participation rate; according to the OECD, the female participation rate increased from 42.6 per cent in 1990 to 58 per cent in 2004[32]. Both effects, however, offer a finite solution to the issue of labour supply, with population aging and diminishing returns to policies to attract female participation now posing challenges for policy makers. Immigration offers a more sustainable alternative.

An inflow of immigrants of working age serves to increase both the supply of labour and improves the employment/population ratio (to a small degree). This has the additional benefit of broadening the tax base, thus potentially increasing the number of taxpayers who in turn, fund public expenditure. It should be noted, however, that migrants age at the same rate as the existing population and do not, therefore, offer a guaranteed long term solution to the pensions issue. Policymakers should, therefore, be cognisant of the implications of changing European demographics.

2.3.2 Youth Unemployment

Some concern has been expressed about the impact that immigration might have on levels of youth unemployment. Between February 2001 and May 2005, youth unemployment increased from 8.2 per cent to 11 per cent, according to the CSO's *Quarterly National Household Survey*. Youth unemployment has been consistently over twice the overall, national rate of unemployment, with pronounced peaks recorded over the summer months. This is illustrated in *Figure 2.1*.

Figure 2.1 Youth Unemployment Rate



Source: CSO, QNHS

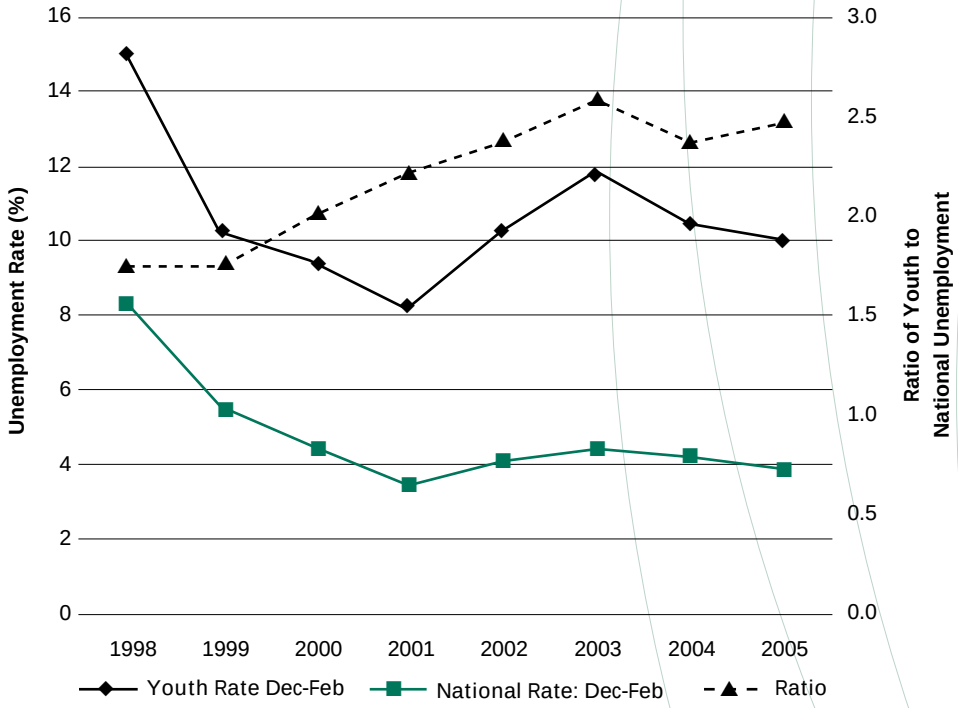
32 OECD, Employment Outlook 2005, OECD Publishing. While growth in the Irish female participation rate was impressive over recent years, the current rate continues to lag female participation rates in many leading developed economies e.g. Sweden (76.6%), UK (69.6%), Netherlands (69.2%) and Germany (66.1%). Nevertheless, CSO data point out that female participation rate amongst the population aged 25-34 is particularly strong (77.1%).

Arguably, the most relevant period in relation to youth unemployment are the periods December to February and March to May as they both reflect the circumstances after school-leaving labour market entrants have been in the labour market for a significant period of time.

Figure 2.2 below illustrates the trend in both national and youth unemployment for the period December to February between 1997 and 2005. The evidence herein suggests that youth unemployment has actually fallen in recent years, and is now below the peak experienced in 2003 *Figure 2.2* also charts the complicated relationship between youth unemployment and overall national unemployment. Analysis of CSO data suggests that the ratio of youth to overall unemployment has also grown over recent years. In 1997, youth unemployment was 1.8 times the national rate; as of February 2005 it is 2.5 times larger than the national rate, although once again this is slightly below the peak of 2003.

At the same time, there has been a slight downward trend in youth participation, once again with seasonal fluctuations. The magnitude of the fluctuations in participation rates over the summer months exceeds the fluctuations in unemployment over the same periods, suggesting that there is significant demand for seasonal labour providing suitable opportunities for youth employment.

Figure 2.2 Relationship Between Youth & National Unemployment Rates



Source: CSO, QNHS, Q2 2005

Despite the fluctuations in youth unemployment over the period in question, it is difficult to draw any firm conclusions about the impact that immigration is having on the youth labour market. The fact that youth unemployment has remained comparatively constant suggests that if migration does have an impact, it is relatively limited.

2.4 The Outlook for the Irish Economy

2.4.1 Introduction

The *Enterprise Strategy Group* (ESG) report[33] set forth a blueprint for Irish economic development over the next decade. In particular, the report emphasised the shift towards services as a major driver of GDP. Importance was also attached to the increasing roles that knowledge-based industries and innovation will play in driving growth. In line with these conclusions, the ESG asserted the continuing importance of high value-added manufacturing to the enterprise sector. The development of R&D capacity, in conjunction with strong sales and marketing skills will be fundamental requirements to maintain recent growth rates and success in international markets.

Finally, the report identified a number of key sectors that are likely to assume critical importance for Ireland as the industrial landscape evolves from one dominated by traditional manufacturing companies to become a knowledge driven economy. These sectors were:

- Information and Communications Technology;
- Biotechnology / Pharmaceuticals;
- Engineering;
- Internationally Traded Services;
- Food and Drink;
- Medical technologies; and
- Consumer Goods[34].

The findings of the ESG report provided guidance to the EGFSN, when deciding on the key sectors for study in *Chapter 4* of this report.

The following sections look at macro level employment and skills forecasts, and highlight broad domestic labour supply shortfalls. Where possible, these figures are also broken down into employment categories. Although labour supply and demand are, to an extent, interdependent, an attempt has been made to separate demand and supply projections.

2.4.2 Demand for Labour

The demand for labour depends, in essence, on the demand for Irish output. In turn, the future demand for Irish output will be a function both of the pace of expansion in Ireland's principal markets and of trends in Irish cost and price competitiveness relative to trade rivals. In summary, growth in the industrial world will determine the size of the market available to Irish producers; trends in competitiveness will shape the share of international growth that Irish producers can capture. The number of possible variables involved in developing a comprehensive labour market model ensures that there are multiple risks to the forecasts. These forecasts should be seen, therefore, as indicative of likely outcomes. Data relating to the earlier years of the projections below has now been published and provides a guide to the accuracy of the original projections.

Much of the analysis herein is based on the ESRI's *Medium-Term Review 2003-2010* (MTR). The submission also draws on work from other sources, all of which has been produced since 2001. *Table 2.1* below illustrates the ESRI's forecasts for employment, unemployment and net migration for each year from 2002 until 2010. On average, employment is forecast to grow at 2.2 per cent per annum. From approximately 2004 onwards, it is forecast that growth in employment will outpace growth in the labour

33 Enterprise Strategy Group, Ahead of the Curve: Ireland's Place in the Global Economy, July 2004.

34 Within consumer goods, the ESG identified three areas of particular competency for Ireland given the indigenous base already in place. These are furniture, fashion & textiles, and giftware & jewellery.

force, suggesting that immigration will have a role in relieving labour supply constraints. With this in mind, the ESRI forecast that net migration will continue to contribute to the Irish labour force over the next decade though not perhaps at quite the same high level as during the early part of the decade.

Table 2.1 ESRI Labour force projections

	Employed '000s	Unemployed '000s	Labour Force '000s	Unemployment % (ILO)	Net Migration '000s
2002	1680	116	1796	4.2	29
2003	1700	130	1830	4.9	15
2004	1721	137	1858	5.7	5
2005	1763	135	1898	5.4	14
2006	1806	135	1941	5.2	19
2007	1855	128	1983	4.7	21
2008	1893	128	2021	4.6	20
2009	1931	124	2055	4.3	18
2010	1963	125	2088	4.3	17

Source: ESRI, Medium Term Review 2003 - 2010

Looking a little deeper into the ESRI's benchmark forecast, it is clear that the majority of future employment growth will be in high skilled sectors of the economy, particularly in the market services, health and education sectors. This is illustrated in *Table 2.2* below.

Table 2.2 ESRI Employment projections by sector (Thousands, Mid April)

	Agriculture	Industry	Market Services	Non-Market Services	Total Employment
2002	115	480	715	369	1679
2003	113	476	738	373	1700
2004	112	482	749	379	1722
2005	109	478	782	394	1763
2006	106	478	814	410	1808
2007	103	478	849	426	1856
2008	100	478	872	443	1893
2009	97	475	897	461	1930
2010	94	473	916	479	1962

Source: ESRI, Medium Term Review 2003 - 2010

Another feature of the MTR data is the forecast demand for graduates. This is based on the number of new graduates required each year, both to accommodate continued employment expansion and to replace those members of the labour force with third level qualifications who leave the labour force each year (*Table 2.3*).

Table 2.3 Demand for skilled (graduate) labour (Thousands)

	2002	2003	2004	2010	2013
Net additional graduates	18	15	15	32	18
Attrition (7% of previous yr)	34	35	36	45	50
New graduates entering LF under ESRI projections	52	50	52	77	68

Source: ESRI, Medium Term Review 2003 - 2010

In comparison with the most recent CSO data, published in the *Quarterly National Household Survey*, the ESRI MTR projections have underestimated growth in both employment and in the labour force, while current rate of unemployment is somewhat less than forecast. *Table 2.4* below illustrates the situation in April 2005 in relation to employment, unemployment and total labour force, based on CSO data. This may in part be a result of the recent pick up in the Irish economy which occurred sooner than expected.

Table 2.4 CSO Labour force data (Thousands)

	Employed	Unemployed	Labour Force	Unemployment % (ILO)
2002	1763.9	77	1840.9	4.2
2003	1793.4	85.1	1875.5	4.4
2004	1836.2	84.2	1920.3	4.4
2005	1929.2	85.6	2014.8	4.2

Source: CSO, QNHS, 2005, Q2

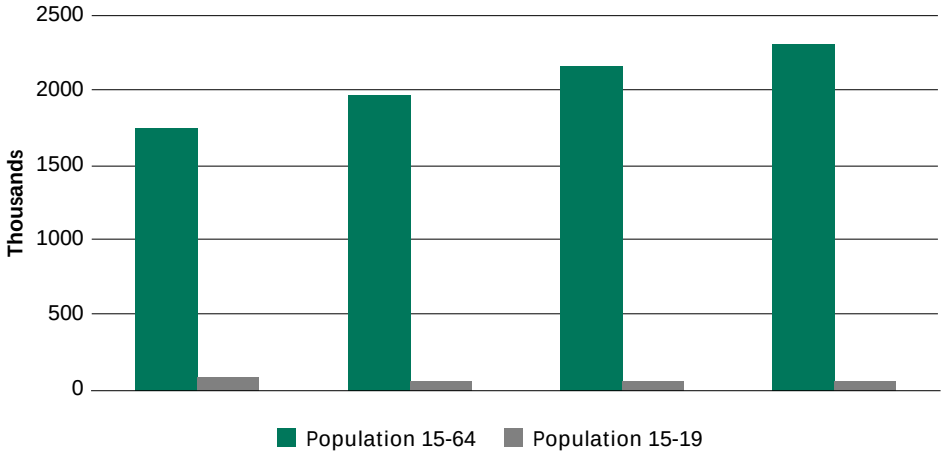
As well as under-estimating employment and labour force growth, the ESRI forecasts have underestimated the level of migration required to sustain recent levels of economic growth. Based on recent evidence, the CSO are assuming that net immigration (including both EEA and non-EEA migration) will amount to 30,000 per annum between 2002 and 2006, and thereafter will be somewhere between 20,000 and 30,000 each year between 2006 and 2011[35].

Regardless of which forecast is used, what is evident is that while the exact level of net immigration may not be entirely certain, substantial inflows will be required over the coming years.

2.4.3 Supply of Labour

The CSO have produced a series of population and labour force forecasts extending out to 2016.[36] These projections reveal that while the labour force is expected to expand significantly over the next decade, the numbers of young people (aged 15-19) is expected to decline. This is illustrated in *Figure 2.3*.

Figure 2.3 CSO Labour Force Projections 2001-2016



Source: CSO

35 CSO, Population and Labour Force Projections 2006 – 2036, December 2004.
36 CSO, Population and Labour Force Projections 2006 – 2036, December 2004.

This trend poses serious questions for policy makers. In general, young people entering the labour force bring with them substantial skill sets and while they may lack the benefit of experience, they do offer an influx of newly educated human capital which is often educated to a higher degree than existing labour force participants. To compensate for the decline in the numbers of new, young entrants into the labour market, the EGFSN believe that a renewed commitment to life long learning is required to maximise the skills sets of existing labour force participants.

An examination of Ireland's likely demographic evolution emphasises the need for immigration over the medium term. According to *Tansey (2002),* the working age population (aged 15-64) is likely to decline, while at the same time, employment is likely to continue to grow in the years up until 2010. In such a scenario, a significant inflow of migrants of working age will be necessary to facilitate continued Irish economic expansion.

In terms of the supply of skilled labour, once again using those with third level qualifications as a proxy, *McDowell & Ruane (2004)* have estimated the total potential third level population and highlighted the potential shortfall in the domestic supply of skilled graduates. Their calculations take account of CSO population forecasts and HEA participation projections. The authors produced an optimistic scenario (reflecting rising graduation/enrolment rates and rising labour market/graduation rates and a strong public policy commitment to third level education) and a pessimistic scenario (reflecting a weakening public policy commitment to third level education and a lower level of private sector investment). The key line in *Table 2.5* is the 'immigrant supply' figure. This gives an indication of the quantity of highly educated individuals that the Irish enterprise sector may have to attract from abroad to fill Irish skill shortages.

Table 2.5 Total Potential Third Level Population (Thousands)

	2004	2005	2008	2009	2010	2013	2014
Optimistic Scenario							
Indigenous Supply	30	31	36	38	40	47	49
ESRI projected demand	52	60	64	67	77	68	70
Immigrant supply (plug figure)	22	29	29	29	37	21	20
Pessimistic Scenario							
Indigenous supply	30	31	35	36	37	41	42
ESRI projected demand	52	60	64	67	77	68	70
Immigrant supply (plug figure)	22	29	30	31	39	28	28

Source: McDowell / Ruane (unpublished)

The foregoing analysis is intended only to give a broad indication of the likely numbers of immigrants required to meet predicted demand in the Irish economy. The following chapters, however, examine in detail, key sectors of the Irish economy, and pay particular attention to skills that are likely to be in short supply over the next decade.

3 Overview of Skills Shortages by Occupation

Chapter Three: Summary

- This chapter is based on a summary of analysis conducted by the Skills and Labour Market Research Unit in FÁS on behalf of the EGFSN. The work is published separately and in its entirety in the EGFSN / SLMRU National Skills Bulletin 2005.

- A number of skills shortages were identified, as follows:
  - Construction: architects, civil engineers, planners, quantity surveyors, project managers and experienced site managers.
  - Construction trades: bricklayers, plasterers, carpenters, floorers, and painters & decorators.
  - Financial Services: accountants & tax experts, actuaries and financial analysts, underwriters, investment and risk analysts, and fund managers.
  - Engineering: design and production engineers, electronic engineers, electrical engineers, manufacturing and multi-skilled maintenance technicians. Some of the metal forming, welding and related trades are also in short supply.
  - Information technology: computer analysts/programmers, software engineers.
  - Pharmaceuticals: chemical engineers, biologists, physicists.
  - Healthcare: medical practitioners, dentists, various types of therapists (including dieticians), nurses, social workers and radiographers.
  - Transport: integrated supply chain managers, heavy goods vehicle drivers and freight forwarding, customs clearance, import/export documentation processing and logistics planning.
  - Sales: technical sales representatives and marketing personnel
  - Catering: chefs

- The identified labour shortages were in the following occupations:
  - Financial Services: Credit controllers, financial clerks
  - Services: Security guards, waiters/waitresses
  - Food manufacturing: De-boners
  - Healthcare: Care assistants
  - Sales: Sales assistants
  - Other labour shortages were identified in agriculture, forestry and fishing

3.0 Introduction

The findings in this chapter are based on a summary of analysis conducted by the *Skills and Labour Market Research Unit* in FÁS on behalf of the EGFSN. The work is published separately and in its entirety in the EGFSN / SLMRU *National Skills Bulletin 2005*.

Section 3.1 summarises the skills and labour shortages identified by the SLMRU across 125 occupations, and grouped into 16 families of occupations. These 16 families of skills represent broad collections of related occupations, including scientists, engineers, IT personnel etc. *Section 3.2* then provides a brief profile of each family of occupations and discusses in more detail the type of skills shortages identified.

3.1 Identified Skills and Labour Shortages for Selected Occupations

3.1.1 Skills Shortages

This section summarises the skills shortages that currently exist in the Irish labour market. S*kills shortages* refer to a situation where there are an insufficient number of trained/qualified individuals in the domestic market to meet the demand for an occupation. Skills shortages arise for occupations associated with specific skills which are usually acquired through education and training.

- **Construction:** Current skills shortages in construction include architects, civil engineers, planners, and quantity surveyors, as well as project managers and experienced site managers. Many of the construction trades are also experiencing shortages, most noticeably bricklayers, plasterers, carpenters, floorers, and painters & decorators.
- **Financial Services:** There is evidence of a current shortage of accountants & tax experts, actuaries and financial analysts, underwriters, investment and risk analysts, and fund managers.
- **Engineering:** There is some evidence that the current output of electrical, electronic, design and production engineers from the education system is insufficient to meet demand. At technician level, there is evidence of a shortage of manufacturing and multi-skilled maintenance technicians. Some of the metal forming, welding and related trades are also in short supply.
- **Information technology:** There is evidence of a current shortage of computer analysts/programmers and there are currently shortages of software engineers.
- **Pharmaceuticals:** For chemical engineers, there is evidence that there is a significant shortage and that this will continue into the future. There are also shortages of biologists and physicists.
- **Healthcare:** There are clear shortages in a number of healthcare occupations including medical practitioners, dentists, various types of therapists (including dieticians) and radiographers. There is a widespread perception of shortages of nurses. However, this shortage may reflect a combination of factors, such as a high attrition rate and issues with work practices. Finally, social workers are experiencing some shortages and there is evidence that a large number of social workers are non-nationals.
- **Transport:** There is a shortage of integrated supply chain managers. There are also shortages of heavy goods vehicle (HGV) drivers and, to some extent, freight forwarding officers. Clerical skills in short supply include freight forwarding, customs clearance, import/export documentation processing and logistics planning.
- **Sales:** The difficulties which have been reported by some employers in filling vacancies for technical sales representatives and marketing personnel are indicative of a skills shortage.

- **Catering:** The highest number of work permits in the first half of 2005 was issued to chefs, pointing at shortages in this area.

3.1.2 Labour Shortages

In addition to the skills shortages, a number of labour shortages have been identified. *Labour shortage* refers to a situation where there are an insufficient number of individuals willing to take up employment opportunities at the prevailing wage and conditions. In relation to industries defined as experiencing labour shortages, it is acknowledged that within specific industries, individuals can aspire to achieve a high level of competency and specialism relative to their occupation. Nevertheless, the general level of skills required at entry level in these occupations is often very low or non-existent.

The identified labour shortages were in the following occupations:

- **Financial Services:** Credit controllers, financial clerks;
- **Services:** Security guards, waiters/waitresses;
- **Food manufacturing:** De-boners;
- **Healthcare:** Care assistants
- **Sales:** Sales assistants; and
- Other shortages were identified in agriculture, forestry and fishing.

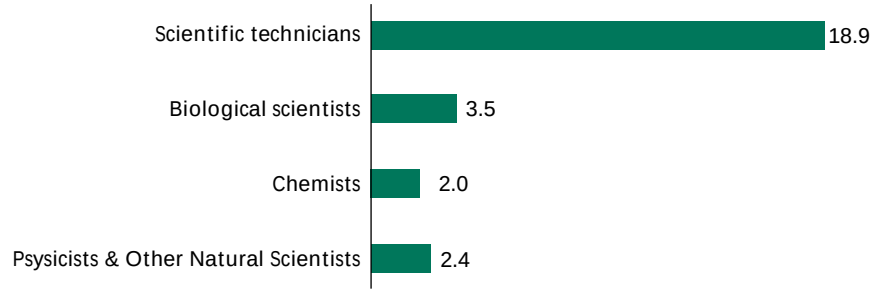
The above does not represent a definitive list and should be read in conjunction with the detailed analysis contained in this Chapter and Chapter 4.

3.2 Analysis of Selected Occupations

3.2.1 Science Occupations Employment

A total of 26,800 persons were employed in the selected science occupations in 2004. These occupations are presented in *Figure 3.1* and represent 1.4 per cent of total employment in the economy. Science occupations were employed across a variety of sectors in the economy but the most significant areas were in the manufacture of chemicals and chemical products, and in health and social work. Scientific technicians[37] comprised the greatest number of people in this grouping at 18,900, including approximately 5,500 laboratory technicians. These are associate professionals, while scientists and chemists are professional occupations.

Figure 3.1 Numbers Employed (Thousands) in Science Occupations, 2004



Source: CSO

Shortage Indicators

The data used in the SLMRU analysis does not indicate any significant skill shortages at professional level. However, the Irish government is actively encouraging industry to become significantly more engaged in research and development activities – in many cases in partnership with third-level institutions. Any increase in activity in this

37 Scientific technicians are defined as all scientific technicians except electrical technicians, which are covered in Other Crafts (Section 8.11).

area would require a parallel increase in the number of science graduates, particularly at postgraduate level. Unfortunately, the number of students studying science at third level has declined in recent years. If these trends continue, it is inevitable that there will be a shortage of research scientists.

There does not appear to be a general shortage of scientists at technician level. However, due to the varied nature of the occupations covered under this broad category, there may be some specific skills in short supply. The occurrence of scientific technicians in the work permit scheme and the difficult to fill vacancy survey (which could point to shortages) mainly refer to engineering/manufacturing technicians which are dealt with in *Chapter 3.2.2*.

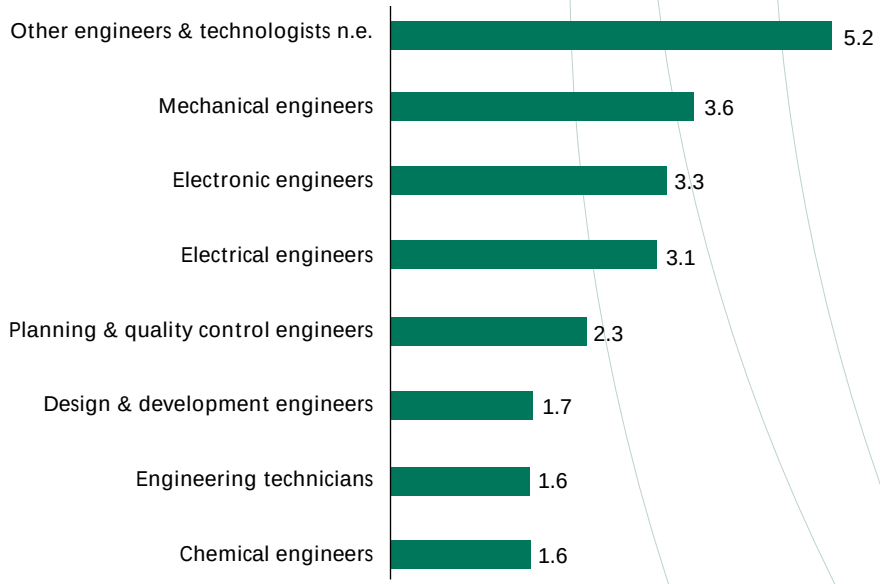
3.2.2 Engineering Occupations

Employment

In 2004, there were approximately 22,000 persons employed in engineering occupations in Ireland, which is 1.2 per cent of the total national employment. While more than one third of all engineers are employed in manufacturing (mainly manufacturing of chemicals, metals, electrical machinery and computers), they are also employed in construction, telecommunications and other sectors of the economy.

Except for engineering technicians, all of the selected engineering occupations are professional. *Figure 3.2* shows the numbers employed in engineering occupations. The highest number of engineers is classified as *other*, without specifying their field of expertise. This occupational group is composed of metallurgists, agricultural engineers, and food and other technologists. In terms of the specific field, most engineers are mechanical. There were 3,600 mechanical engineers employed in 2004. This was closely followed by electronic and electrical engineers, of which there were 3,300 and 3,100, respectively.

Figure 3.2 Numbers Employed in Selected Engineering Occupations, 2004 (Thousands)



Source: CSO

Shortage indicators

There is evidence to suggest that shortages exist for some types of professional engineers. For chemical engineers, there is evidence that the shortage is significant and will continue into the future. The continuing development of the chemical and pharmaceutical industry will lead to an increase in the number of chemical engineers required. Supply at current levels will not be able to meet this demand.

The employment of design and production engineers has increased rapidly in recent years. There is some evidence that the current education output in this area is insufficient to meet demand. Design and development engineers have also been mentioned as an occupation in which vacancies are difficult to fill.

The data used in this analysis indicates that there has been a decline in the number of quality control engineers. However, these specialist engineers may be classified under other categories and it would be unwise to conclude that the reduction in their numbers indicates a decline in the demand for their skills.

The decline in the number of students applying for electronic and electrical engineering may create a shortage of these professionals in the future, particularly as these graduates are employed by the IT sector. This issue is discussed in the following section.

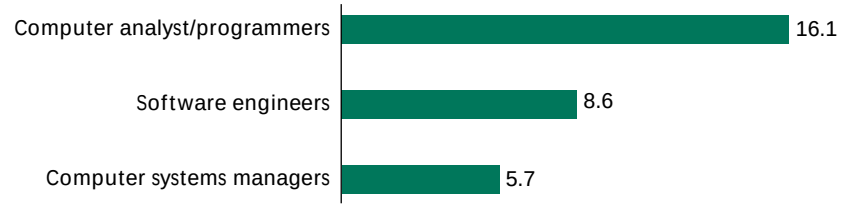
At technician level, there is evidence of specific skills shortages. These include manufacturing and multi-skilled maintenance technicians. This is evidenced by the numbers of work permits issued in this area. This finding is also supported by the results of the difficult to fill vacancy survey.

3.2.3 IT Professional Occupations

Employment

A total of 30,400 IT professionals were employed in 2004. Managers accounted for 19 per cent of employment in this group (computer systems managers), 28 per cent were professionals (software engineers), and the remaining 53 per cent were associate professionals (computer analyst/programmers). These occupations are listed below and represent 2 per cent of total employment in the economy. The computer and related activities sub sector was the most dominant employer of these occupations.

Figure 3.3 Numbers Employed (Thousands) in IT Professional Occupations, 2004



Source: CSO

Shortage Indicators

There is evidence of a current shortage of analysts/programmers. Work permit and work visa data, along with the results from the difficult to fill survey, all support this finding. The skill gap in this area is likely to widen given the recent recovery of the IT industry from the slowdown in 2001, as well as the decline in enrolments for software and computer courses in the past number of years.

There are currently shortages in software engineers as evidenced by the number of work permits and work visas issued to non-nationals in this area. Demand is expected to continue to be relatively high whereas the supply of software engineers from the education system is expected to remain static or fall.

The IT sector also utilises the skills of electronic and electrical engineers. In many cases, these engineers act as a substitute for software engineers. While there is no apparent shortage of electrical and electronic engineers in general, a recovery in the IT sector may create an additional demand for their skills.

Computer systems managers, as with most managers, are likely to be promoted from within a company or from the existing stock of sub management employees in other companies. Consequently, there is unlikely to be a shortage of applicants for any job

opportunities that arise in this occupation. However, shortages at the entry levels will have an effect on the quality, skills and experience of management in the longer term.

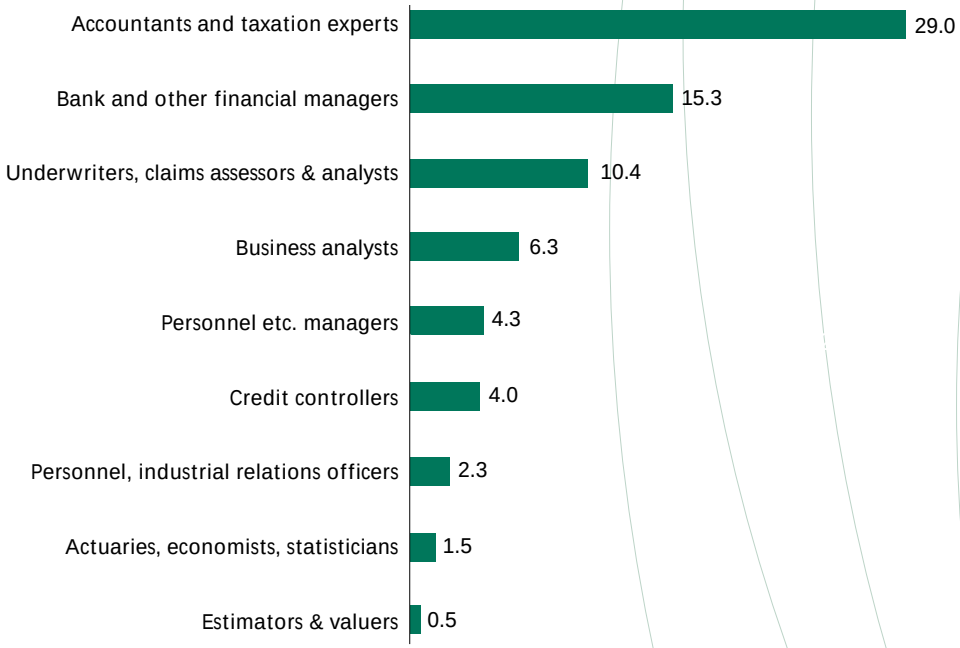
3.2.4 Business and Financial Occupations

Employment

In this section, we examine employment in selected business and financial occupations. The activities of persons employed in this occupational group cover finance, accounting, human resources and business. Moreover, some individual occupations within this occupational group cover a wide range of job titles. For instance, the underwriter etc. category covers positions in areas such as insurance, banking and other financial intermediation. As a result, financial and business occupations are scattered across various sectors of the economy, with one third employed in financial intermediation, insurance and other financial activities.

In 2004, there were 73,500 persons employed in these occupations. Half of these were professionals (accountants etc., business analysts etc. etc.), 18 per cent associate professional (underwriters etc., personnel officers etc.) and the remainder were managerial occupations.

Figure 3.4 Numbers Employed in Selected Business & Financial Occupations in 2004 (Thousands)



Source: CSO

Shortage Indicators

There is evidence of a current shortage of accountants & tax experts, actuaries and financial analysts. Shortages of accountants & tax experts are, inter alia, closely linked to changes in the domestic and international regulatory environment, which have created a demand for specialised skills in the area of compliance. Similarly, the development of new standards in the area of risk has been changing the way in which financial institutions deal with operational, market and credit risk. This, in turn, has created an increase in demand for actuaries, underwriters, financial, investment and risk analysts, fund managers etc. Changes in the compliance and risk areas are likely to continue and unless an adjustment in the supply is made, skill shortages are expected to persist. Moreover, any move to the higher value added activities in international financial intermediation (i.e. a shift from back to front office activities) within international financial services, would widen the skill gaps identified in this analysis.

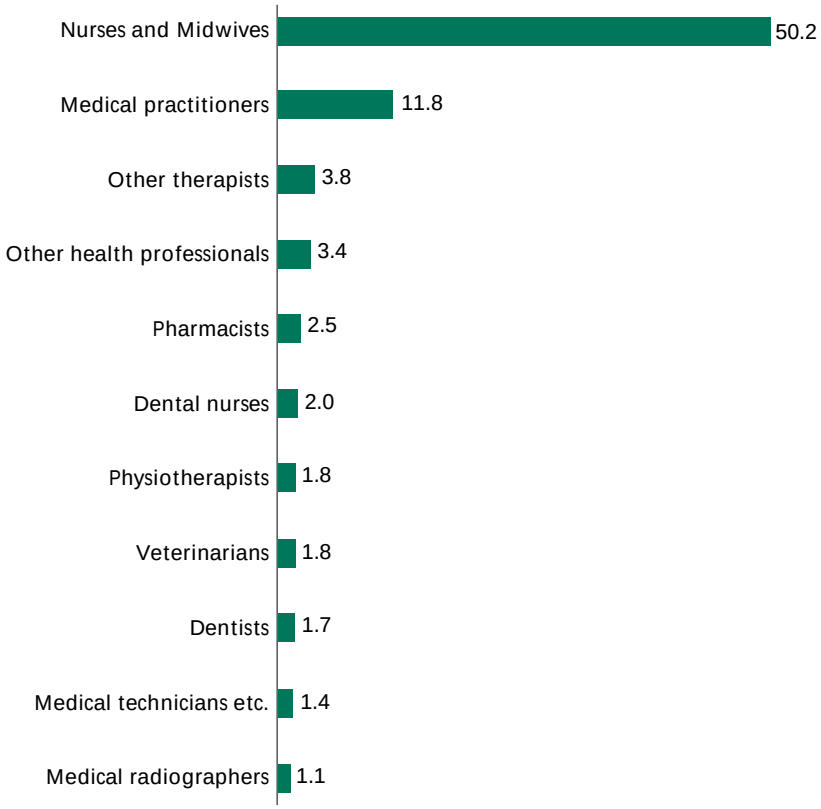
Shortages of credit controllers have also been identified in the analysis. However, the issue is one of labour supply, rather than a skill shortage. Namely, credit controllers have varied educational backgrounds and, thus, there are a large number of sources, ranging from Leaving Certificate graduates to university graduates in a number of fields who can be recruited for these positions. The challenge is to attract and retain staff in credit control positions. In addition, there are shortages in some clerical level occupations in the financial sector.

3.2.5 Healthcare Occupations

Employment

In 2004, there were 81,000 persons employed in the selected healthcare occupations (*Figure 3.5*). This represents 4.4 per cent of total national employment. Of the total employed persons in the healthcare occupations, 22 per cent were at professional level, while the reminder were at associate professional level. More than 60 per cent of the total employment in the selected healthcare occupations were nurses and midwives. In fact, with 49,500 employed, nurses on their own, as an individual occupation, have the third highest number of persons employed, after sales assistants and farmers.

Figure 3.5 Numbers Employed in Selected Healthcare Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

There are clear shortages in a number of healthcare occupations including medical practitioners, dentists, various types of therapists (including dieticians) and radiographers. Dramatic increases in demand for the services of these occupations have not been matched by an increase of graduates from the education system. In 2002, a range of health related occupations were included in the work visa scheme to alleviate shortages. Since then a large number of non-national healthcare workers have joined the Irish labour force. The data from the work visa and work permit schemes shows that this has continued into 2005.

In response to shortages new courses have recently begun in physiotherapy, speech and language therapy and occupational therapy but the graduates from these courses will only begin to emerge in 2006 or later. A dramatic increase in the number of places for medical practitioners is due to take place in the short term.

There is a widespread perception of shortages of nurses. However, this shortage may reflect a combination of factors, such as, a high attrition rate and issues with work practices. In addition, a change to a new system of education has resulted in the loss of a year's output of graduates. Thus, any shortage will not necessarily be alleviated by an increase in education provision. This and other issues related to the supply of healthcare skills are discussed in more detail in a report recently published by the SLMRU[38].

There is no evidence of shortages with pharmacists (two new courses began in the past few years), dental nurses or veterinarians, though the age profile of veterinarians is a cause for concern.

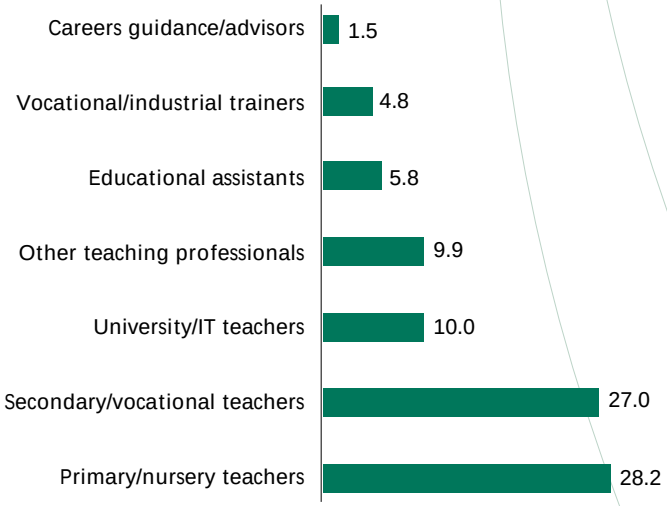
3.2.6 Education Occupations

Employment

With 88,000 persons employed, the selected education related occupations account for almost 5 per cent of the total national employment. At the professional level, education occupations include teachers, trainers and other educational professionals. Career guidance advisors and educational assistants are also included in education occupations given their relevance to the sector. *Figure 3.6* shows the totals employed across education occupations. There were more than 65,000 teachers in Ireland in 2004. Of this, 15 per cent were university teachers, with the remainder almost equally divided between primary/nursery and secondary teachers. Other teaching professionals, which include various instructors, inspectors, as well as principles of education institutions, employed almost 10,000 persons.

While a significant majority of employment in education related occupations is in education sector, there are some teachers employed in the health sector, as well as some other sectors of the economy.

Figure 3.6 Numbers Employed in Selected Education Related Occupations, 2004 (Thousands)



Source: CSO

38 Healthcare Skills Monitoring Report, SLMRU, FÁS, Autumn 2005.

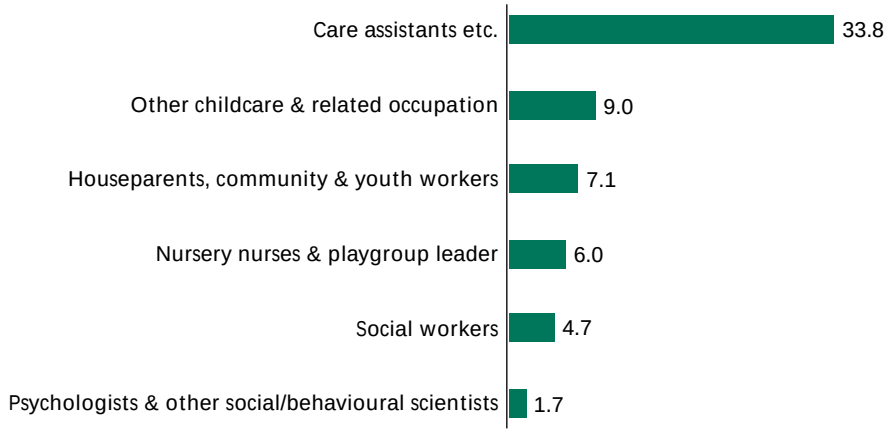
Shortage Indicators
There is no evidence of skill shortages in the education sector. This is mainly due to the availability of a large pool of graduates from teacher training courses. However, anecdotal evidence suggests shortages of maths and physical science teachers for secondary schools, as well as some special needs teachers.

A recent increase in fertility rates will result in higher enrolment numbers at primary level in the medium term, which is expected to lead to an increase in demand for education providers. Moreover, any structural change which would result in smaller class sizes would lead to an increase in demand for teachers and related occupations.

3.2.7 Care Occupations

Employment
Figure 3.7 presents employment levels in the selected care occupations. In 2004, approximately 62,000 persons were employed in care, which is just above 3 per cent of national employment. Professional occupations in this category include social workers[39] and psychologists and account for 10 per cent of the total employment in the selected care occupations. At associate professional level, there were 7,000 persons employed. This includes houseparents and community or youth workers. The remaining 79 per cent of employment in care occupations were classified as personal services. These mostly include care assistants and childcare related activities. The majority of care employment is in the health and social work sector, with the remainder in education and other sectors of the economy.

Figure 3.7 Numbers Employed in Selected Care Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators
There is evidence of a shortage of care assistants/attendants. Over 200 non-EU nationals have come through the work permit system in the first six months of 2005. This is a labour rather than skill shortage, given that care assistants/attendants tend to be trained on the job.

While demand for childcare, and consequently childcare workers, has increased substantially in the recent past, supply is drawn from a wide population and there does not seem to be any labour shortage in this area. There are numerous courses at PLC and FÁS level in childcare.

There is little evidence of shortages for houseparents, community and care workers but the broad nature of the occupation group may disguise shortages for specific skills. This is also true for psychologists and other behavioural scientists for whom

39 Due to classification errors, the number of social workers reported here is above the actual number of social workers; this is due to the inclusion of individuals who do not hold relevant qualifications in this category.

there is no overall shortage. However, for specific types of psychologists, notably clinical and educational psychologists, shortages exist.

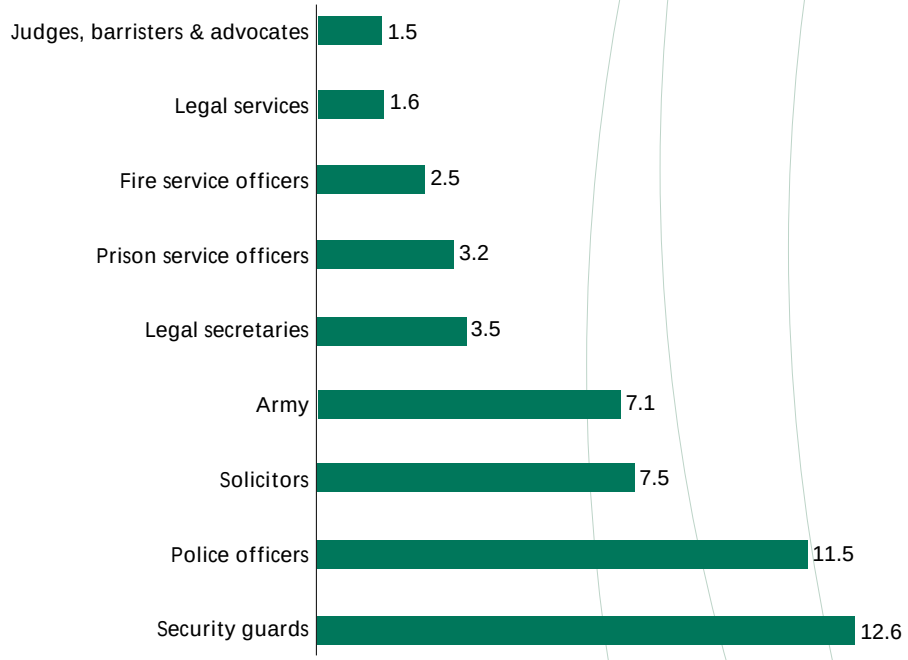
Finally, social workers are experiencing some shortages and there is evidence that a large number of social workers are non-nationals. New social work courses have come on stream in the past few years which may alleviate future shortages.

3.2.8 Legal and Security Occupations

Employment

A total of 50,900 legal and security persons were employed in 2004. These occupations are listed below and represent 3 per cent of total employment in the economy. Professional occupations in this group include judges, barristers, advocates and solicitors, of which there was 9,000 employed. The majority of legal professionals worked in the other business activities sector while security personnel were predominantly found in the public administration and defence sector.

Figure 3.8 Numbers Employed in Legal & Security Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

There is no apparent shortage at professional level for the legal professions. There also seems to be no difficulty in recruiting fire service, prison or police officers.

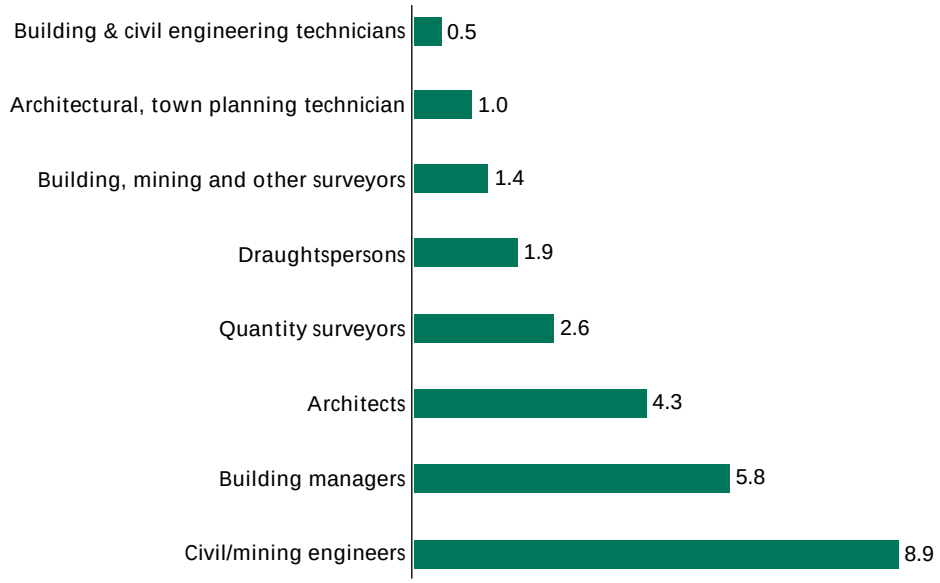
The only occupation in the legal and security occupational group that is experiencing a (labour) shortage is security guards, who have been increasingly sourced from non-EU countries.

3.2.9 Construction Professional Occupations

Employment

Construction professional occupations employed a total of 26,300 in 2004. Within this grouping, 5,800 (or 22%) were at manager level, 14,500 (or 55%) at professional level, and 6,000 (or 23%) at associate professional level. These occupations represent 1 per cent of the total employment in the economy.

Figure 3.9 Numbers Employed in Construction Professional Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

Many of the professional occupations within the construction industry are in short supply. These include architects, civil engineers, planners, and quantity surveyors. The shortages are reflected in the fact that a significant number of these professionals continue to be recruited from abroad under the work visa/authorisation scheme. In addition, quantity surveyors are frequently cited by companies in the monthly vacancy surveys as being difficult to source.

It is expected that these shortages will abate somewhat in the coming years as a result of a combination of more moderate growth in the construction sector and the introduction of new courses – particularly in architecture and town planning.

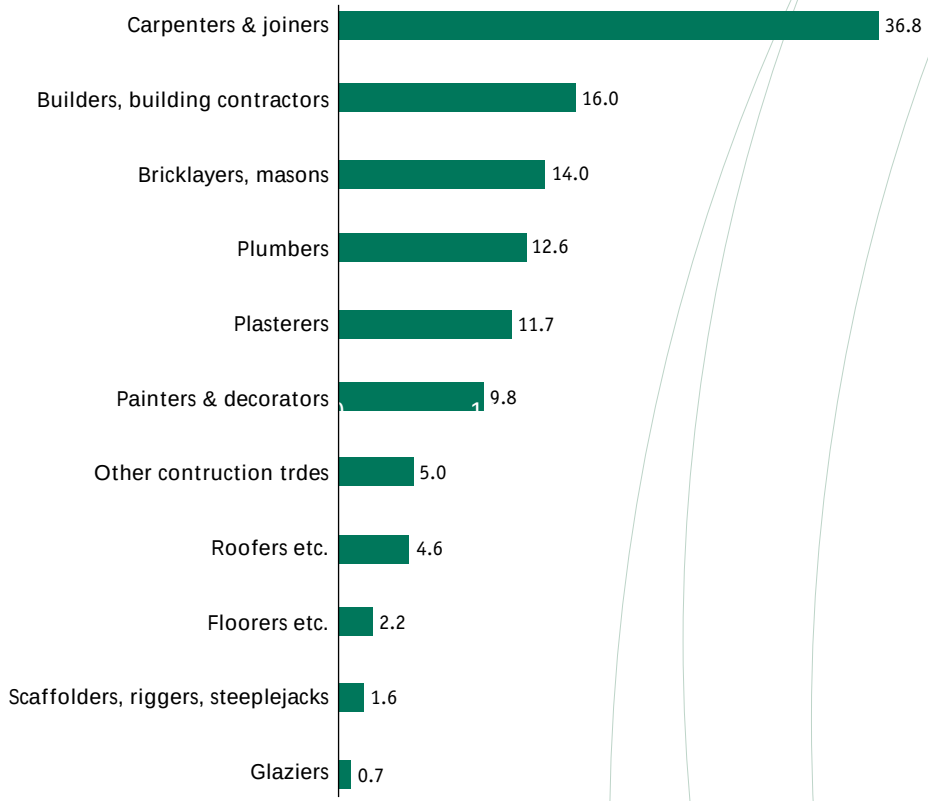
There are also shortages of management skills in the construction sector. These include project managers and experienced site managers.

3.2.10 Construction Craft Occupations

Employment

A total of 114,900 construction craftspeople were employed in 2004. These occupations are presented in *Figure 3.10* and represent 6 per cent of total employment in the economy. Nearly 90 per cent of those working in these occupations are employed within the construction sector.

Figure 3.10 Numbers Employed in Construction Craft Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

Many of the construction trades are experiencing shortages mainly due to the high level of construction activity in Ireland. The trades most noticeably affected are bricklayers, plasterers, carpenters, floorers, etc and painters & decorators. While all of these trades have seen a higher uptake in apprentices in the past few years, shortages persist. However, it is anticipated that the current record levels of activity in residential development will contract in the medium term. This is expected to improve the balance between supply and demand for many of the craft skills – particularly the so-called wet trades. This is evidenced by a fall in the number of mentions of some construction trades in the difficult to fill vacancy survey.

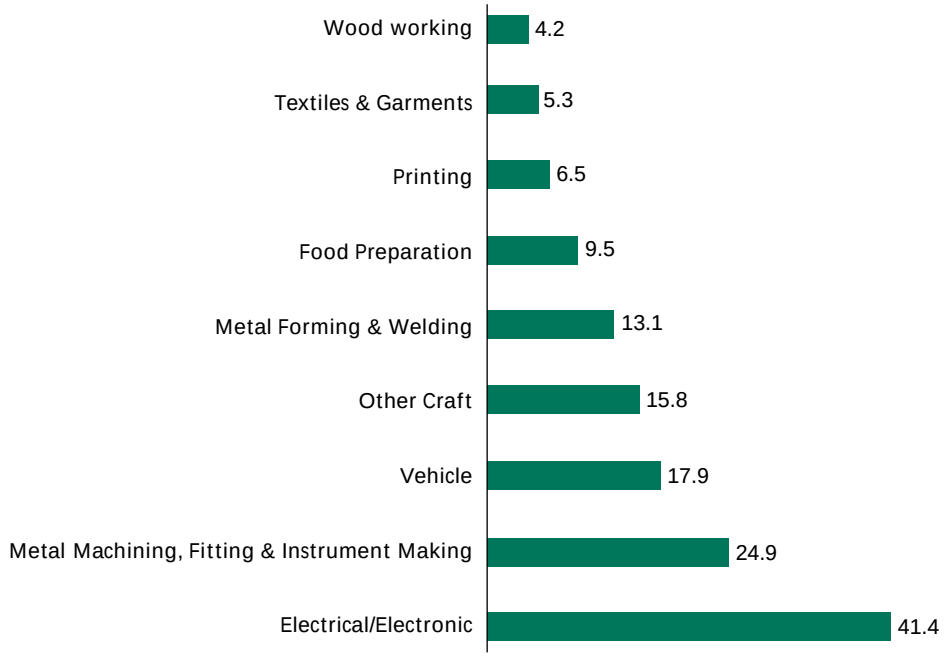
For roofers etc., scaffolders etc., and other construction trades there is little data on supply and it is difficult to draw conclusions about skill shortages. There is also little evidence that there is a shortage of plumbers especially with the dramatic increase in the number of apprentices in recent years.

3.2.11 Other Craft Occupations

Employment

A total of 138,300 persons were employed in other craft occupations in 2004. These occupations are listed below and represent 7 per cent of total employment in the economy. The majority of other craftspersons worked within electrical/electronic trades, metal forming and woodworking trades.

Figure 3.11 Numbers Employed in Other Craft Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

Employment in the textiles and printing industries has been declining for a number of years. It is expected that these trends will continue and as such, no skill or labour shortages are foreseen for the related trades.

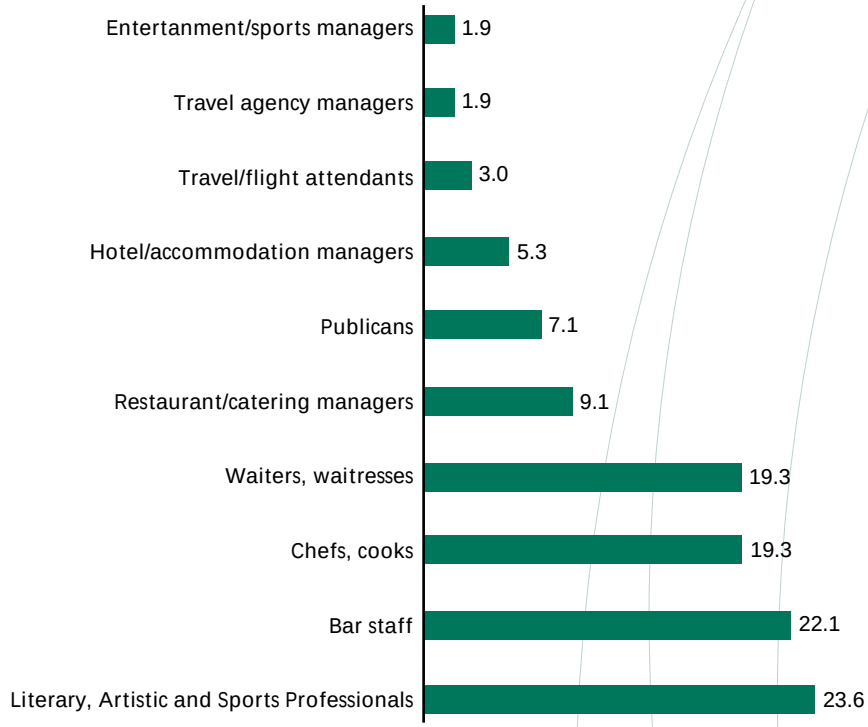
Wood working trades (excluding carpentry, see Section 8.10) and electricians are also not experiencing shortages. However, there is a labour shortage in some specific food preparation trades (e.g. butchers and de-boners). Some of the metal forming, welding and related trades are also in short supply. There is evidence that employers are sourcing welders, steel fixers and sheet metal workers from abroad.

3.2.12 Arts, Sports and Tourism Occupations

Employment

This section covers arts, sports and tourism occupations, which, with 112,600 persons employed, accounts for 6 per cent of national employment. These occupations are predominantly found in the hotel and restaurant sector and the recreational, cultural and sporting activities sector. Together these sectors account for 75.4 per cent of the total employed in the selected occupations. *Figure 3.12* shows the number employed in the selected arts, sports and tourism occupations in 2004.

Figure 3.12 Numbers Employed in Selected Arts, Sports & Tourism Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

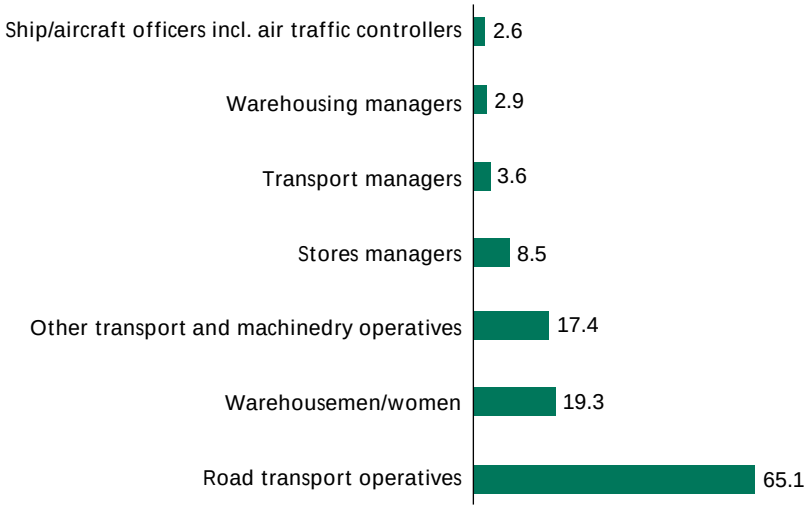
There is evidence of shortages of waiting staff and chefs. The large number of non-nationals in these occupations, (the highest number of work permits in the first half of 2005 were issued to chefs) underpins this finding. The shortage of chefs is generally considered to be a skills shortage, while the shortage of waiting staff is generally defined as a labour shortage.

3.2.13 Transport and Logistics Occupations

Employment

This section examines selected transport and logistics occupations. In 2004, there were 119,300 persons employed in these occupations, which represented 6.4 per cent of total national employment. These occupations are predominantly found in the transport, storage and communication (42%), and the wholesale and retail trade (19%) sectors, but are also found in manufacturing (16%) and construction (11%). Together these four sectors account for 87 per cent of the total employed in these occupations. *Figure 3.13* shows the number employed in the selected transport and logistics occupations. Operatives account for 69 per cent of the number employed in the selected occupations, with managers accounting for 15 per cent.

Figure 3.13 Numbers Employed in Selected Transport and Logistics Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

A report by the SLMRU[40] for the Expert Group on Future Skill Needs indicated that there was a shortage of persons with the skills to manage integrated supply chains. This continues to be an issue, despite a new degree programme which has been introduced since. The report also revealed shortages of heavy goods commercial vehicle drivers and to some extent of freight forwarding officers[41]. The work permit data and the results from the difficult to fill vacancy survey indicate continued shortages of HGV drivers.

3.2.14 Library & Clerical Occupations

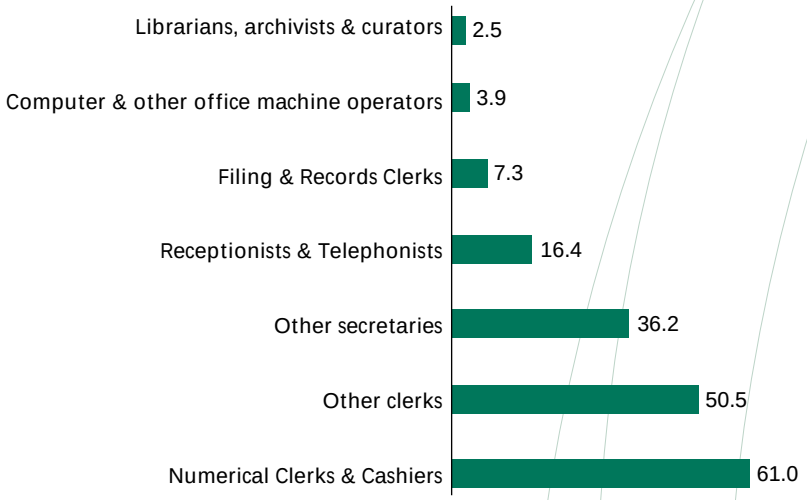
Employment

A total of 177,700 persons were employed in the selected library and clerical occupations in 2004. These occupations are presented in *Figure 3.14* and represent 10 per cent of total employment in the economy. All of the occupations were classified as within the clerical and secretarial broad occupational grouping, excluding librarians, archivists and curators, which are classified as professional. Employment is spread widely across all sectors, the largest number in financial intermediation (20%). Over a third of all individuals employed in this group are categorised as numerical clerks and cashiers.

40 *Human Resource Requirement of the Logistics Industry in Ireland,* Expert Group on Future Skills Needs/FAS, 2002.

41 This is a clerical occupation and is covered in Section 8.14.

Figure 3.14 Numbers Employed in Library and Clerical Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

The analysis reveals that there are shortages of numerical clerks. Ireland has become one of the leading world centres for back office activities in international banking and insurance. This has resulted in a shortage of financial administrators, such as fund accountants, fund administrators and shareholder services staff on the banking side and pension administrators and claims processors on the insurance side. The educational backgrounds of persons employed in fund administration and insurance processing vary in terms of field as well as level. As such, roles in these two areas can be filled from a large pool of graduates from business, commerce, finance and other courses, as well as persons who achieved high leaving certificate results. Therefore, while there is a sufficient supply in terms of skills, the challenge is in attracting and retaining staff in administrative roles in international banking and insurance. Unless there is a widespread move towards front office activities accompanied by a significant reduction in back office activities, labour shortages in this area are expected to persist into the future.

There is also evidence of shortage of some specialist skills in the occupational group relating to filling and records clerks. In particular, there are skill shortages in the area of transport and logistics. Specific skills in short supply include freight forwarding, custom clearance, import/export documentation processing and logistics planning. The shortage appears to be due to the lack of awareness of employment opportunities in these areas on the part of potential applicants, as well as the limited training provision in these areas.

3.2.15 Sales Occupations

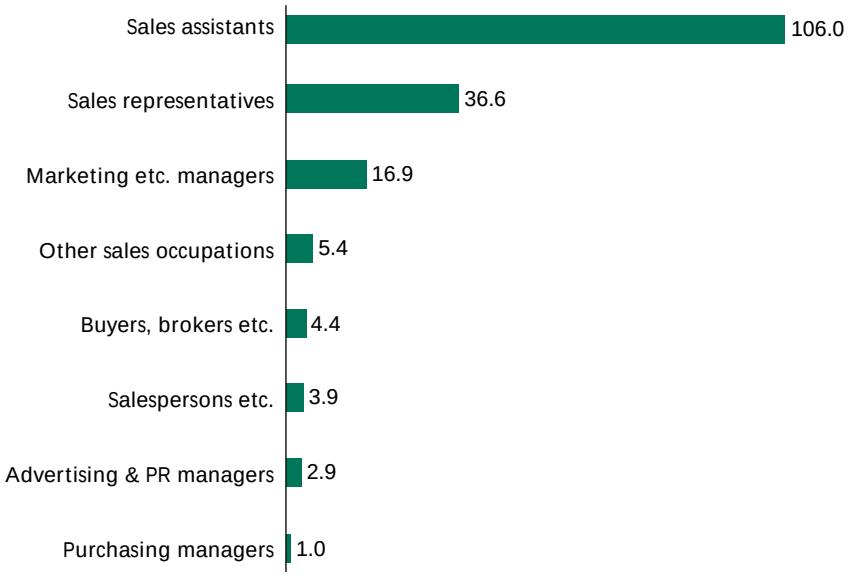
Employment

In 2004, there were 177,000 persons employed in the selected sales occupations. This represented 9.5 per cent of the total national employment. While most of the occupations examined in this section are classified in the sales broad occupational grouping (accounting for 88 per cent of the total employment in this occupational group), three are managerial: marketing managers, advertising & PR managers, and purchasing managers. Of the total employed in these occupations, more than half were in the retail sector, 7 per cent in wholesale, with the remainder scattered across other sectors of the economy. *Figure 3.15* shows the total employed in selected sales occupations in 2004.

The sales assistants group employed 106,000 persons. This combines employment of sales assistants, retail cash desk and check-out operators, as well as petrol pump

forecourt attendants. Sales assistants on their own accounted for 95,500 persons, which is the most populated single occupation economy wide. Moreover, the employment in the sales assistant category increased over the period 1999-2004, with a net increase of 19,500 posts.

Figure 3.15 Numbers Employed in Selected Sales Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

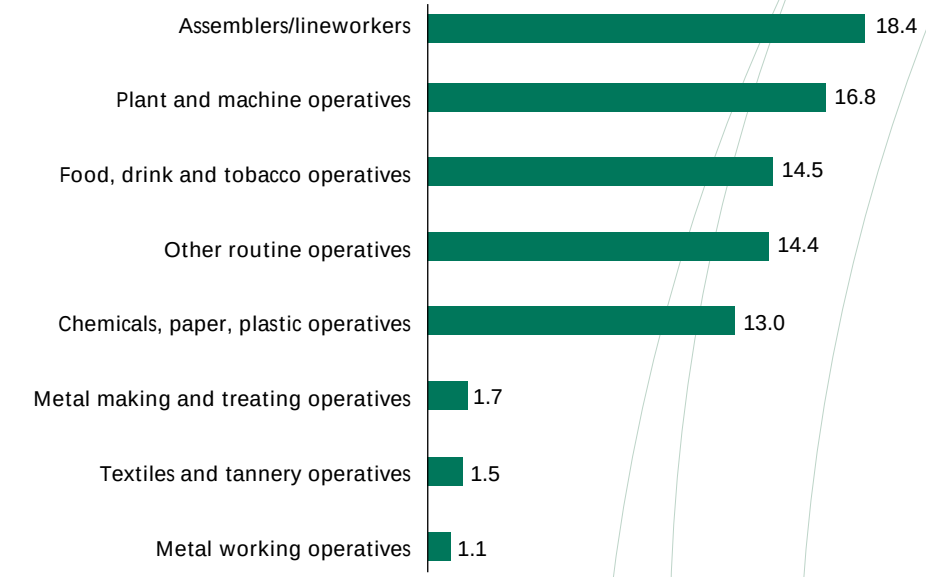
There is evidence of shortages of sales assistants and sales representatives. While sales assistants are frequently mentioned as difficult to fill, this is a labour shortage. In contrast, the difficulties which have been reported by some employers in filling vacancies for technical sales representatives and marketing personnel are indicative of a skills shortage.

3.2.16 Operatives

Employment

There were just over 81,000 persons employed as operatives in 2004, which represented 4.3 per cent of the overall national employment. Operatives perform a variety of routine assembly operations and tasks for which no formal education is required. Almost all of the operatives are employed in the manufacturing sector (mainly manufacturing of food, manufacturing of chemicals, manufacturing of medical instruments and manufacturing of computers), with some in construction and other sectors of the economy.

Figure 3.16 Number of Operatives and Related Occupations, 2004 (Thousands)



Source: CSO

Shortage Indicators

There is no shortage of any of the operatives covered in this section. Most of these occupations have experienced a fall in employment in the last few years, with only plant & machinery and food, drink & tobacco operatives showing any growth.

The unemployment rate for most of the occupations in this group is above average. The education profile, combined with the age structure of operatives, could result in further outflow from these occupations into the unemployment pool, if recent employment trends continue into the future.

4 Overview of Skills Shortages by Key Sector

Chapter Four: Summary

- The first section looks at the skill requirements of enterprise sectors that were previously identified by the EGFSN as being of economic importance to Ireland. The analysis is concentrated at the higher end of the skills continuum, primarily at occupations requiring graduate entry level.

- Analysis is provided for the following sectors:
  - Information & Communications Technology;
  - Biotechnology;
  - Financial Skills;
  - International Traded Services.

- Included in this section are three areas of skill required by a variety of industries, rather than distinct sectors in themselves. These areas of skill are:
  - Research and Development;
  - Languages;
  - Sales & Marketing.

- The analysis in the second section focuses on a number of high employment sectors, where scarcity of certain skills has been experienced. These sectors include tourism, construction, healthcare and agriculture & food processing.

- This exercise is not designed to provide a definitive figure on the number of immigrants required over the next few years; rather it is intended to provide a general impression of the possible scenarios confronting policymakers. In particular, attention is drawn to areas of concern or opportunity.

- The following skills shortages were identified:
  - **Information Communications Technology:** Degree level ICT graduates in disciplines relating to IT analysts, programmers and software engineers.
  - **Biotechnology:** Graduates with science degrees, particularly at primary degree and diploma/certificate level.
  - **Financial:** Fund accountants, fund administrators & shareholder services staff; specialized skills in the area of accounting, risk, compliance, quantitative finance and actuaries; auditors and tax experts; risk analysts and managers; financial analysts, senior underwriters, fund managers and compliance officers.
  - **Internationally Traded Services (ITS):** A wide range of industries are included in the definition of ITS. The main skills shortages highlighted in this report include individuals possessing good management skills, technical and e-business skills and a range of soft skills. Other areas of skills shortages included sales and marketing and in particular, native anguage skills.
  - **Research and Development:** PhD and non-PhD researchers. The most significant negative balances occurred in relation to computing and material sciences
  - Skills shortages were also identified in the **Tourism, Construction, Healthcare** and **Food Processing** sectors.

4.0 Introduction

This chapter examines skills and labour shortages in certain sectors in more detail. The chapter is divided into two sections.

The first looks at the skill requirements of enterprise sectors that were previously identified by the EGFSN as being of economic importance to Ireland. The analysis is concentrated at the higher end of the skills continuum, primarily at occupations requiring graduate entry level and is based on previous EGFSN forecasts, current SLMRU data and industry consultation.

The second section examines skills and labour shortages in a number of other high employment sectors of the economy. This section is based on current SLMRU data, previous EGFSN and SLMRU reports, the report of the Enterprise Strategy Group and industry consultation. It is cognisant of sectoral forecasts and plans where they exist.

Section 4.1 looks at a group of industries that would traditionally be defined as high skilled sectors. The sectors examined under this heading are as follows:

- Information & Communications Technology;
- Biotechnology;
- Financial Skills; and
- International Traded Services.

Included in this section are three areas of skill required by a variety of industries, rather than distinct sectors in themselves. A pool of individuals possessing such skills will be vital to facilitate Ireland's transition to a knowledge economy. These areas of skill are:

- Research and Development;
- Languages;
- Sales & Marketing.

The analysis in *Section 4.2* focuses on a number of high employment sectors, where scarcity[42] of certain skills has been experienced. These sectors are:

- Tourism;
- Construction;
- Healthcare; and
- Agriculture and Food Processing.

This exercise is not designed to provide a definitive figure on the number of immigrants required over the next few years; rather it is intended to provide a general impression of the possible scenarios confronting policymakers. In particular, attention is drawn to areas of concern or opportunity.

It should be noted this analysis does not presuppose the development of certain key sectors in the absence of an increased supply of skilled personnel. Rather, it is intended to highlight the fact that an increase in the availability of certain key skills

42 The use of the term *scarce skills* is not to be confused with the pure economic definition of scarcity that measures the value of a good or service according to the price set by prospective buyers and sellers in the market place. In theory, so long as the price of a good or service is allowed to rise or fall, the market will reach equilibrium and there will be no shortage. In the case of the EEA labour market, there is no upper bound imposed on wage levels (many countries do impose a minimum wage), thus suggesting that the market shoud reach equilibrium. There are, however, a number of other rigidities that prevent the market from clearing, such as imperfect information, adjustment costs, institutional barriers and award recognition issues.

will in some cases contribute to the development of these sectors. It is in this context that skilled immigration can be of benefit to the Irish economy.

4.1 Skills Gaps in Key Sectors

The following sections are based on a series of studies commissioned by the EGFSN in recent years. Each section contains a brief summary of a previous sectoral report and concludes, where feasible, with an update of the current scenario.

To a large degree, these reports focus on the demand and supply of graduates with certain key skills. Obviously, labour demand and supply factors extend beyond the sphere of recent college graduates. Nevertheless, their findings provide a reasonable starting point to identify potential future skills gaps.

4.1.1 Skills Gaps in ICT

Ireland has one of the highest concentrations of information and communications technology (ICT)[43] activity and employment in the OECD. As a consequence of its importance to the economy, the EGFSN has undertaken a number of studies of the manpower and skills requirements of the sector, most recently *The Fourth Report of the Expert Group on Future Skills Needs* (October 2003). The EGFSN report on *The Demand and Supply of Engineers and Engineering Technicians*,[44] published earlier in the same year is also relevant, providing greater detail in some areas.

Demand for Skills for the ICT Sector

The most recent forecasts of ICT sector skills demand, made in 2003, were based on a projection that an ICT industry recovery would commence in 2004, leading the higher added value parts of the sector (which are the areas that employ most highly-skilled people) to resume growth in employment, and that this recovery would continue through 2010.

It became clear late in 2004 (somewhat later than projected) that a recovery was indeed underway. This recovery has continued through 2005. The recovery has not been uniform, and indeed there have been significant job losses in some parts of the sector. However, the main areas to suffer have been in lower value-added ICT manufacturing, which do not employ substantial numbers of ICT professionals.

If the industry recovery reflects the 2003 projections, there will be strong demand for graduates in computing and electronic engineering. While electronic hardware manufacturing will become more engineering intensive, slow growth will mean ICT sector demand for graduates in production engineering and related areas will be significantly weaker than in the latter half of the 1990s.

Supply of Graduates

On the supply side, the forecasts were based on projections of graduate output that reflected a steep decline in college intake into the key disciplines of computing and electronic engineering in 2001, 2002 and 2003. It was assumed that this fall would bottom out in 2004, and that there would be a gradual recovery in intake, reaching a plateau from 2008. This translated into projections of falling graduate output from 2005 to 2007 (at honours degree level), and a gradual recovery thereafter. Intake into these disciplines actually continued to fall through 2004, and college applications data for 2005 suggest that it will fall again in the current year. This indicates that the

42 The use of the term *scarce skills* is not to be confused with the pure economic definition of scarcity that measures the value of a good or service according to the price set by prospective buyers and sellers in the market place. In theory, so long as the price of a good or service is allowed to rise or fall, the market will reach equilibrium and there will be no shortage. In the case of the EEA labour market, there is no upper bound imposed on wage levels (many countries do impose a minimum wage), thus suggesting that the market shoud reach equilibrium. There are, however, a number of other rigidities that prevent the market from clearing, such as imperfect information, adjustment costs, institutional barriers and award recognition issues.

rebound in new graduate supply projected for the latter part of the decade will, be delayed at least until 2010.

Table 4.1 below sets out the differences in projected supply and demand for graduates in computing, as presented in *The Fourth Report of the Expert Group on Future Skills Needs*.

Table 4.1: Skills Gap Analysis for Computing Graduates

Year	Demand	Supply	Gap
Computing Degree			
2003	870	2,254	1,384
2004	2,016	2,244	228
2005	2,208	2,134	-74
2006	2,424	1,818	-606
2007	2,667	1,698	-969
2008	2,945	1,876	-1,069
2009	3,254	2,234	-1,020
2010	3,612	2,395	-1,217
Computing Diploma or Certificate			
2003	170	443	273
2004	325	372	47
2005	352	271	-81
2006	383	307	-76
2007	427	323	-104
2008	472	321	-151
2009	523	316	-207
2010	579	370	-209

Source: Forfás/EGFSN

Table 4.2 sets out the differences in projected supply and demand for honours degree graduates in electronic engineering, as presented in *The Demand and Supply of Engineers and Engineering* Technicians, under two scenarios. Scenario 1 reflects the recovery in supply described earlier, while scenario 2 reflects a continuation of the fall-off in student intake experienced in 2002.

Table 4.2 Skills Gap Analysis for Electronic Engineering Graduates

Year	Demand	Supply – Scenario 1	Supply – Scenario 2	Gap – Scenario 1	Gap – Scenario 2
Electronic Engineering Degree					
2003	129	471	471	342	342
2004	372	458	458	86	86
2005	430	409	335	-21	-95
2006	456	398	326	-58	-130
2007	486	392	321	-94	-165
2008	513	397	326	-116	-187
2009	548	381	321	-167	-227
2010	565	352	289	-213	-276

Source: Forfás/EGFSN

In addition to affecting the number of graduates, there is some evidence that the falling intake into honours degree courses in computing is affecting employer-perceived graduate quality, as well as numbers. CAO points requirements for courses in these areas have fallen (starting in 2001), and the proportion of places taken up by entrants with high points has also fallen.

Skills Gap Analysis

Despite the downturn in the ICT sector over the period from late 2000, and an increasing level of global competition, existing EGFSN forecasts suggest that there will be significant shortages of graduates with ICT backgrounds in the period up to 2010. The ICT sector will be the leading sector within which the impact of these shortages will be felt.

The ICT industry recovery has been sufficiently strong enough so that there are now again shortages of ICT professionals. SLMRU identifies shortages of computer analyst/programmers, electronic engineers, software engineers, and design and development engineers (many of these could alternatively be described as electronic or software engineers), and these shortages have been reflected in industry consultations. Industry consultations also indicate that many companies are coping with shortages by recruiting overseas, both within the EU and from third countries. As a result of third country recruitment, computer analyst/programmers and software engineers are heavily represented in the issuing of work permits and work authorisations.

If the industry continues to recover roughly in line with EGFSN projections, then shortages of ICT professionals will worsen. Demand will strengthen, and the supply of new graduates at the critical honours degree level will continue to fall for the remainder of the decade. A recovery in popularity of graduate conversion courses in computing may alleviate these shortages to some extent, but not at the most highly technical level.

The impact of a gap between supply and demand will be greatest in ICT sub-sectors that make the greatest use of technology skills. Key among these sub-sectors are:

- Software, which particularly requires graduates in computing; and
- Electronics design/integrated circuit design, where the key shortage projected is of electronic engineers.

A broader cross-section of ICT industry will also be affected. Electronics hardware companies seeking to move into higher added value activities will find it more difficult to do so if there is a shortage of electronic and software engineers. Companies in areas closely allied to the ICT sector, such as e-business and digital media, may also be affected to some extent, although they tend not to be heavy users of ICT technology skills.

The nature of the ICT skills shortage is not simply one of graduate numbers. As the sector moves into higher added value activities it has an increasing need for very highly skilled people. Some of the leading companies like to recruit from the top 10 or 20 per cent of courses in computing and engineering at internationally known institutions. There are not, and could not be, enough graduates in these disciplines in this category from Irish institutions to go around, even if their popularity among school leavers was to recover. The sector also has an increasing requirement for PhD graduates in computing, and in a range of areas of engineering and science (including chemistry and materials science), and despite major increases in PhD level education in Ireland in recent years, as illustrated in later sections, it is inevitable that there will be significant shortages of PhDs produced in Ireland.

4.1.2 Skills Gaps in Biotechnology Industries

Biotechnology is an area of technology important to a range of industry sectors, as defined traditionally – primarily pharmaceuticals, medical devices and food in the Irish context. Within each of these sectors, some companies use, or are otherwise involved in, biotechnology, and others do not. As a consequence, Irish policy frequently talks of a biotechnology sector – one which cuts across traditional industry definitions, and encompasses those sections of industry that are concerned with biotechnology.

The biotechnology sector holds an important position in Irish industrial strategy. The industrial development agencies are making major efforts to attract biotechnology industry to Ireland, and to support the growth of indigenous biotechnology industry. Biotechnology, alongside information and communications technology, is also one of the two main targets of public investment in research, attracting more than half of all Science Foundation Ireland research funds, and a considerable share of other research funding streams. These moves build on a strong position that Ireland already holds in pharmaceutical, medical device and food manufacturing, and on emerging strengths in research for these sectors.

EGFSN has taken an active interest in biotechnology skills almost since its creation, first reporting on life sciences skills needs in its *Second Report* in 1999. The Forfás/EGFSN report *The Supply and Demand for Skills in the Biotechnology Sector* (September 2003) addressed the requirement for skills relating to biotechnology.

Demand for Graduate Skills for Biotechnology Sector
In 2003, the EGFSN projected the skills demand for the biotechnology sector to 2009. The EGFSN's model recognises that education and training must play a leading role, rather than merely being responsive to needs, in designing the type of industry that emerges.

Table 4.3 below illustrates the cumulative, additional demand, relative to the assumed 2001 equilibrium, for biotechnology graduates between 2003 and 2009. The table also shows the average requirement per year over the same period.

Table 4.3 Projected Increased Skills Demands for Biotechnology Sector 2003-2009

	PhD	MSc	BSc	Sub-Degree	Other
Additional needs over 7 yrs	685	575	1480	1160	1700
Average demand/yr	98	82	212	166	243

Source: Forfás/EGFSN

In addition to demand from the biotechnology industry, growth in other associated industries (such as the parts of the pharmaceutical, medical devices and food industries not concerned with biotechnology) is forecast to increasingly draw on the common labour pool with science qualifications. This will increase demand for qualified graduates, necessitating a further expansion in supply.

Supply of Graduates
Trends in supply of science related skills are determined by two principal factors; demographics and participation rates. These factors are considered in the forecast model. Supply forecasts also take account of the numbers studying the relevant scientific disciplines at all levels of the education system and utilise *cohort progression* to model future supply trends. Particular attention was accorded to forecast graduation rates from tertiary education (at both under-graduate and postgraduate levels). The first destination of graduates (i.e. whether they remain in Ireland or work abroad) is also considered.

Table 4.4 summarises the EGFSN's supply projections that were originally published in the 2003 Biotechnology report. The analysis shows that the impact of SFI funded projects is manifest in the increasing numbers attaining Ph.D. and M.Sc. qualifications. For other qualifications, there is a consistent and marked decline in output. Between 2004 and 2010, there will be a cumulative increase of 280 Ph.D.s and 421 M.Sc.s whilst there will be a cumulative decrease of 1,351 B.Sc.s and 1,407 Diploma/Certificates.

Table 4.4 Projected Supply of Science Skills 2004-2010

	PhD	MSc	BSc	Dip/Cert	Total
2004	245 (-8)	221 (+25)	2,481 (-98)	713 (-140)	**3,660**
2005	252 (-1)	239 (+43)	2,449 (-130)	692 (-161)	**3,632**
2006	273 (+23)	253 (+57)	2,417 (-162)	671 (-182)	**3,617**
2007	298 (+45)	263 (+67)	2,385 (-194)	651 (-202)	**3,597**
2008	316 (+63)	269 (+73)	2,354 (-225)	631 (-222)	**3,570**
2009	329 (+76)	274 (+78)	2,323 (-256)	612 (-241)	**3,538**
2010	335 (+82)	274 (+78)	2,293 (-286)	594 (-259)	**3,496**

Source: Forfás/EGFSN

Skills Gap Analysis

The research published in 2003 suggests that the global biotechnology industries will grow rapidly into the medium term. Ireland has already put in place the foundations necessary for the development of a competitive biotech industry and consequently, sectors reliant on biotech have the potential to grow substantially over the next 7 years. At a time of strong predicted growth in this area (dependent on an adequate supply of suitably skilled graduates), the evidence suggests that there will be a significant shortage of qualified graduates.

The gap between supply and demand for science skills identified in the Biotechnology report is set out in *Table 4.5* below. The analysis shows that there is a shortfall in supply at all levels of qualification for each year between 2004 and 2010. The gaps are greatest, in numerical terms, at the primary degree and diploma/certificate (now ordinary bachelor degree/higher certificate) levels. However, there is also a consistent shortage of M.Sc. and Ph.D. awards. While the numbers involved here are lower, in percentage terms they are considerable. For example, the estimate for 2004 shows a skills gap for M.Sc.s equal to 25 per cent of projected output but practically disappearing in 2010. For Ph.D.s, the gap is 42 per cent of projected output in 2004, falling to 4 per cent of projected output in 2010.

Table 4.5 Skills gap analysis for Science skills 2004-2010

	PhD	MSc	BSc	Dip/Cert	Total
2004	-106	-57	-310	-306	**-779**
2005	-99	-39	-342	-327	**-807**
2006	-75	-25	-374	-348	**-822**
2007	-39	-15	-406	-368	**-828**
2008	-35	-9	-437	-388	**-869**
2009	-22	-4	-468	-407	**-901**
2010	-16	-4	-498	-425	**-943**

Source: Forfás/EGFSN

In addition to the demand from industry for science skills, there will also be an implicit demand for approximately 180 additional B.Sc. graduates per annum to feed into the postgraduate pipeline. This demand will compound the shortfall in skills and therefore, the gaps identified by this analysis must be viewed as conservative.

The shortages outlined above are predicated on the biotechnology sector enjoying substantial growth over the next few years. As outlined in the previous chapter, scientific technicians are now being sourced from outside of the EU, suggesting that supply constraints are already impacting on employers.

The demand for biotechnology skills is not simply for larger numbers of graduates. As the sector moves into higher added value activities, it has an increasing need for very highly skilled people, whether at primary degree level, masters level or PhD level.

Demand for technicians will also be significant, both in a manufacturing context and to support research.

Trends in applications for courses relevant to biotechnology are positive in this regard. An analysis undertaken in connection with the EGFSN's work on researcher skills showed that the number of college entrants with 450 or more CAO points entering degree courses specifically relevant to biotechnology increased by 175 per cent between 2001 and 2003, suggesting that there is a strong pipeline of undergraduate students who will be capable of undertaking PhDs relevant to biotechnology. Increasing funding for research in the higher education system suggests that the number of funded PhD research opportunities will continue to increase, assuring a continuing increase in the supply of biotechnology PhD graduates. Nevertheless, as will be seen in *Section 4.1.5* significant shortages of PhDs are forecast in Ireland over the next decade.

4.1.3 Skills Gaps in Financial Services Sector

This section is based on an unpublished 2005 update of the SLMRU's *Financial Skills Monitoring Report No.1*, which was originally published in November 2003.

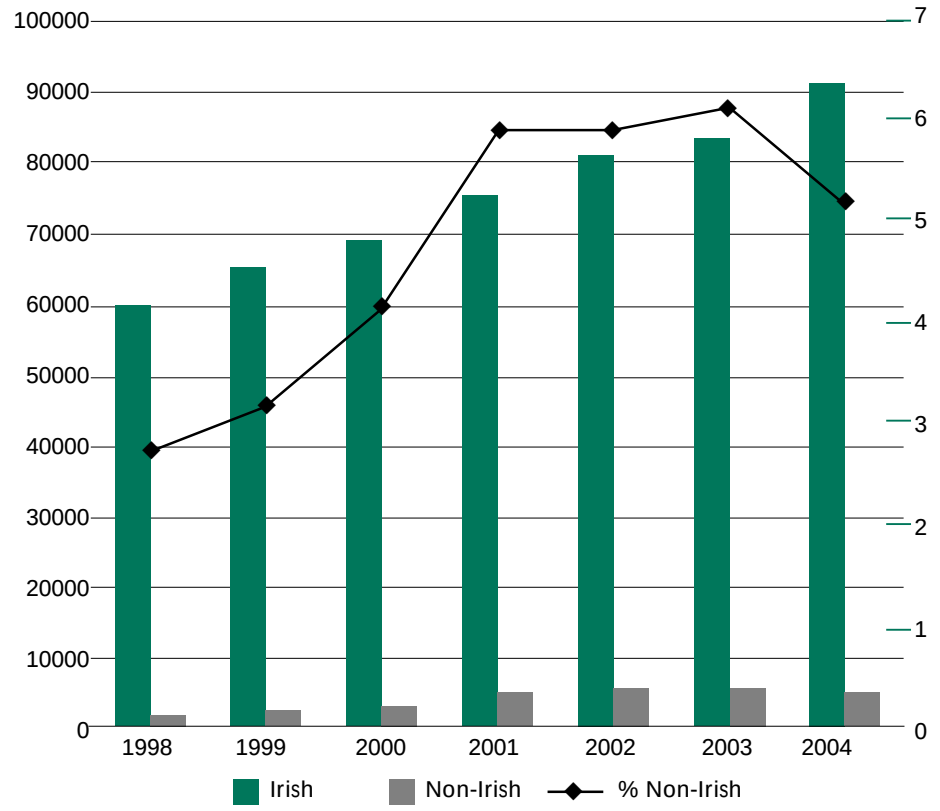
Over the last two decades, Ireland has grown to become one of the world's leading financial intermediation centres. The provision of high-level financial skills has been and will remain instrumental in attracting foreign investment and central to the preservation of Ireland's reputation in the global financial domain. Concerns about the tightness of the labour market for some of the key financial sub sectors and the adverse impact this could have on the future of the financial services sector have frequently been expressed. Due to the nature of the financial services industry, research is centred around occupational titles rather than skill levels.

Demand for Skills for Financial Services Sector

The level of demand for financial skills was calculated using a combination of quantitative and qualitative data. The quantitative data refer to the number of advertised job vacancies (as captured by the Irish Times and the ESRI/FÁS Hard-to-fill vacancy survey), salaries and migration trends. Finally, on the quantitative side, the number of non-Irish staff working in financial jobs was analysed. *Figure 4.1* below illustrates the growth in non-Irish staff employed in the sector since 1998, suggesting a shortage of qualified, native-born employees.

The qualitative research was based on a series of interviews with a number of recruitment agencies. Each interviewee was asked a series of questions focussing on unfilled demand for specific job titles, the education system and entry-level positions, new companies, sourcing from abroad and the future of the sector.

Figure 4.1 Employment by Nationality in selected financial occupations



Source: CSO, QNHS, Quarter 2, various issues

Supply of Skills

Analysis of the supply of financial skills relies primarily on an examination of student enrolments in finance-related courses. Data gathered from the series of interviews with a selection of recruitment agencies mentioned above, was also used to inform estimates of supply. Furthermore, the supply of financial professionals is considered using data supplied by the professional institutions that are a major provider of financial education and training.

In forecasting future supply of skills, three difficulties have been encountered. First, for most of the selected occupations, no mandatory qualifications are required. This holds for professional and assistant professional, as well as managerial and clerical occupations. Second, almost all of the professional financial skills studied are acquired through continuous rather than the initial education process. Data on enrolment figures, class sizes and dropout rates is scarce, which creates difficulties in forecasting future supply flow. Third, the education process associated with professional qualifications does not have a fixed duration. For many people, it takes several years before they are fully qualified bankers, accountants, tax experts or actuaries. For these reasons, it is difficult to forecast the supply flow in quantitative terms. However, in terms of the provision of financial skills, the market appears to be responding to demand most notably universities, private colleges, professional institutions and FÁS.

Skills Gap Analysis

Summarising the findings of the above research, there is a clear dichotomy in the results. Firstly, there is a separation in terms of the level of skills that appear to be in short supply. Secondly, there is a division in terms of the underlying causes of shortages. Finally, there is a dichotomy in terms of the current and future skill gaps.

All job titles that have been identified as being in short supply can be divided into relatively 'low skilled' and 'highly skilled'. 'Lower skilled' jobs, although mostly filled

by graduates, are associated with administrative and processing tasks, while 'highly skilled' refer to the job titles where specialist financial knowledge and skills are required.

Low Skill Shortages
At the lower end of the spectrum, there is an overwhelming evidence of shortage in fund administration. All of the indicators, quantitative and qualitative, used in this analysis suggest that there is a shortage of fund accountants, fund administrators and shareholder services staff. There is also significant evidence of a shortage in the lower skilled jobs in the insurance sector. In particular, there appears to be a shortage of pension administrators and claims handlers.

The lower skilled job titles mentioned above appear to be in short supply mostly due to a retention problem. It is clear from the survey results that the nature of these jobs and the buoyancy of the labour market in general have lead to excessive exit at the junior level in fund administration/accounting, shareholder services, pension administration and claims. As a result, there is an increasing problem in sourcing staff for supervisory roles. Retention is also the main issue with auditors and tax accountants. The nature of the job and the possibility of moving within the accounting profession have lead to shortages in these two areas.

High Skilled Shortages
At the higher end, the results suggest a shortage of specialised skills in the area of accounting, risk, compliance, and quantitative finance. In accounting, there is strong evidence of a shortage of auditors and some evidence of a shortage of tax experts. The results from all sources point to a shortage of actuaries. Similarly, there is strong evidence of a shortage of risk analysts and managers, but also of other job titles that combine finance, risk and quantitative skills, namely, financial analysts, senior underwriters and fund managers. Finally, there is overwhelming evidence of shortages of compliance officers. This finding ties in with the finding on shortages of accountants, given that a large number of compliance experts are also auditors or tax experts.

The results suggest that a number of job titles, particularly those associated with specialist financial skills, are in short supply due to insufficiencies or gaps in education provision. The shortage of actuaries appears to be the result of insufficient supply of qualified applicants. Currently, there are two providers of actuarial programmes within the initial education system. Similarly, there is a limited education provision in the area of compliance, insurance, risk and quantitative financial modelling. Despite the efforts of some universities and professional institutions to respond to market developments, notably, the ACOI, the Institute of Bankers, DCU, UCD, the Insurance Institute, and FÁS, there still appears to be unmet demand for compliance officers, fund managers, financial analysts, risk managers and underwriters.

Importantly, all of the mentioned specialist financial job titles have a common underlying set of skills. These include knowledge of finance and quantitative methods, as well as strong analytical skills.

Future Skill Shortages
The results of the SLMRU analysis point at the clear distinction between the present and the future skill needs of the financial services sector. The separation of skills between those in short supply at present and those expected to be in short supply in the future is most evident in the funds industry. Ireland has become one of the largest centres for fund administration in the world. Strong growth has resulted in labour shortages, particularly in the area of fund administration, fund accounting and shareholder services. Given that most of the activities in the Irish Financial Services Centre (IFSC) comprise of fund administration and that this area is still growing, the finding of widespread shortages can be considered as alarming. There appears to be a case for intervention in the labour market, which would increase supply to meet the needs of the fund administration sub-sector of the IFSC.

On the other hand, there is a concern that fund administration and other back office activities are likely to be moved from Ireland to more cost efficient locations in the medium term. In line with this, there is an argument that Ireland should focus on the development of higher value added activities in financial intermediation, namely, fund management and middle office operations. The movement up the value chain is evident, albeit, it has been happening rather slowly. The results suggest that the specialist skills needed for the development of this sub-sector are in short supply and are commonly sourced from abroad. This is not surprising given that an important element of the skills set of any financial expert is experience. In the absence of employment opportunities in fund management domestically, due to the low level of activity, most junior candidates gain relevant experience abroad. This explains the occurrence of headhunting of Irish graduates with mathematical skills by foreign investment banks. At the same time, the availability of highly skilled and experienced candidates is often cited as a key factor in attracting fund management operations. The results suggest that currently there is a sufficient pool of Irish or others abroad that have gained relevant experience and are prepared to move to Ireland. Nonetheless, there is a need to increase the supply of expertise in fund management and financial analysis if a comparative advantage in terms of availability of skilled labour is to be achieved.

Similarly, there is a distinction in the current and future skill need for the insurance sector. The results suggest current shortages in the area of claims processing and third party insurance administration activities. The job titles for which skill gaps have been identified include pension administrators and claims handlers. On the other hand, future skills needs are expected to arise from the efforts to move up the value chain analogous to the funds sector and to result in an increasing demand for actuaries, risk managers and underwriters. The analysis of the supply of skills relevant to the insurance sector suggests that the availability of skilled candidates will not be sufficient to meet future demand.

Risk management is a relatively new and expanding area. As with fund management, growth in risk management is expected to result in an increasing future demand for candidates with a combination of financial, mathematical, analytical and modelling skills. While there are currently a number of courses with modules on risk, there is an absence of a relevant specialized course. Based on the results from this analysis it can be argued that there is a case for an increase in supply in this area given both current shortages and expected future needs.

Compliance with financial regulations is expected to remain another growing area. Improvements in financial operations to prevent money laundry and ensure data and consumer protection, as well as good corporate governance are likely to continue. Moreover, further development of the domestic regulatory environment is also expected to continue in an effort to ensure competitiveness in this area. Hence, the demand for compliance experts, including auditors and tax experts, can be expected to increase. While there has been a response in the provision of relevant education in this area by professional bodies, there is an indication that this may not be sufficient. The results from the analysis point at current shortages in the compliance area and suggest that gaps can be expected to persist into the future, unless adjustments in the supply are made.

4.1.4 Skills Gaps in Internationally Traded Services

The International Trades Services (ITS) sector includes a wide range of disparate industries. ITS refers to any service industry that is international in focus and delivers services on a cross border basis, often through the application of advanced ICT. This section examines the supply and demand for skills in a number of high employment ITS industries as follows:

- Digital Content;
- E-business;

- Shared Services and Business Processes Outsourcing;
- Supply Chain Management;
- European Headquarters; and
- Intellectual Property.

It does not examine the financial services sector, as this is covered in *Chapter 4.1.3*. Neither does it examine the software sector, which is addressed as a part of the ICT sector in *Section 4.1.1*, except to the extent that it overlaps with the digital content industry.

(i) The Digital Content Industry

The analysis in this section is taken from the FÁS report *Skills Requirements of the Digital Content Industry in Ireland: Phase 1* which was published in February 2005. The EGFSN study focussed on three particular sectors, games, wireless and e-learning.

Globally, it is expected that the digital content industry will be worth $434 billion by 2006 (PwC, 2002). The digital content industry is considered to have significant growth potential for Ireland[45]. The Irish government has identified this, and has already committed a significant amount for the setting up of the Digital Hub to develop an international digital enterprise area in Dublin. The Enterprise Strategy Group report has identified the increasing importance of internationally-traded services in Ireland, including creative services, educational services and e-services, which intersect with digital content. For Ireland to capitalise on the potential growth it is necessary to ensure that the skill sets required are in place.

Demand for Digital content Skills

There are 4,000-4,500 persons employed in the digital content industry in Ireland. Following a period of very buoyant demand in the late-1990s and up to 2001, the industry has remained broadly static in employment terms. Somewhat more than half of employment is in foreign-owned companies. The majority of indigenous companies are small, employing fewer than 10 people. For this reason, there is often a need for employees to be multi-skilled. As a company expands, however, its need for specialised skills increases. These issues need to be considered when examining the future skills needs of the industry.

The industry comprises both companies making new products/services (e.g. downloading ring tones) and developing existing products/services using digital means (e.g. animation). Thus, convergence with existing industries such as publication and film is ongoing, and the boundaries between digital content industries and other industries are fluid. Many persons with education and skills suitable for the digital content industry would also be suitable for employment in other industries. This complicates planning of education and training.

Nine main categories of skills were identified through both interviews with industry specialists and a literature review. These were:

- Software development;
- Content authoring;
- Management;
- IT and systems support;
- Media authoring and design;
- Sales and marketing;

45 Note: the FÁS report did not include forecasts of the extent of future growth in the digital content industry in Ireland. The EGFSN is currently undertaking the 2nd phase of this study.

- Quality assurance and testing;
- Other specific skills; and
- Generic skills.

Although most employees have jobs within one of the nine areas, it is a feature of the industry that employees must be able to work across a range of activities. The majority of employees in the companies interviewed were in the media authoring and quality assurance testing categories. Over a quarter of companies interviewed stated that they would need more media authors in the coming three to five year period, with 22 per cent expecting to recruit more software developers. The larger multinationals, operating in Ireland, predicted employment to increase in the areas of project management, quality assurance testing and customer support.

Table 4.6 illustrates the occupational mix for 23 companies involved in digital content operations in Ireland. It is clear from these figures that the industry is dominated by full-time high skilled staff.

Table 4.6 Employment by Occupation in Irish Digital Content Companies

	Full time	Permanent contract	Temporary contract	Part time	Total
Management	13%	1%	1%	-	15%
Content Authoring	7%	0.10%	0.50%	-	7.60%
Media Authoring	20%	3%	3%	-	26%
Software					
Development	12%	0.50%	-	-	12.50%
IT& Sys Support	2%	0.10%	-	-	2.10%
QA & Testing	9%	10%	1%	-	20%
Sales & Marketing	5%	-	-	-	5%
Other specific	0.50%	0.10%	-	-	0.60%
Other generic	11%	-	-	0.20%	11.20%
TOTAL	**79.5%**	**14.8%**	**5.5%**	**0.2%**	**100%**

Source: Forfás/EGFSN

Supply of Digital Content Skills

Enrolment and graduation data were collected for digital content-related courses in third-level institutions in Ireland. There are currently over 200 courses in Universities and Institutes of Technology that produce graduates who are suitable to work in the digital content industry, with almost half of these at honours bachelor degree level[46]. The majority of courses are in the computing/IT field although a further 44 courses relate to multimedia applications and technologies.

The table below provides graduation data over the period 2000 to 2003. These data include both University and IoT enrolments. Nearly 4,900 students graduated from digital content-related courses in 2002. Computing/IT courses had the most significant numbers of graduations, followed by engineering. However, both of these have subsequently experienced a steep drop in students enrolling, as seen earlier.

In addition to courses at university and IoT level, an average of 3,000 students undertake digital content-related Post Leaving Cert (PLCs) courses each year with the majority participating in courses in Information Technology and Media Production.

46 Of course, the majority of these graduates will enter other industries (e.g. ICT).

Table 4.7 Graduation by type and year

Classification	2000	2001	2002	2003[47]
Computing/IT	1,337	1,293	1,753	942
Computing - Business	234	305	641	303
Networks & Electronic Systems	87	167	176	136
Information Systems Management	355	299	415	438
Engineering - Electronic/Computing/ Software	784	721	847	328
Multimedia Applications/Technologies	330	405	513	341
Art & Design	315	314	528	513
Total	**3,442**	**3,504**	**4,873**	**3,001**

Source: Forfás/EGFSN

The provision of training is also essential for the development of the digital content industry in Ireland to keep up to date on technological advancements. At present, the majority of small companies in Ireland depend mostly on in-house training and do not generally have a training plan for staff. The larger companies and/or branches of multi-national companies tend to have a more structured training approach.

Skills Gap Analysis

Although the availability of staff is not considered a major concern at present among companies in Ireland, there are areas where skills gaps occur. A general theme of the research was the need for a mixture of technical, business and creative skills. Most Irish-owned businesses have been established by technical/creative people with little management or business knowledge or experience. A lack of sales skills is also an issue for the development of the indigenous industry. In addition, specific skills such as game console programming and knowledge of software packages such as Maya, are in short supply, resulting in companies often having to recruit abroad to meet their needs. As the industry progresses in Ireland, demand for specific skills will increase. In addition, the attraction of multinational companies to Ireland is more difficult when the skills required are not readily available in Ireland.

There is general agreement that in the medium and longer-term there should be considerable growth in output and employment. However, take-off will depend both on a much-improved performance from indigenous industry and the attraction of a number of large overseas investments. The report forecasts an increase of 2,000 jobs by 2008 under these circumstances.

When interviewed, most companies found it difficult to articulate where growth would come, although many anticipated they would increase numbers of employees in existing occupational areas. In very broad terms, the types of occupations and skills for the future were seen as a continuation of existing skills mixes. In particular, 26 per cent of the Irish companies interviewed felt they would need more media authors, 22 per cent felt they would need more software developers and 17 per cent felt they would need more content producers/managers and sales people.

In addition to this increase in staff, some companies anticipated hiring staff in areas not already in existence in the company including:

- Online creative producers and executive producers;
- High end 3D animators;
- Designers for new platforms;
- Sound engineers;

47 Figures for 2003 include only IoTs, as university data was not available when the digital content report was in preparation.

- Online editors;
- Website administrators;
- Business development managers;
- Sales people with a knowledge of the digital content industry;
- Game play testers;
- Customer support staff; and
- Administrators.

The large multinationals indicated that they were likely to hire more contractors in the following areas:

- Project managers;
- QA and testing; and
- Customer support.

Many interviewees pointed to potential opportunities generated by developments in technology hardware, software and networks. In particular, companies were hopeful about the development of digital television or interactive television and the development of enhanced television programmes with accompanying websites, merchandising and phone-ins. Other areas included games for the Internet, mobiles and consoles, video for online and offline e-learning services, WAP and SMS services on mobiles.

Overall, and in the long-term, the digital media industry is seen as being one of high growth on a global basis. Reports on the Irish industry over the last 2-3 years have all been optimistic that this is a very desirable industry for Ireland and one where, based on a realistic view of Ireland's strengths, significant growth is possible, provided sufficient skills are made available. The Irish digital media industry is underdeveloped relative to that of a range of other centres, both within the EU and globally. If it is to bridge the gap, this is likely to mainly be based on the efforts of those active in the Irish industry themselves. However, in order to develop the necessary scale to compete internationally, an element of immigration may be required to ensure the supply of high skilled individuals with experience and key skills, as yet unavailable in Ireland.

(ii) e-Business

E-Business has two distinct meanings in an Irish skills policy context.

1 It refers to an industry sector centred around online businesses; and

2 It refers to a set of capabilities relevant to making best use of the Internet (and related technologies) in any industry.

This section addresses the former, which is one of the industries on which IDA Ireland is focusing so as to attract inward investment. EGFSN's report on e-Business Skills, published in 2000, addresses the latter.

e-Business is a fast-growing sector. Ireland is already a significant base for some of the sector's leading global companies.

The sector uses a variety of skills, ranging from editorial, marketing and customer service, to IT systems management and software development. The operations currently operating in Ireland are weighted towards the editorial, marketing and customer service end of the spectrum.

Looking to the future, as well as facing similar shortages as the ICT sector, the e-business sector in Ireland is lacking in country-specific editorial and marketing skills, which are only available internationally.

(iii) Shared Services and Business Processes Outsourcing

Enabled by technology advances and driven by a need to reduce costs, major international companies began to centralise back-office functions on a regional basis (e.g. customer support centres, data processing, etc) some years ago. Ireland was well positioned at the time to take advantage of the trend, and has attracted many multinationals to establish contact centres and shared services centres in Ireland.

Business Process Outsourcing (BPO) has also expanded rapidly and is now the most rapidly growing segment of the outsourcing market. BPO involves a company contracting a third party to carry out specific business functions. Whereas initially this related mainly to non-core functions such as financial and data processing activities, increasingly highly intellectual and potentially core functions such as legal, recruitment, logistics and even HR are being outsourced.

Ireland has been particularly successful in attracting multinational shared services operations including customer contact centres, customer technical support, procurement, centralised order processing, and financial shared services. Today there are over 35,000 people employed in these activities in the multinational base of companies. Large international BPO companies also have a presence in Ireland, and the indigenous base employs 21,000 catering mainly to the domestic market[48].

There is opportunity for Ireland's existing base of foreign companies to transition to develop outbound call centres, transforming the traditional cost centre model to profit centres, and taking advantage of Ireland's low corporate tax regime.

There is an opportunity for Shared Services Centres to build on their existing expertise and to provide services of increasing complexity (e.g. legal and paralegal services, market research and competitor intelligence, decision support, risk management etc). Under IDA's existing Strategic Competitiveness Programme existing manufacturing operations are also being encouraged, with notable success, to assess opportunities for extending their mandates to encompass shared and financial services functions.

The future of high added-value outsourcing in Ireland is likely to be in the area of collaborative and transformational outsourcing. This involves a move away from the basic cost reduction proposition to one where value is added through streamlining or re-engineering business processes. This sort of service demands a collaborative approach between customer and supplier and provides a significant opportunity for the indigenous base of companies. The increasingly complex model involves the interaction of People, Process and Technology, and culture, language and a skilled workforce are essential.

The shortage of people who have native speaker language skills, cultural knowledge or knowledge of business practices and regulatory regimes in other countries, is the main skills shortage facing the industry at present. Often these skills are combined with other skills more easily available in Ireland. To the extent that shared services and BPO operations service only EU countries, recruitment of EU nationals is likely to be sufficient into the future. The reality, however, is that many of these operations have a wider remit, sometimes defined as EMEA (Europe, Middle East and Africa), and sometimes extending more broadly, to Asia, to South America, or even globally. Such organisations are likely to need to recruit at least some of their staff from third countries.

(iv) Supply Chain Management

Supply Chain Management (SCM) encompasses activities associated with product design, operations planning, direct materials procurement, inventory management,

48 Forfás, Employment in Other International Services (excludes Financial Services) in Indigenous Companies, 2003, Business Information Systems.

manufacturing and logistics. It covers the management of material, information and funds flows and has a broad scope that includes sub-suppliers, suppliers, internal operations, trade customers and end-users.

With globalisation and advanced telecommunications came supply chain disaggregation, whereby companies sought to specialise and concentrate on their core competences, and either outsource or locate different elements of the supply chain in locations where they are best suited. For example, high-volume, low margin production is often conducted in low-cost economies such as China, or Central Europe. At its most extreme, companies effectively outsource a significant proportion of their business, maintaining only a coordination function to centralise operation. Such companies are known as 'virtual companies', and they focus on development of brand, market share and new products. Using technology, the virtual company can orchestrate all of the activities, including demand planning, order management, supplier and outsource partner management, logistics, distribution and channel management, invoicing, cash collection etc.

The benefits of SCM can include improved margins through reduced inventories and obsolescence, reduced time to market, products more closely responding to the customer's expectations, savings through centralised purchasing coordination and reductions in capital requirements.

Ireland has a strong base of manufacturing and process capability, both in multinational and indigenous companies with approximately 230,000 people employed in these activities. Ireland also has strong capabilities in transport, logistics and distribution. This base of expertise provides a solid platform from which to adopt aspects of SCM, or even the whole SCM package of practices.

Ireland's existing management expertise, international telecommunications connectivity, knowledge of multinational structures and practices can be combined to leverage its strengths in manufacturing and related activities, to effectively manage the global supply chain 'from quote to cash'. Companies can manufacture higher margin products from Ireland, while at the same time capitalising on their expertise to manage the supply chain process for lower margin goods which may never land in Ireland.

Not only is the SCM opportunity relevant to developing the foreign company base and targeting further investment but also to supporting the transition of the indigenous manufacturing base from a production led mind-set.

A diverse range of skills is required to manage a successful supply chain industry, including sales forecasting, procurement, contract negotiation, and softer skills including relationship management, outsource partner selection etc. While Ireland has a very considerable supply of skills relevant to supply chain management, effective management of supply chains is likely to require some level of exchange of people between countries: some short term and some long term; some within global companies, some between different companies involved in the same supply chain, and some recruiting skills from other countries to work in Ireland. With global supply chains, this will mean some migration from third countries.

(v) European Headquarters

At the early stage of entry to new geographies, companies seek an optimum location from which to access markets and establish headquarters activities. Such activities are likely to include sales and marketing in the first instance, customer support, financial and legal activities and management of outsourcing partnerships for production, logistics and distribution. However, the attraction of a regional holding company does not always result in the attraction of the related headquarters functions.

Ireland has not been particularly successful in achieving investment in European Headquarters functions, having just 3 per cent of market share. Ireland's peripherality

to the main European markets is a potential disadvantage, but it can also be said that Ireland has not aggressively targeted this segment of the market to date.

Ireland has an attractive holding company tax regime, a low rate of corporation tax, an extensive double tax agreement network and intellectual property fiscal and legislative regime. Its geographic location between the US and Asia is also advantageous as is the fact that it is a native English speaking nation with European language capability. Arising from Ireland's open, export driven economy, we have extensive experience and expertise in managing distribution channels to Europe.

Ireland has the opportunity to encourage investment in European Headquarter activities, both from established companies, and from those at an early stage of accessing European markets. Headquarter functions include a range of complementary activities, including intellectual property management, global or international procurement, financial shared services, HR, legal and paralegal shared services, administration, marketing and sales.

Ireland can leverage its existing manufacturing, logistics and supply chain capabilities to offer services to industries seeking a first foothold into Europe. This involves targeting US companies, in particular, that have been successful in their own markets, and are well financed.

To the extent that a European headquarters services only EU countries, recruitment of EU nationals is likely to be sufficient into the future. Where there is significant business outside the EU, or the potential for such business, there is likely to be a need for some employees to be drawn from European third countries. There is likely to be a need for staff at a range of levels of seniority, and with skills, such as marketing, accountancy or human resource management, who have a strong knowledge of country-specific business practices and regulatory affairs, as well as relevant languages.

(vi) Intellectual Property Management

Intellectual Property (IP) represents the tangible or intangible results of the application of intellectual capital, i.e. where innovation or creative activities generate an invention, a design, a process, a programme, a creation, or brand sufficiently unique or original to be considered confidential or valuable, or both. IP is becoming an increasingly important part of the value of today's organisations. Firms are differentiating themselves from their competitors through patents, brands, design processes and exclusive licences. IP management is still an evolving activity - many organisations do not yet appear to organise their IP centrally. However, as organisations seek to maximise the value of their IP, it is likely that the current less formal, organic approach will be replaced by more systematic and sophisticated IP management. There is already evidence of a growing awareness among international companies of the value of centralising their IP and managing it in a way which will optimise its value for the group.

Ireland has a strong reputation as a sound base for foreign direct investment (FDI) and a significant number of companies that are at the forefront of the 'entrepreneur' tax model already have operations located in Ireland. Ireland's low corporate tax rate is particularly attractive, encouraging firms to locate high-value activities in Ireland, such as IP ownership. Ireland is well positioned to capture the early stage opportunity presented as companies become increasingly aware of the value of IP, and the advantages of locating IP management activities in a low corporation tax jurisdiction.

Based on Ireland's strengths, there is a significant opportunity to gain 'early mover advantage' and establish Ireland as a centre for IP management (including creation, acquisition, management and exploitation of the asset), offering all necessary support services and expertise. There are a number of issues that Ireland would need to address promptly if it is to fully capitalise on the potential of this early-stage opportunity.

In particular, action is required to ensure that adequate supplies of skills exist to support the development of an IP industry. Historically Ireland has experienced low levels of IP generation and commercialisation and has not developed a competence in management and exploitation of IP. The legal, technical and commercial skills required to manage significantly higher levels of IP are not developed. However, given that this is a relatively immature activity, this skills gap is not unique to Ireland.

The Enterprise Strategy Group recommended the inclusion of IP skills electives into business, science and engineering degrees, to equip graduates with a working knowledge of the principles and practices of IP activities. It also recommended the introduction of an IP skills programmes in higher education institutes and into executive education programmes (e.g. IMI).

4.1.5 Skills Gaps in Research and Development

The analysis in this section is based on the EGFSN publication *A Model to Predict the Supply and Demand for Researchers and Research Personnel (in Line with Ireland's Strategy for Contributing to the European Research Area 3% Initiative)*, which was originally published in August 2004.

As a result of the Lisbon Summit in 2000, all of the EU States agreed to *European Research Area Project* (ERA). The goal of the ERA is to make Europe the most competitive knowledge based economy in the world by 2010. In order to successfully make the transition from an investment-driven economy to a knowledge economy, the availability of a highly skilled, adaptable workforce possessing the necessary skills to allow the economy to develop and grow to its full potential is necessary. Given that the availability of high quality researchers is essential to increase the level of R&D performance, an ample supply of researchers and research personnel is of vital importance.

Strategically, the production of graduates for research work serves not just to meet projected demand. Rather, it can stimulate further demand by increasing the volume of inward research investment, research related start-ups and indigenous research activity. Furthermore, graduates with the skills required to work as researchers are attractive to many employers that may not employ them as researchers, and even to employers that may not have a use for the specific skills and knowledge that they have acquired through their studies and research. A PhD graduate in any discipline, or indeed a Masters graduate or an honours primary degree graduate, possesses generic skills that make them likely to find high quality employment that makes a valuable economic contribution, regardless of whether there are opportunities to work in research.

When reading this section it is important to be aware that it takes a whole economy view. As a result, the supply and demand for skills it describes overlap with other descriptions of sectoral supply and demand for skills. The skills shortages it describes and projects are located primarily in the ICT and biotechnology sectors, and thus reflect essentially the same issues as are described in *Chapters 4.1.1 and 4.1.2*, albeit from a different perspective. Indeed, the analysis of ICT skills presented in *The Fourth Report of the Expert Group on Future Skills Needs*, and the analysis of biotechnology skills presented in the Forfás / EGFSN report *The Supply and Demand for Skills in the Biotechnology Sector* both formed major inputs into the model of supply and demand for researchers and research staff. Other major points of difference between the research skills model and these other two reports are that it addresses PhD level demand more thoroughly, and disaggregates projections to a greater level of disciplinary detail. Work is currently being undertaken by the Research Funders Group on projecting research requirements up to 2013.

Demand for Research Skills

Researcher skills requirements vary very substantially between industry sectors. ICT industries will primarily require graduates in computing and electronic engineering, with a smaller admixture of graduates in other engineering and scientific disciplines. Conversely, biotechnology industries will primarily require graduates from life

sciences disciplines such as biochemistry, genetics, microbiology and pharmacology, again with an admixture of graduates from other disciplines. In fact, the vast majority of researchers working in Ireland do not have PhD degrees, nor do many have research based masters degrees either. In order to accommodate this, demand for researchers in this report refers to demand for both PhD and non-PhD researchers.

Demand projections, contained in A *Model to Predict the Supply and Demand for Researchers and Research Personnel* were built up using a combination of the *ESRI's Medium Term Review*, various industry and sectoral reports and analysis of relevant labour market behaviour. These projections specifically focus on the minimum number of PhD and non-PhD graduates that are required to meet Ireland's ERA target only, including also the likely requirements for non-researcher posts in the rest of the economy[49]. The projections do not take account of the benefits research and the economy generally would be likely to derive from a greater presence of PhD graduates. It is likely, therefore, that the demand forecasts herein underestimate the optimum number of PhD graduates.

Table 4.8 below illustrates the projected number of PhD and non-PhD graduates that would be required under various disciplines, based on three scenarios of R&D spend. Each scenario represents a different level of spend on research and development (as a percentage of GDP).

Table 4.8 Projections of Whole Economy Demand for Researchers, Mean 2004-2010

	PhD Level Researchers			Non-PhD Level Researchers		
	3% Scenario	2.8% Scenario	2.5% Scenario	3% Scenario	2.8% Scenario	2.5% Scenario
Electronic Eng	50	47	41			
Mech/Production Eng	35	34	30			
Civil/Environmental Eng	11	11	10			
Other Engineering	4	4	4			
Unspecified Engineering	22	22	22	1,397	1,400	1,405
Materials	18	17	15	65	63	58
Physics	26	26	24	87	85	81
Instrumentation	2	2	2	48	48	48
Chemistry	57	54	49	355	350	339
Biosciences - Core Biotech	155	151	144	357	354	351
Biosciences - Other	16	16	14	28	28	29
Biosciences - Unspecified	7	7	7	35	35	35
Food Science	13	12	10	97	93	91
Analytical Science	0	0	0	18	18	18
Medical Sciences	76	76	73	57	56	54
Psychology	19	19	17	126	126	125
Environmental Science	2	2	2	146	146	146
Marine Science	3	3	2	22	22	22
Mathematics	12	11	11	63	63	62
Computer Science	156	143	123	2,591	2,600	2,614
Agricultural Science	19	18	16	93	92	90
Other Sciences	10	10	10	149	148	148
Total	**713**	**685**	**626**	**5,734**	**5,727**	**5,716**

Source: Forfás/EGFSN

49 At Barcelona in 2002, the EU set two targets. The first was that by 2010 Gross Expenditure on R&D in Europe would reach 3 per cent of GDP. The second was that two thirds of this (i.e. two per cent) would come from the private sector.

Supply of Research Skills

This original report does not talk directly about the supply of 'researcher skills'. For most relevant disciplines and levels of qualification, the available supply of graduates feeds both researcher and non-researcher jobs. At primary degree level, non-researcher demand mostly exceeds researcher demand. Thus, in order to form a basis for comparisons between projections of supply and demand, the report complements the projections of demand for 'researchers' with 'whole economy' demand projections that take into account both researcher and non-researcher demand.

For each course, a projection of graduate numbers was made by applying the historical relationship between student numbers and graduate numbers to the most current student numbers, and to an estimate of recruitment into the course in 2003 derived from CAO data. In the case of a four-year primary degree, this allowed graduate projections to be made up to 2007[50]. Thereafter, projections were extended out to 2010 using data on demographics and likely student trends. Steps were also taken to avoid double counting of students who progress from master's level to PhD level.

Projections of graduate supply and demand were made at two levels:

- ISCED 5A, which incorporates primary degrees, graduate diplomas and masters degrees; and
- IISCED 6, which covers PhD degrees.

The results of this process are illustrated in *Table 4.9* below.

Table 4.9 Supply Projections, Mean 2004 - 2010

	ISCED Level 6	ISCED Level 5A
Electrical/Electronic/Computer Eng	8	
Mechanical/Production/Industrial Eng	38	
Civil/Environmental Engineering	12	
Other Engineering	0	
Unspecified Engineering	49	1,579
Materials Science / Engineering	0	19
Physics	17	115
Instrumentation	4	19
Chemistry	29	356
Biosciences - Core Biotech	91	306
Biosciences - Other	10	48
Biosciences - Unspecified	5	0
Food Science	17	79
Analytical Science		50
Medical Sciences	59	72
Psychology	8	151
Environmental Science	0	179
Marine Science	0	19
Mathematics	13	99
Computer Science	43	2,014
Agricultural Science	32	63
Other Sciences	11	84
Unspecified Science		43
Unspecified Physical Science	40	
Unspecified Life Science	53	
Total	**539**	**5,295**

Source: Forfás/EGFSN

50 Up to 2006 for a three year diploma, up to 2005 for a two year certificate, and up to 2004 for a one year postgraduate diploma, a one year add-on degree or a one-year add-on diploma.

Skills Gap Analysis

Table 4.10 below, compares the projections of 'whole economy' Irish demand for graduates in Science, Engineering and Technology (SET) disciplines relevant to research with the projections of the supply of those graduates.

Table 4.10 Balance Between Supply and Demand for ISCED Level 6 Qualifications, Mean 2004 - 2010

	ISCED Level 6 Qualifications			ISCED Level 5A		
	2.5% Scenario	2.8% Scenario	3% Scenario	2.5% Scenario	2.8% Scenario	3% Scenario
Electronic Eng	-33	-39	-42			
Mech/Production Eng	8	4	3			
Civil/Environmental Eng	2	1	1			
Other Engineering	-4	-4	-4			
Unspecified Engineering	27	27	27	174	179	182
Materials	-15	-17	-18	-39	-44	-46
Physics	-7	-9	-9	34	30	28
Instrumentation	2	2	2	-29	-29	-29
Chemistry	-20	-25	-28	17	6	1
Biosciences - Core Biotech	-53	-60	-64	-45	-48	-51
Biosciences - Other	-4	-6	-6	19	20	20
Biosciences - Unspecified	-2	-2	-2	-35	-35	-35
Food Science	7	5	4	-12	-14	-18
Medical Sciences	-14	-17	-17	18	16	15
Psychology	-9	-11	-11	26	25	25
Environmental Science	-2	-2	-2	33	33	33
Marine Science	-2	-3	-3	-3	-3	-3
Mathematics	2	2	1	37	36	36
Computer Science	-80	-100	-113	-600	-586	-577
Agricultural Science	16	14	13	-27	-29	-30
Other Sciences	1	1	1	11	11	10
Unspecified Physical Science	40	40	40			
Unspecified Life Science	53	53	53			
Total	-87	-146	-174	-421	-432	-439

Source: Forfás/EGFSN

Focussing on the 2.5 per cent scenario which is the scenario favoured by the ERA Steering Group, a number of conclusions emerge from the original report:

- A net shortage of 609 PhD graduates and 2,947 non-PhD (degree level plus) graduates is projected over the period from 2004 to 2010 inclusive. If one excludes the disciplines in which positive balances are projected, the projected shortage rises to approximately 1,000 PhD graduates and approximately 5,800 non-PhD (degree level plus) graduates over the period.
- The most significant projections of negative balances are in Computing and possibly in Materials Science – in Computing because the numbers are relatively substantial, and possibly in Materials Science because the negatives are in the context of relatively small numbers of graduates. Both of these disciplines are particularly relevant to the ICT sector.

- Another significant threat to growing research activity in Ireland appears to lie in the sharp fall in the uptake of places on undergraduate courses in Electronic Engineering that has occurred in recent years. Graduates with primary degrees undertake a considerable proportion of the research and development work undertaken in the Irish ICT sector, and this will continue to be the case. The capability of the ICT sector to increase its research activity is threatened by a projected shortage of graduates in Electronic Engineering.
- In addition to posing a threat to the quality of graduates available, the fall in intake into undergraduate courses in computing and electronic engineering also threatens to capability of graduates in these disciplines to undertake research. The proportion of college entrants taking up places in these disciplines with high points has fallen significantly over recent years. This is likely to further limit the number of graduates in these disciplines suitable for undertaking research work.
- In fact, according to analysis of CAO applications conducted by FÁS, the number of CAO 1st preference applications to engineering has declined from 2,905 in 2002 to 2,329 in 2005. Within engineering, there has been a major shift away from electronic engineering (which is of central importance to Ireland's research agenda), and into civil engineering (which is not central to the agenda). The number of first preference applications to computing declined from 3,321 in 2002 to 1,641 in 2005.
- As biotechnology and pharmaceutical research develops, significant shortages of primary degree graduates in disciplines such as biosciences and chemistry is projected to emerge, possibly limiting growth in research activity.

In June 2001, the EGFSN published a report which made recommendations designed to boost research capacity in Ireland[51]. In particular, the report focused on the need to attract foreign researchers to Ireland. It was noted that countries that have designated legislation to facilitate highly skilled immigrants to take jobs in their local markets stand better chances of benefiting from the growing international pool of high calibre human resources.

The shortage of qualified individuals at honours bachelor degree level and above, identified in relation to the ICT sector (*Section 4.1.1*) and the biotechnology sector (*Section 4.1.2*), are equally relevant in the researcher context, as many of these skills shortages occur in occupations that can be classified as research and development jobs.

4.1.6 Other Skills Gaps – Languages, Sales and Marketing

Over the past decade, Ireland's model of economic success has largely focused on the production of products and services. Marketing and selling of the output of foreign-owned industry has largely been based outside Ireland. Marketing and selling of the output of indigenous industry, while mostly based in Ireland, has, taken as a whole, often been criticized as weak. For the future, we must develop a model of engagement with markets in which we market products and services originating in Ireland globally, and in which we derive much of our competitive advantage from effective marketing.

(i) Languages

The ability of Irish-based enterprise to communicate effectively with other nationalities and cultures will have a major bearing on the achievement of the goal of making Irish marketing more effective. Clearly, foreign language skills will play a crucial role here. In May 2005, EGFSN published a report entitled *The Demand & Supply of Foreign Language Skills in the Enterprise Sector,* to address this issue.

51 EGFSN, Benchmarking mechanisms and strategies to attract researchers to Ireland, June 2001.

Methodology
The EGFSN study was based on a combination of an interview process, a questionnaire-based survey and national and international literature review. Over 100 chief executives, senior human resources and technical managers in approximately 50 organisations within both the indigenous and foreign-owned sectors were consulted. A survey of IDA Ireland's client base was conducted and generated responses from over 150 companies; predominantly from companies with significant foreign language requirements in contact centres, shared services and internationally traded services activities.

Demand from the indigenous sector was established primarily through interviews with a selected number of export-oriented companies and with a variety of enterprise and trade organisations, as well as with Enterprise Ireland.

Skills supply was established through a review of existing data and consultation with the Department of Education and Science, Forfás, Universities, Institutes of Technology and other supply-side experts.

Conclusions
This study did not uncover evidence of an acute shortage of language skills in those sectors of the Irish economy within the enterprise sectors represented by the clients of IDA Ireland and Enterprise Ireland. However, it did identify some important considerations which, taken together, suggest that it would be short-sighted if either policy-makers, or businesses, wishing to promote international commerce from Ireland, were to adopt a complacent approach to this issue. These considerations flow from the future requirements of both the indigenous and foreign-owned enterprise sectors.

Foreign-owned Enterprise

- Services, and internationally-traded services in particular, will play an increasingly important role as a driver of future economic development in Ireland.
- Service transactions generally involve a high level of human interaction and therefore require sophisticated communication skills. For some markets, this will necessitate foreign language proficiency.
- Foreign language skills, sourced primarily from non-nationals, are already supporting an important component of foreign-owned enterprise, that contributes significantly in terms of employment, and exchequer revenue generated through personal and corporate taxation.
- The proven ability of multinationals to provide multi-lingual services from Ireland, in a diverse range of languages augurs well for the growth of higher added-value activities, with a foreign language element.
- The availability domestically of a supply of foreign language skills will bolster future efforts to attract FDI in activities such as Internationally-Traded Services, Business Process Outsourcing, Sales and Marketing for EMEA regions, and European Headquarters functions for US multi-nationals.

Indigenous Enterprise

- Indigenous firms, largely, do not currently ascribe great value to foreign language skills. There is evidence, both national and international, to suggest that firms may be losing out on export opportunities as a result.
- Success in marketing and selling Irish goods and services will be contingent on the ability of the indigenous sector to establish and maintain close relationships with customers in global markets. In addition, partnerships and collaborations with foreign enterprises will be key drivers of innovation and growth.
- Irish firms with in-house language expertise will be at a considerable advantage in forging such relationships.

Supply of Foreign Language Skills
There is a significant pool of foreign language capability present among those completing the Leaving Certificate currently. However, it is dissipated rapidly due to the failure of enterprise and the individuals themselves to capitalise on it. The range of languages learned is fairly narrow, however, with a strong emphasis on major western European languages, and little emphasis on other European languages or on non-European languages. For this reason, even if industry made full use of languages learned in school, this would not represent a full solution to the need for language skills.

Future policy on languages should take account of the extent and likely continuance of migration into Ireland. The pool of foreign language capability created by immigration represents a major resource. Indeed, it is particularly important because:

- Many jobs requiring foreign language skills, (particularly in foreign-owned internationally traded service companies) require native speaker levels of skill;
- It gives Irish-based industry access to a much broader range of language skills than are available from school leavers; and
- It brings a depth of cultural understanding, along with the language, that is frequently important in a business context.

A part of the relevance of language skills to immigration policy is that there is sometimes a need for an employee of a company to have both a specific set of technological and/or business skills and a specific language. Even if there is no shortage of either skill set by itself, there may be few if any people with the full package of skills available to an Irish employer. It is reasonable that immigration policy should be capable of responding to such a requirement.

(ii) Sales and Marketing
A key challenge for Irish enterprise is to 'close the loop' between innovation and market knowledge. Innovation will prove commercially successful if it is genuinely customer-driven. Sales and marketing performance depend heavily on the ability of people in these positions in enterprises to communicate marketplace opportunities to their product/service development base.

Small and Medium Enterprises play a key role in Ireland's economic performance both in terms of Gross Value Added (GVA) and as an engine for future growth. The vast majority of Enterprise Ireland and Bord Bia client companies (almost 3,000 and 700 respectively) are SMEs. Collectively, in 2003, they accounted for employment of 150,000, exports of €11 billion and expenditure of almost €17 billion. Irish SMEs will face increasing competition from low cost overseas manufacturers, unless they can move up the value chain and develop world-class sales and marketing skills.

In 2004, the EGFSN produced a report entitled *Innovate, Market, Sell: Sales, Marketing & Innovation Capabilities of Irish Exporting SMEs*. Detailed research was carried out into international best practice in marketing and sales capabilities. In addition, 63 Irish based and 30 European high performing SMEs across a range of sectors were surveyed to measure and compare Irish performance in these capabilities. The Irish firms were selected for their likelihood of exhibiting 'best practice'. Consequently, the problems they face are likely to be present, and indeed more pronounced, in the broader population of exporting SMEs. Issues relating to marketing and sales skills in Ireland were examined, as was innovation, a key component of marketing capability.

Conclusions
Analysis of sales and marketing throughputs from the education sector indicates the existence of significant human resources in these disciplines in Ireland currently. Furthermore, almost 140,000 people are employed in a sales capacity in Ireland, mainly in retail, distribution and banking. This represents a significant number of

sales personnel, some of whom would have the potential to move into marketing and sales roles in internationally trading SMEs, if they were provided with appropriate education and training opportunities.

However, although the supply of these skills appears adequate in quantitative terms, the Irish SMEs surveyed encounter significant difficulties in sourcing high calibre sales personnel with international experience and sectoral knowledge. Increasingly, Irish firms are looking abroad for people who can bring immediate value through their existing industry knowledge and contacts. However, it is not always possible to attract suitable candidates, as joining an Irish SME may not fit in with their career path.

The EGFSN has already outlined proposals to address the lack of high quality sales and innovation staff through domestic policy action, and at this point does not see a need to resort to large-scale inward migration to meet demand.

4.2 Demand for Migrant Workers in Other Sectors

4.2.1 Introduction

There are other sectors of the economy which provide high levels of employment, the most significent of which are tourism, construction, healthcare and agriculture and food processing. The substantial level of employment provided in these sectors is of immense importance to the Irish economy. Employment in these sectors encompasses a range of skill levels within the skills continuum, from unskilled and low skilled to very high skilled.

High employment sectors have also experienced skill and labour shortages, sometimes accentuated by the fact that certain sectors are characterised as being *low skilled* due to the prevalence of labour employed at the lower end of the skills continuum.

Undoubtedly, the prevailing working conditions (e.g. salary, hours, human resource development practices and human resource management practices) in a sector are a key determinant of a sectors ability to attract labour, both skilled and unskilled. In some sectors, structural rigidities (e.g. enterprise size, low profit margins, high labour intensity, wage agreements) prevent an appropriate adjustment in working conditions which would make sectors more competitive in attracting labour vis-à-vis competing sectors. Sectors which suffer from structural rigidities have relied to a greater extent on immigration. The free movement of people within the expanded EU should greatly facilitate high employment sectors. Access to an enlarged EU labour force has minimised the argument for the use of third country migration. Third country migration as a means of ensuring that prevailing working conditions are maintained is not a sustainable arguement to either skills or labour shortages.

The remainder of this chapter examines skills and labour market issues in four high employment sectors: Tourism, Construction, Healthcare and Agriculture and Food Processing.

4.2.2 Demand for Migrant Workers in the Tourism Sector

The tourism industry in Ireland makes a significant contribution to economic growth. In 1996, 4.6 million foreign tourists visited Ireland, generating revenues of €1.825 billion. By 2004, the number of foreign tourists had increased to 6.5 million, earning revenues of €4.2 billion. When this figure is added to the €1.0 billion earned through domestic tourism, tourism accounted for approximately 4.2 per cent of GNP in 2004. According to targets set by the *Tourism Policy Review Group* overseas tourism is targeted to expand to 10 million visitors per year by 2012, equating to tourism related revenues of €6.0 billion.

Apart from its income effects, tourism is also a major source of employment in Ireland. Using a broad definition of tourism, it is calculated that over 145,000 people

are employed in sectors related to the tourism industry[52]. Labour is a significant factor of production in the tourism sector. Technical know-how rather than theoretical knowledge is the dominant requirement for many positions, and this creates the perception of a sector that operates at the lower end of the skills continuum. As with other industries and sectors, however, there are positions that require significant knowledge and skill, particularly at management level.

Due in part to the seasonal nature of the work and perceptions of working conditions in the industry, there are a number of recruitment challenges facing employers, particularly concerning poor staff retention rates. Already, employers in tourism are finding it difficult to fill vacancies. Furthermore, in order to facilitate the targeted expansion of tourism outlined above, *Fáilte Ireland* estimates that a 56 per cent expansion in tourism employment will be required. *Fáilte Ireland* has recognised the challenges this implies and is currently developing policies to enhance productivity through improved education and training. Nevertheless, this significant level of employment growth, allied to the diminishing pool of available Irish labour makes it increasingly likely that immigration will continue to be a feature of the sector's development.

Table 4.11 below utilises both industry growth forecasts and information about replacement rates as the basis for estimating the gross additional employment requirement, by occupational category[53].

Table 4.11 Employment Changes in Tourism 2001 - 2010

	Additional Employment	Replacement Demand	Expansion Demand
Managers & Proprietors	7,700		7,700
Professionals	1,200	200	1,000
Associate Professionals	7,600	3,200	4,400
Clerical	2,800	1,600	1,200
Skilled & Semi Skilled Man	1,500	200	1,300
Sales	13,800	6,500	7,300
Other Services	18,800	7,900	10,900
Unskilled Man	4,200	2,800	1,400
All Occupations	**57,600**	**22,400**	**35,200**

Source: Fáilte Ireland

The foregoing analysis of employment forecasts for hotels, restaurants and bars conducted by *Fáilte Ireland* suggests that the main areas of growth between 2001 and 2010 are in services and unskilled sectors.

Skills Required by the Tourism Industry

Skills definition in tourism is inadequately served if traditional manufacturing models of industrial thinking are used in isolation. A more rounded evaluation of tourism skills is required which recognises the amalgamation of technical skills with 'soft' or inter-personal skills. In practice, it is this bundling of technical and inter-personal skills that marks out the skills-set required in the tourism sector. Tourism also is confronted with an acute challenge to develop its workforce and to build the knowledge, skills, and behaviours that will enable it to succeed in a globally competitive business environment.

Fáilte Ireland's *Human Resource Development Strategy* underlines this focus on learning in the workplace and made specific recommendations supporting learning and skills within tourism SMEs and micro-enterprises.

52 This figure includes employment in sectors such as the licensed trade which depend also on substantial domestic demand.

53 Fáilte Ireland, Competing Through People – A Human Resources Development Strategy for Irish Tourism 2005 – 2010.

Most of the skills that are important to the tourism industry are rooted in craft and operational areas, principally culinary skills, restaurant service skills, and bar skills. Increasingly, however, the tourism sector needs to recruit skills that are generic across the economy as a whole. These skills include sales and marketing professionals, financial analysts, managers, and IT specialists. Some new professional skills are also emerging (e.g. event management), and the education sector is now responding with specialist programmes to match this demand. Notwithstanding these developments however, there remains a requirement to address shortages in craft and operational skills relevant to tourism and hospitality.

Demographic data suggests that the cohort of Irish second level school leavers will continue to diminish, and that tourism will increasingly find itself competing to attract the interest of a reduced pool of resident workers. This phenomenon is particularly acute as certain sectors "adjacent" to tourism (such as retailing, healthcare, call centres) look set to expand also. These impacts are compounded by the declining rate of growth in the Irish female labour market participation rate.

Tourism already has a high proportion of non-national workers, and it is estimated that some 30 per cent of the current workforce is from countries other than Ireland. *Fáilte Ireland* expects, therefore, that the industry will experience a growing dependence on non-national workers over the next five years to meet expected shortfalls in the national labour pool. Most of these workers will be required to fill operational posts in the industry, and it is unlikely (at least in the first instance) that they will all possess the requisite skills to operate effectively in the industry. In particular, workers from the recently enlarged EU countries can be expected to fill this labour shortfall. Nevertheless, while these workers may fill the labour shortfall, *Fáilte Ireland* believes that they are unlikely to meet in full the anticipated skills shortfall. In these circumstances, the tourism sector is likely to have a recurring requirement for a cohort of skilled workers from outside the EU.

Over the medium term, *Fáilte Ireland* intends to expand its presence in the provision of entry-level skills training for non-national tourism workers. In the longer term, this should have the effect of diminishing the residual demand for skilled labour sourced outside the EU. Over time Fáilte Ireland expects that workers from the EU enlargement countries will progress as learners within the Irish further and higher education sectors. This will facilitate the further integration of these workers into the Irish labour force, and develop the higher-level skills that are expected to characterise the industry as a whole in the future.

4.2.3 Demand for Migrant Workers in the Construction Industry

The construction industry has grown rapidly in both output and employment terms in recent years. The SLMRU report, *Construction Skills Monitoring Report No. 1*, published in June 2003 forecast, however, that both output and employment would decline over the period 2004 – 2010. This would result in a markedly different labour market within the construction sector. The report projected that strong performance by the residential construction sector in the first half of the forecast period would compensate for declines in other parts of the sector by sustaining demand for a number of professional occupations including architects, building surveyors, and the 'construction trades', namely carpenters, plasterers, painters and decorators and bricklayers.

The SLMRU forecast that there would be some negative impact on skills used in the residential development sector, but which are also found in other sectors of the industry, such as the mechanical/electrical trades (e.g. plumbers and electricians). Some decline was forecast in the skills most strongly associated with commercial development, such as quantity surveyors, especially over the first half of the 2004-2010 forecast period.

It was expected that the decline in non-residential building activity would result in much lower recruitment of professionals such as quantity surveyors, from abroad. The

SLMRU report did not recommend any adjustments to the current levels of provision of qualified quantity surveyors in Ireland, because it was considered adequate to meet the more modest requirements of the marketplace over the forecast period. However, the report did recommend that recruitment levels from abroad should be carefully monitored in order to avoid the possibility of excess supply and consequently unemployment[54].

Forecasts published by the SLMRU unit in FÁS envisage employment opportunities for around 7,200 civil engineers beyond 2008. While this is a little below the current record employment level of 7,600, it is substantially higher than the levels that prevailed at the end of the 1990s. Furthermore, as shown in this report, the current record levels of employment required very substantial immigration of civil engineers. On the basis of these forecasts, it was anticipated that there should be good opportunities for graduates in civil engineering from the Irish higher education system over the period. It was expected that a proportion of the non-nationals who secured employment in Ireland as civil engineers over the last few years might seek lucrative employment contracts in the expanding UK market, and this might be sufficient to bring the market into equilibrium.

It was anticipated that continuing strong performance in civil engineering would sustain demand for many of the skilled manual occupations: namely construction plant operatives, road-workers, and rail workers. With the exception of fitters, these workers do not, in general, develop their skills in either the education system or the initial vocational training system.

The analysis in the SLMRU report showed that the market requirement for architects, at least between 2000 and 2003, could not have been met from within the resident labour force, and substantial numbers of architects had to be recruited from abroad. The implementation of recommendations contained in SLMRU/FÁS report should ensure that more young Irish persons will be available to fill such vacancies in the future[55].

Similarly, the analysis showed that the supply of persons qualified in the construction trades of plasterer, painter and bricklayer was also not sufficient to meet the demand from the private residential sector. However, the explanation is quite different. It is employers rather than the education system per se, which determines the future supply of these craft workers. The analysis shows that the sponsorship levels have not been adequate to meet demand. The reasons are not apparent, yet it is important that construction price inflation should not in the future be fuelled by a shortage of skilled workers as occurred in the period 1997-2001.

Over the period since the FÁS/SLMRU report was prepared, the construction industry has performed more strongly than forecast, with employment as measured by the Quarterly National Household Survey rising from 181,900 in March-May 2003 to 230,200 in 2005, a rate of increase equivalent to 12.5% per annum. As a result, there have been continuing skills shortages, even in occupations such as quantity surveying where projected lower growth rates were expected to bring shortages to an end.

It is uncertain when construction industry activity will peak. Once it peaks, it is likely that a combination of reduced demand and the increases in the output of education and training systems that have taken place in recent years will eliminate most shortages, aside possibly from the trades of plasterer, painter and bricklayer identified by SLMRU as possibly having more deep-rooted training issues. In the meantime, there will continue to be a need for significant inward migration from

54 Quantity surveyors are currently eligible for a work visa/work authorisation.
55 FÁS (2003), The Skills Monitoring Report, Construction Industry 2003 – 2010.

within the EU, and there may be areas of skill where it is necessary to look to third countries.

4.2.4 Demand for Migrant Workers in the Healthcare Sector

The healthcare sector is one of the largest employers in Ireland, accounting for 9.5 per cent of total employment in Ireland. In fact, employment in the healthcare sector has increased substantially in the past five years. In 1998, there were 113,800 persons employed in the health sector[56]. This increased to 171,800 by 2003, which represents an overall increase of 51 per cent. According to research published by the SLMRU unit in FÁS[57], 93 per cent of respondents from the health sector reported vacancies, with an overall vacancy rate of six per cent. This was the joint highest vacancy rate found in the public sector, where the average vacancy rate was four per cent. Almost 85 per cent of the respondents from the health sector said that the vacancies they had were difficult to fill.

According to the SLMRU analysis, occupations currently showing skills shortages include:

- Medical Practitioners;
- Consultants and Non-Consultant Hospital Doctors (NCHDs);
- General Practitioners;
- Dentists;
- Registered Children's Nurses;
- Nurses and Midwives;
- Dieticians;
- Chiropodists/Podiatrists;
- Diagnostic Radiographers; and
- Radiation Therapists.

Furthermore, in the absence of improved training and retention policies a number of other occupations are likely to experience skills shortages in the future including physiotherapists, social workers, dental hygienists, optometrists, dispensing opticians and clinical psychologists.

As part of the response to the shortage of qualified labour for jobs in the health sector, a 'fast-track' visa/authorisation scheme was introduced in 2000 to facilitate the immigration of suitably qualified non-EEA individuals. Since this scheme was introduced, almost 4,900 individual have entered the Irish labour force. Of these, over 4,600 were engaged in nursing.

Immigration has made an enormous contribution to increasing the supply of healthcare professionals in Ireland. This is particularly so in the case of therapists, medical practitioners and nurses. The promotion of immigration has been successful in alleviating serious skill shortages in a relatively inexpensive manner and there is no doubt that immigration to a greater or lesser extent will continue to provide healthcare professionals for the Irish healthcare system.

Indeed, the enlargement of the European Union will provide additional sources of recruitment for the healthcare service which will not have to be processed through

56 The healthcare sector refers to employment in categories covered by NACE 85.

57 This section is based on a draft of the SLMRU *Healthcare Skills Monitoring Report* from August 2004. This report is due to be published later in 2005.

either the Work Permit system or the Visa and Work Authorisation scheme. Countries such as Poland and Hungary have a strong tradition in the education of medical professionals and they are aware of the opportunities which are available in the Irish healthcare system and are anxious to avail of them.

An exclusive reliance on immigration, however, is not a solution in the context of a skills shortage which is permanent in nature; that is, a shortage which will never be resolved by the current levels of output from the education system.

There are a number of reasons why immigration is not an ideal solution in such circumstances.

- First, it curtails the opportunities for young Irish people to obtain relatively well-paid careers in the health service because there will not be enough places in the Irish education system for them to acquire the appropriate qualifications.
- Second, it is reasonable to assume that rates of retention for immigrants will be lower than those for their Irish-born colleagues. It is natural that some immigrants will wish to return home after a period of working in Ireland.
- Third, the demand for many healthcare professionals throughout Europe is much greater than the supply from the resident labour force and competition for healthcare professions will intensify as the European labour force ages. Consequently, there is no guarantee that Ireland will continue to attract healthcare professionals in the same volume as in recent years.

Furthermore, the difference between the demand for some healthcare professionals and the supply of these professionals from the Irish education system is so great that it may not be prudent to rely exclusively on immigration to meet the shortfall. This situation applies in particular to medical practitioners, dentists, radiographers and some of the more specialised nursing professions. The need to expand education provision for these professions is acknowledged in a number of reports. Retention issues must also be addressed with some urgency. Immigration alone will not address these structural challenges and so cannot be relied upon to alleviate shortages on an on-going basis.

The skill shortages confronting the Irish healthcare sector will only be resolved by a strategy which is systematic, comprehensive and timely. The strategy should be systematic in that it should take account of all of the factors which impinge on the level of service required, such as demography, societal expectations as reflected in historical trends and increasing income levels.

4.2.5 Demand for Migrant Workers in the Agriculture and Food Processing Sectors

The agriculture sector in Ireland has been declining in importance over recent decades, as first manufacturing, and then the services sectors underwent rapid growth. Nevertheless, the sector, remains a significant employer. In contrast, employment in the food sector has grown in recent years.

In 2004, there were 112,000 people employed directly in agriculture and a further 54,000 people employed in the food, drink and tobacco (FDT) sector, representing 6.1 per cent and 2.9 per cent respectively of total employment in Ireland. Agriculture accounts for just 2.6 per cent of GDP, whereas the FTD sector accounts for almost 6.4 per cent of national income, indicating a diverging productivity performance.

Agriculture

The agriculture sector remains a labour intensive industry, despite advances in technology. The continuing decline in numbers of people engaged in agriculture presents a serious challenge to the viability of the industry in Ireland at its current scale. At current wage levels, the sector observes notable labour shortages. This is a reflection, however, of the relatively low pay available in the sector, of working

conditions on offer, of perceptions of the industry, and of changing demographic patterns in rural Ireland.

In particular, the salary levels on offer in the agriculture sector would appear to be a major disincentive to potential workers. In 2001, CSO data indicates that the average agricultural worker earned €333 per week[58]. This compares unfavourably with the €508 per week paid to industrial workers[59] and the €592 per week earned by unskilled workers in the construction industry[60] over the same period. Although the figures for agricultural earnings are somewhat dated, more recent calculations published by the Department of Agriculture and Food[61] indicate that average family farm income in 2003 amounted to just €15,054 per year, well below average national incomes across all sectors of the economy.

This suggests that, in order to increase the supply of labour into the sector, greater rewards are required – better returns for farmers, and higher pay for farm employees. Prior to the accession of the 10 new member states into the EU, the majority of foreign workers employed in agriculture were sourced from Eastern Europe. There is no reason that these same workers should not continue to be willing to migrate to Ireland to be employed in agriculture now that they no longer require a work permit, so long as the pay on offer is attractive.

Horticulture

The commercial horticulture sector is comprised of over 1,000 growers, in the production, packing and marketing of mushrooms, field vegetables, nursery stock (trees and shrubs), protected crops and fruit. Traditionally, horticulture has been labour intensive and the output per labour unit has been relatively low. With the support of Teagasc and Bord Bia and the availability of grants from the Department of Agriculture and Food, production systems are being mechanised and rationalised, to improve efficiency and the competitiveness of Irish growers.

During the course of this research, consultations with stakeholders in the agricultural/horticultural sector highlighted a number of challenges facing that sector. The horticultural sector has been a significant beneficiary of the current work permit system. The enlargement of the EU has provided increased access to skilled operatives and supervisors for the sector. However, the free movement of labour from within the ten accession countries has also meant that migrants who previously availed of work permits now have increased opportunity to move employment and, as a result, there has been increased turnover of labour within the horticultural sector. Teagasc and Bord Bia say that to maintain an adequate and stabilised workforce of skilled labour in the horticultural sector, it is no longer possible to meet these needs from within the EU and that the experience of growers has demonstrated that staff sourced outside of the EU under work permits provide a much more stabilised workforce than EU employees.

Teagasc and Bord Bia have estimated the projected skills shortages in commercial horticulture 2006 – 2008. They have identified the following gaps:

Mushroom Sector	Pickers	600
	Quality Assurance Management	20
Hardy Nursery Stock	Propagation	30
	Managers	20
Field Vegetable Production	Food Technologist Agronomist	50
Fruit Production & Protected Crops	Agronomist Managers	40

58 CSO, Earnings of Agricultural Workers, April 2002. This is the most recent data published by the CSO.
59 CSO, Industrial Earnings and Hours Worked, June 2005.
60 CSO, Earnings and Hours Worked in Construction, June 2005.
61 Department of Agriculture and Food, Annual Review and Outlook for Agriculture and Food 2004/2005, April 2005.

The developments in training for this sector were also highlighted during the course of consultation and in particular the industry drew attention to its awareness of the need to train immigrants. There is a strong feeling within the horticultural sector that migration from outside the EEA region is required to ensure the viability of the sector.

Food Processing

The findings below are based on the EGFSN report *The Demand and Supply of Skills in the Food Processing Sector* published in April 2003. While the report did not forecast significant employment growth or labour shortages over the coming years, a number of skills shortages were identified. The principle skills gaps identified were:

- R&D and Quality Control Skills: In particular, shortages of product development skills and the skills needed to commercialise new product development were highlighted.
- Processing Skills: Operative skills and production supervisory skills were identified as being in short supply.
- Sales and Marketing Skills: This category includes shortages of language and negotiation skills as well as marketing skills.
- Support Skills: Crosscutting skills such as IT, training and business planning skills were identified as being in short supply in the sector.

The EGFSN report also noted a low propensity to invest in staff training and development. Given this shortcoming, immigration cannot be regarded as the primary long term solution to the skills shortages prevalent in the sector. Rather, consideration must be given to removing the barriers that are currently hindering the provision and take-up of training.

Nonetheless, there may be a case for facilitating inward migration by people who have significant food industry expertise in areas such as R&D and marketing, as a part of the strategy to overcome capability gaps in these areas, which have the potential to hold back the sector's development. As with industry sectors such as ICT and biotechnology, there is a need for cross-fertilisation of skills and knowledge between the Irish food sector, and those of other EU countries such as Denmark, and of third countries such as the US and New Zealand.

5 Potential of EEA Countries to Meet Skills Demands in Ireland[62]

Chapter Five: Summary

- One of the key questions facing Ireland in relation to migration is the extent to which Ireland's skills and labour needs will be met from within the EEA
- The analysis herein examines both overall and graduate labour supply at three levels;
  - **Labour Availability:** The quantity of labour supply as measured by the size of the labour force;
  - **Labour Ability:** The quality of labour supply;
  - **Labour Mobility:** The likely mobility of labour supply in each country, as gauged by past migration flows and by differences in relative earnings in Ireland and each of the EU-24 countries.
- Analysis is conducted for all 25 EU member states, the three EEA EFTA members and Switzerland, Bulgaria and Romania
- It is estimated by the CSO that Ireland requires net in-migration of approximately 30,000 migrants per annum over the period 2002-2006, and between 20,000 and 30,000 per annum between 2006-2011
- Ireland's demand for unskilled labour over the period to 2010 is likely to be met from the labour supply available from the expanded EU member states. This assumes, of course, that Ireland's policy of allowing free movement of labour from the EU member states remains unchanged over the period to 2010
- It is estimated that Ireland requires significant in-migration of graduates over the 2005-2010 period
- While the overall labour EU market consists of 208 million people, only a certain proportion of these will be attracted to Ireland. For instance, only 55 million of the EU labour force are currently living in countries where the average wage is significantly less than in Ireland (i.e. less than 88 per cent of average Irish salaries)
- This pool of labour shrinks further if we examine the graduate labour supply that is likely to consider migrating to Ireland on economic grounds: less than six million graduates are resident in countries where the average wage is significantly less than in Ireland (i.e less than 77 per cent of average Irish graduate salaries)
- It is unlikely that Ireland's demand for skilled graduate labour would be adequately addressed entirely by the skilled labour supply from within the countries of the EU over the period to 2010 due to a combination of the high desired level of skilled and graduate migration, and low level of graduate earnings on offer in Ireland relative to some other countries

62 This chapter is based on research produced by FGS Consulting on behalf of the Expert Group on Future Skills Needs (August 2005).

5.0 Introduction

One of the key questions facing Ireland in relation to migration is the extent to which Ireland's skills and labour needs will be met from within the EEA. This chapter discusses this question at a macro level. The findings also provide guidance as to which countries provide the best potential for Ireland to attract migrants from.

The previous chapter concludes that Ireland is likely to experience skills gaps at three levels: at overall economy wide level, in graduate labour supply and in a number of key sectors. *Section 5.1* summarises the likely scale of these gaps, while possible sources of immigrant labour supply are discussed in *Sections 5.2* to *5.4* at each of these three levels as follows:

- Overall economy wide labour supply, discussed in *Chapter 5.2*;
- High skilled or graduate labour supply, described in *Chapter 5.3*;
- Skilled labour relevant to the specific sectors previously identified as a priority by the EGFSN, detailed in *Chapter 5.4*.

Sections 5.2 to *5.4* examine possible sources of labour supply at each of the three levels outlined above, across the EU-24 member states, i.e. the EU-25 countries excluding Ireland. In addition, we consider the availability of labour supply in countries which are part of the European Economic Area (EEA), namely Norway, Iceland and Liechtenstein, as well as Switzerland. Citizens from all four of these countries are granted similar rights as EU citizens and, therefore, do not require work permits to seek employment in Ireland. The potential skilled labour supply from Bulgaria and Romania is also examined since both of these countries are due to join the EU in the next phase of EU expansion, due in 2007. At the end of each section, the extent to which the availability of labour supply from these countries is likely to be sufficient to address the needs of the Irish enterprise sector over the period 2005-2010 is considered.

The analysis in these sections is undertaken at a high level, based on the most up-to-date reports and databases. In identifying and describing possible sources of immigration labour supply, three key aspects of supply are considered:

- **Labour Availability**: The quantity of labour supply as measured by the size of the labour force, i.e. those employed and those unemployed but looking for work;
- **Labour Ability:** The quality of labour supply, as measured by the educational attainment levels of the labour force and the educational attainment of recent graduates;
- **Labour Mobility:** The likely mobility of labour supply in each country, as gauged by past migration flows and by differences in relative earnings in Ireland and each of the EU-24 countries. Of course, we acknowledge that other factors influence mobility and the attractiveness of a county to migrants. These factors include geography, history, long-term migration trends, similarities in culture and legislative frameworks.

Finally, *Section 5.5* analyses a number of additional, highly relevant countries in terms of their potential to supply high skilled labour to Ireland. These countries include the US, Australia, China and India. Due to data difficulties, the analysis in this section is at a broader level than preceding sections.

In order to ensure comparability and consistency of data across countries, the chapter uses data from central sources such as the OECD and Eurostat. The chapter uses the most up-to-date information available from these organisations at the time of analysis, i.e. as of June 2005[63].

63 For certain variables data is not available across all countries. Where relevant, this is highlighted in the tables and/or text. Where data gaps are likely to make a significant difference to the overall picture, comment is provided and where possible indicative estimates are provided as to what the overall situation is likely to be.

5.1 Summary of Forecast Immigration into Ireland

Chapters 3 and *4* highlighted the need for ongoing migration into Ireland in order to sustain current and forecast growth levels and also highlighted the current and likely future skills gaps in key sectors. At a macro level, most estimates predict substantial annual net migration of the magnitude of 30,000 per annum over the next decade or so[64]. It also notes that a significant proportion of these migrants will need to be relatively highly skilled.

Specifically, Chapter *4* emphasised the potential skills shortages across a range of sectors. While domestic education and training policies can address some of this shortage, immigration will also play a vital role in ensuring that skills shortages to not hinder Irish economic growth.

5.2 Overall Labour Supply

5.2.1 Labour Availability

EU Countries

Table 5.1 below shows the number of people in the labour force across the EU in 2004, with countries ranked in descending order of labour force size. It shows that in 2004 across the EU-24 countries there were 208.388 million people in the labour force, i.e. employed or unemployed but looking for work. Of these 189.195 million were employed and 19.193 million were unemployed.

Table 5.1 Overall Labour Supply Across the EU-25 Countries in 2004

Countries	Absolute Number			Rank and Rate	
	Labour Force	Employed	Unemployed	Labour Force Rank	Unemployed Rate (%)
EU-24	208,388,600	189,195,000	19,193,600		9%
Germany	39,597,900	35,666,900	3,931,000	1	9.5
United Kingdom	28,865,400	27,484,600	1,380,800	2	4.7
France	26,740,800	24,099,500	2,641,300	3	9.7
Italy	24,020,000	22,059,600	1,960,400	4	8
Spain	19,081,000	17,011,300	2,069,700	5	10.8
Poland	16,668,900	13,503,500	3,165,400	6	18.8
Netherlands	8,401,000	8,013,900	387,100	7	4.6
Portugal	5,172,300	4,806,300	366,000	8	6.7
Czech Republic	5,064,700	4,638,500	426,200	9	8.3
Greece	4,740,300	4,234,600	505,700	10	10.5
Sweden	4,515,800	4,220,300	295,500	11	6.3
Belgium	4,463,500	4,113,600	349,900	12	7.8
Hungary	4,117,400	3,874,600	242,800	13	5.9
Austria	3,888,200	3,716,400	171,800	14	4.5
Denmark	2,848,700	2,693,400	155,300	15	5.4
Slovakia	2,633,600	2,160,100	473,500	16	18
Finland	2,573,600	2,344,800	228,800	17	8.8
Ireland	*1,916,700*	*1,830,200*	*86,500*	*18*	*4.5*
Lithuania	1,586,800	1,413,100	173,700	19	10.8
Latvia	1,098,800	988,400	110,400	20	9.8
Slovenia	977,600	917,400	60,200	21	6
Estonia	633,900	573,300	60,600	22	9.2
Cyprus	345,900	328,200	17,700	23	5
Luxembourg	194,200	185,900	8,300	24	4.2
Malta	158,300	146,800	11,500	25	7.3

Source: Eurostat, Online Database

64 ESRI, Medium Term Review 2003-2010; CSO, Population and labour force projections 2006-2036.

As expected, large labour pools are associated with countries with high populations. The five countries with the largest labour forces, therefore, are the five countries with the largest populations, i.e. Germany (39.6m), the UK (28.9m), France (26.7m), Italy (24.0m) and Spain (19.0m). Indeed, taken together these countries have a labour force of 138.3 million. Unemployment rates in these countries, with the exception of the UK, are also notably higher than in Ireland. This suggests that there could be potential 'push factors' to encourage migration from these countries. However, 'pull factors' are likely to be relatively weak as average earnings for these countries (taking account of relative price differences), are higher or similar to those in Ireland. *Chapter 5.2.3* discusses this in more detail.

Among the new entrant countries to the EU, two fall in the top ten countries in terms of labour force size, namely Poland and the Czech Republic. Poland has the largest labour force of the new member states, with 16.7 million people. Poland also has the highest unemployment rate in the EU at 18.8 per cent and the second highest absolute number of unemployed people at just over 3 million. The Czech Republic has a labour force of just over five million, and while its unemployment rate of 8.3 per cent is much lower than Poland's, it is still nearly twice that of Ireland's. Slovakia has a smaller labour force than Poland and the Czech Republic but its labour force of 2.6 million is larger than Ireland's. It also has the second highest unemployment rate at 18 per cent. These factors suggest that there are potential 'push factors' which could motivate significant numbers to migrate from these countries.

We will also see in *Chapter 5.2.3* that Ireland offers a considerable 'pull factor' for these countries as there is a considerable financial incentive for members of the labour force in these countries, and indeed in other new EU member states, to migrate to Ireland. Average earnings, taking account of price differentials, are notably higher in Ireland.

Finally, in this section, data is presented on the numbers and proportions of individuals in the labour force aged 25-34, as generally, this age category prove to be the most mobile, and therefore, have the greatest propensity to migrate. *Table 5.2* below ranks the EU member states in terms of those in the labour force aged 25-34 years of age.

As expected, the absolute numbers of those aged between 25-34 in the labour force are greatest in countries with large labour forces e.g. Germany, Italy and France. Looking at the percentage of those aged 25-34 as a proportion of the labour force, however, reveals more mixed results. Spain (30%) has the largest proportion of 25-34 year olds in the labour force, followed by Luxembourg, Greece, Hungary and Ireland at 29 per cent.

EEA EFTA Countries, Switzerland, Romania and Bulgaria

Table 5.3 examines the labour availability in the EEA EFTA countries[65] along with Switzerland, Romania and Bulgaria. The inclusion of these countries in a consolidated labour market increases the potential labour supply by over 19 million.

65 Not all of the relevant data was available for Liechtenstein.

Table 5.2 Labour Force (LF), Numbers in the LF aged 25-34 and Percentage of LF aged between 25-34 in EU-25 Countries in 2004

Countries	Total Labour Force	No.s in Labour Force Aged 25-34	Those aged 25-34 as % of Labour Force
Germany	39,597,900	8,421,300	21%
France	26,740,800	6,933,900	26%
Italy	24,020,000	6,874,200	29%
UK	28,865,400	6,854,200	24%
Spain	19,081,000	5,813,100	30%
Poland	16,668,900	4,617,600	28%
Netherlands	8,401,000	2,029,700	24%
Greece	4,740,300	1,360,000	29%
Czech Republic	5,064,700	1,358,000	27%
Belgium	4,463,500	1,218,700	27%
Hungary	4,117,400	1,187,900	29%
Portugal	5,172,300	1,149,100	22%
Sweden	4,515,800	1,002,100	22%
Austria	3,888,200	997,900	26%
Slovakia	2,633,600	694,500	26%
Denmark	2,848,700	642,900	23%
Finland	2,573,600	544,700	21%
Ireland	*1,916,700*	*539,300*	*28%*
Lithuania	1,586,800	422,500	27%
Latvia	1,098,800	272,100	25%
Slovenia	977,600	264,600	27%
Estonia	633,900	154,000	24%
Cyprus	345,900	89,900	25%
Luxembourg	194,200	56,700	29%
Malta	158,300	39,500	25%

Source: Eurostat, Online Database

Table 5.3 Overall Labour Supply In the EEA EFTA Countries, Switzerland, Romania and Bulgaria in 2004

Countries	Labour	Employed Force	Unemployed	Labour Force Rank[a]	Une. Rate (%)
EU-24	208,388,600	189,195,000	19,193,600		9%
Switzerland	4,314,400	4,169,000	145,400	14	3.3
Norway	2,331,700	2,226,600	105,100	20	4.4
Iceland	161,100	156,200	4,900	29	3.1%
Liechtenstein	34,079	n/a	n/a	30	n/a
Sub-Total	*6,626,402*	*6,552,101*	*255,301*		*9%*
Romania	9,349,000	8,635,000	714,000	7	7.1%
Bulgaria	3,276,500	2,876,900	399,600	17	11.9%
Ireland	*1,916,700*	*1,830,200*	*86,500*	*22*	*4.5*

a Labour force ranked in descending order (i.e. 1 represents the largest labour force) out of the EU25, the EEA countries, Switzerland, Bulgaria and Romania,

Source: Eurostat, Online Database, Swiss National Statistics Office, Statistics Iceland

Of the countries with the right to travel to Ireland without a work permit, Switzerland has the largest labour force with over 4 million people, and it also has the lowest rate of unemployment at 3.3 per cent. Norway also has a labour force larger than that of Ireland and an unemployment rate almost identical to our own. The

financial attractiveness of Ireland to citizens of these countries is limited somewhat by the high average wages on offer in these countries, as will be discussed later.

Whilst Romania has the larger labour pool amongst the two potential new EU members, Bulgaria has the highest unemployment rate at almost 12 per cent. With both Romania and Bulgaria having larger labour forces than Ireland as well as significantly higher unemployment, this would suggest that there could be 'pull' factors to Ireland from these countries.

Table 5.4 examines the labour force of each of these countries both in terms of those aged 25-34 (the age group most likely to migrate) and compares this to the overall labour force. As Romania and Switzerland have the largest labour forces they also have the largest numbers aged between 25 and 34 in the labour force at 2.8 million and 0.8 million respectively. Romania and Bulgaria have the 'youngest' labour forces with those 25-34 accounting for 30 per cent and 25 per cent of their respective labour forces, while the 'oldest' workforces were to be found in Switzerland and Norway reflecting the aging Western European workforce.

Table 5.4 Labour Force, Numbers in the LF aged 25-34 and Percentage of LF aged between 25-34 in EEA EFTA Countries, Switzerland, Romania and Bulgaria in 2004

Countries	Total Labour Force	No in the Labour Force Aged 25-34	Those aged 25-34 as % of Labour Force
Switzerland	4,314,400	899,900	21%
Norway	2,331,700	553,100	24%
Iceland	161,100	n/a	n/a
Liechtenstein	34,079	n/a	n/a
Sub-Total	6,841,279	n/a	n/a
Romania	9,349,000	2,818,800	30%
Bulgaria	3,276,500	828,100	25%
Ireland	*1,916,700*	*539,300*	*28%*

Source: Eurostat, Online Database,

5.2.2 Labour Ability

EU Countries

This section examines evidence on the quality of labour supply across the EU-24 countries. Two broad measures are used as proxies for the quality of the labour force: the highest level of educational attainment and mean literacy scores. The scale used for comparing highest levels of educational attainment is the International Standard Classification of Education 1997. This classification aims to classify courses on a pan-European basis according to educational attainment levels. Given the differences across countries in educational systems, however, this is not an exact measure. Indeed, Eurostat is undertaking a major project to provide a framework for an improved educational classification, and this framework is due to be released in 2006.

Table 5.5 examines the educational attainment across the EU countries[66], listing countries in descending order of the size of the labour force with upper secondary educational attainment as their highest level of attainment.

66 It is also important to point out that educational attainment information is not available for France while the data for The Netherlands is from 2002 while all other data is 2003.

Table 5.5 Educational Attainment of the Labour Force Across the EU-25 Countries in 2003

Countries	Absolute Number			% of Labour Force		
	Lower Secondary and Below (ISCED 0-2)	Upper Secondary (ISCED 3-4)	Tertiary (ISCED 5-6)	Lower Secondary and Below	Upper Secondary	Tertiary
EU-23	**46,876,300**	**92,753,000**	**40,749,700**	**24%**	**53%**	**23%**
Germany[a]	6,429,600	22,457,300	9,404,800	17%	59%	25%
UK	3,378,500	16,887,200	8,526,900	12%	59%	30%
Poland	2,250,400	12,008,300	2,681,100	13%	71%	16%
Italy	10,920,900	10,157,600	3,069,800	45%	42%	13%
Czech Rep.	412,100	4,036,500	648,800	8%	79%	13%
Spain	9,496,400	3,839,100	5,486,300	50%	20%	29%
Netherlands	2,479,600	3,752,700	2,058,500	30%	45%	25%
Hungary	674,500	2,736,200	755,700	16%	66%	18%
Sweden	789,500	2,536,500	1,209,800	17%	56%	27%
Austria	739,800	2,469,600	666,200	19%	64%	17%
Slovakia	222,900	2,074,200	324,800	9%	79%	12%
Greece	1,801,500	1,758,800	894,800	40%	39%	20%
Belgium	1,277,600	1,653,800	1,501,300	29%	37%	34%
Denmark	545,700	1,439,000	875,100	19%	50%	31%
Finland	560,000	1,191,800	847,900	22%	46%	33%
Lithuania	187,000	1,033,500	415,600	11%	63%	25%
Ireland	*556,100*	*743,000*	*535,100*	*30%*	*41%*	*29%*
Latvia	169,900	740,900	214,600	15%	66%	19%
Portugal	4,122,900	719,800	617,600	76%	13%	11%
Slovenia	172,400	607,800	181,300	18%	63%	19%
Estonia	71,700	383,600	205,100	11%	58%	31%
Cyprus	10,000	130,900	110,300	4%	52%	44%
Luxembourg	50,400	111,500	32,900	26%	57%	17%
Malta	113,000	26,400	20,500	71%	17%	13%

a Including ex-GDR from 1991

Source: Eurostat, Online Database

An estimated 46.9 million members of the labour force (one in four) have lower secondary or below as their highest level of educational attainment, 92.8 million (two in four) have upper secondary as their highest level of educational attainment and 40.1 million (one in four) have tertiary education as their highest level of education.

Overall, the quality of the labour supply in Ireland is high relative to the EU average, with 29 per cent of the labour force having attained tertiary education, compared with an EU average of 23 per cent. A number of countries have a similar level of tertiary attainment, including Cyprus (44%), Belgium (34%), Finland (33%), Estonia (31%), Denmark (31%), the UK (30%), Spain (29%), and Sweden (27%). Graduate labour supply is discussed in more detail in *Chapter 5.3.*

While the ability to attract sufficient levels of skilled graduate immigrants will be a crucial factor to help sustain Ireland's continued economic development over the coming years, the availability of non-graduate labour supply will also be important. Given Ireland's stage of economic development, migrant inflows of non-graduate labour should ideally consist of people who have attained upper secondary education rather than those with lower secondary or below. In most of the new member states, a relatively high share of the labour force has upper secondary education as its

highest level of educational attainment. In fact, in seven of the ten new member states upper secondary education is the highest level of educational attainment for at least 63 per cent of the labour force. Altogether, these countries provide a total labour force of 23 million people with upper secondary education. For example, upper secondary is the highest level of attainment for 12 million people in Poland, for 4 million in the Czech Republic, for 2.7 million in Hungary, and for 2.1 million in Slovakia.

Looking next at the second variable measuring 'ability', *Table 5.6* presents EU countries ranked in descending order of reading literacy levels. The table also illustrates the proficiency of 15 year olds in mathematical and scientific literacy. The data below measure performance scores for 15 year olds in reading, mathematical and scientific ability. These assessments were administered as part of the Programme for International Student Assessment (PISA) in 2000 by the OECD. While this data is only available for 15 year olds rather than the labour force, it nevertheless provides a good proxy for the quality of the labour force. This data is only available for 17 of the 24 EU countries, i.e. those who are members of the OECD. Data is not available for Slovenia, Slovakia, Netherlands, Malta, Lithuania, Estonia and Cyprus.

Table 5.6 Literacy Scores for 15 Year Olds in EU Countries in 2000

Countries	Reading Literacy Scale	Mathematical Literacy Scale	Scientific Literacy Scale
Finland	546	536	538
Ireland	*527*	*503*	*513*
UK	523	529	532
Sweden	516	510	512
Belgium	507	520	496
Austria	507	515	519
France	505	517	500
Denmark	497	514	481
Spain	493	476	491
Czech Republic	492	498	511
Italy	487	457	478
Germany	484	490	487
Hungary	480	488	496
Poland	479	470	483
Greece	474	447	461
Portugal	470	454	459
Latvia	458	463	460
Luxembourg	441	446	443
Portugal	470	454	459
Latvia	458	463	460
Luxembourg	441	446	443

Source: OECD Education at a Glance, 2004

Ireland is currently towards the top of this league table, with mean scores in excess of 500 on the reading literacy scale, on the mathematical literacy scale and on the scientific literacy scale. Countries with mean scores similar to Ireland include Finland, the UK, Sweden, France and Austria. As we will see in *Chapter 5.2.3* the potential to attract significant numbers of migrants from these countries is limited by the fact that average private sector earnings in these countries, taking into account relative price differentials, are either higher or roughly similar to those in Ireland.

A key conclusion which emerges from this data is that a number of new member states which have relatively large potential labour pools, also score well in the OECD's reading literacy, mathematical literacy and scientific literacy scores. For example,

Poland and the Czech Republic score as well as Germany, Italy, Spain and Portugal.

While, a strong performance in reading literacy, mathematical literacy and scientific literacy is a valuable indication of labour force ability, it means relatively little if migrants from these countries cannot be successfully employed in Ireland. English language ability is therefore, an important determinant of a migrant's ability to be employed successfully, and it also aids integration. Unfortunately, it is not possible to rank actual English language proficiency on a consistent basis across a wide range of countries. Instead, *Table 5.7* illustrates the percentage of school children at the ISCED 2 and ISCED 3 levels who are taught English as part of their education. While this indicator is not perfect, it provides a useful comparator across countries.

Table 5.7 % of Students at ISCED Levels 2 and 3 Learning the English Language in EU Countries, 2004

Countries	ISCED 2	ISCED 3	Countries	ISCED 2	ISCED 3
EU-25	**87.4%**	**90.5%**	Lithuania	79.1%	76.5%
Belgium	42.4%	90.5%	Luxemburg	51.2%	96.3%
Belgium	48.2%	99.5%	Hungary	45.9%	57.6%
Czech Rep	61.4%	98.9%	Malta	100%	78.5%
Denmark	100%	94.2%	Netherlands	n/a	99.9%
Germany	94.5%	90.9%	Austria	99.0%	96.9%
Estonia	88.9%	91.2%	Poland	72.6%	90.6%
Greece	99.2%	95.2%	Portugal	90.0%	n/a
Spain	97.5%	95.9%	Slovenia	79.9%	98.2%
France	94.4%	99.4%	Slovakia	56.1%	96.0%
Italy	82.6%	85.9%	Finland	98.6%	99.7%
Cyprus	99.5%	100%	Sweden	100%	99.8%
Latvia	93.8%	89.3%			

Source: Eurydice, 2005

The data above show that in most countries the vast majority of students are taught English, especially at ISCED 3 level. Levels are highest in the Scandinavian countries as well as Malta and Cyprus. Hungary has the lowest level with 58 per cent of students at ISCED 3 level learning English.

EEA EFTA Countries, Switzerland, Romania and Bulgaria

This section examines evidence on the quality of labour supply across the EEA EFTA countries, Switzerland, Bulgaria and Romania[67]. The same measures are used to proxy the quality of the labour force in these countries as was used for EU member countries. Similar caveats apply in terms of cross-country comparability as with the EU-24.

Table 5.8 Educational Attainment of the Labour Force Across the EEA EFTA Countries, Switzerland, Bulgaria and Romania in 2003

Countries	Absolute Number			% of Labour Force		
	Lower Secondary and Below (ISCED 0-2)	Upper Secondary (ISCED 3-4)	Tertiary (ISCED 5-6)	Lower Secondary and Below	Upper Secondary	Tertiary
EU-23	**46,876,300**	**92,753,000**	**40,749,700**	**24%**	**53%**	**23%**
Norway	311,300	1,309,700	731,700	13%	56%	31%
Switzerland	671,000	2,395,800	1,061,900	16%	58%	26%
Romania	2,921,500	5,929,500	995,700	30%	60%	10%
Bulgaria	684,200	1,814,600	785,000	21%	55%	24%
Ireland	*556,100*	*743,000*	*535,100*	*30%*	*41%*	*29%*

Source: Eurostat , Online Database

67 No data is available for Liechtenstein or Iceland.

Both of the EEA EFTA countries for which this metric is available have a highly educated workforce with a higher percentage of tertiary graduates in the labour force than the EU average and in absolute terms both have more than Ireland. In terms of potential non-graduate migrants just 13 per of Norwegian workers and 16 per cent of Swiss workers have lower secondary education (or below), which is about half the figure found in Ireland and is further evidence of a highly educated workforce.

One quarter of Bulgaria's workforce (785,000) is educated to third level. Although the same measure in Romania is only 10 per cent of the labour force this equates to almost 1 million individuals, almost twice the number currently in Ireland.

Table 5.9 examines the levels of literacy and numeracy in the labour force of each country. Once again, the data is taken from the PISA study[68].

Table 5.9 Literacy Scores for 15 Year Olds in EEA EFTA Countries and Switzerland in 2000

Countries	Reading Literacy Scale	Mathematical Literacy Scale	Scientific Literacy Scale
EU17	**467**	**489**	**490**
Iceland	507	514	496
Norway	505	499	500
Bulgaria	430	430	448
Ireland	*527*	*503*	*513*

Source: OECD Education at a Glance, 2004

Both Iceland and Norway scored highly in this measure, although both countries lagged behind Ireland. Bulgaria scored less well, both in terms of the EU average and in terms of other Eastern countries such as Poland and Czech Republic. The implication of this finding is that a sizeable percentage of the Bulgarian labour force may not be as literate across the disciplines as labour forces in other countries.

Finally, *Table 5.10* examines the percentage of students learning English.

Table 5.10 % of Students at ISCED Levels 2 and 3 learning the English Language in EEA EFTA Countries, Bulgaria and Romania, 2004

Countries	ISCED 2	ISCED 3
EU-25	**87.4%**	**90.5%**
Iceland	32.1%	99.5%
Norway	100.0%	n/a
Bulgaria	58.1%	80.8%
Romania	86.1%	87.8%

Source: Eurostat, Online Database, 2004

The evidence shows that the percentage of students learning English is particularly high at ISCED level 3, although the performance of Bulgaria and Romania lags the EEA countries. This follows the same pattern evident in *Table 5.8* which showed the Nordic countries scoring extremely highly, with the Eastern countries a reasonable distance behind.

68 Data is not available for Liechtenstein, Switzerland or Romania.

5.2.3 Labour Mobility

EU Countries

This Section measures the potential mobility of labour in the EU-24 countries. It examines data on migration inflows to Ireland and data on the financial incentives facing potential migrants considering a move to Ireland[69].

An indication of potential migration to Ireland can be gained by examining past migration trends from countries to Ireland. This can be ascertained by examining the nationality of those applying for PPS numbers in Ireland. *Table 5.11* shows the number of PPS numbers issued to people from the EU-24 countries between 2002 and 2004, ranking countries in descending order of PPS numbers issued in 2004.

Table 5.11: Number of PPS Numbers Issued in Ireland to EU Member Country Nationals 2002- 2004

Country	2002	2003	2004	2002-2004
Total	**45,815**	**45,438**	**92,467**	**183,720**
Poland	2,664	3,760	27,295	33,719
United Kingdom	17,591	16,937	13,909	48,437
Lithuania	2,787	2,225	12,817	17,829
Latvia	1,527	1,150	6,266	8,943
Slovakia	245	244	5,187	5,676
France	3,765	4,271	4,678	12,714
Spain	5,691	4,893	4,456	15,040
Czech Republic	1,149	827	3,298	5,274
Germany	2,539	2,826	3,147	8,512
Italy	2,508	2,748	2,927	8,183
Hungary	260	181	1,839	2,280
Estonia	461	542	1,788	2,791
Sweden	955	1,017	943	2,915
Netherlands	762	729	924	2,415
Austria	963	898	851	2,712
Portugal	421	711	680	1,812
Belgium	447	477	383	1,307
Finland	442	381	346	1,169
Denmark	281	281	267	829
Malta	208	192	205	605
Greece	117	113	158	388
Slovenia	2	7	64	73
Cyprus	9	6	27	42
Luxembourg	21	22	12	55

Source: Department of Social and Family Affairs, 2004

The UK accounted for the largest number of PPS numbers allocated in the 2002-04 period among the long time EU members followed by Spain and France. This is not surprising given the level of integration between the Irish and UK labour markets and the existence of a common land border.

69 While data is available from Eurostat for 17 EU countries on the level of out-migration for 2002, this data needs to be treated with caution for a number of reasons. Firstly, it is more difficult to measure a flow variable, such as out-migration, than it is to measure a stock variable, such as the labour force. Secondly, different methodologies are used in different EU countries to estimate migration flows. Thirdly, Eurostat is currently reviewing how it tracks migration flows across the EU. The implications of this is that probably the only reliable finding that can be taken from this data is that out migration flows from countries in the EU tend to be less than 3 per cent of the labour force.

The most recent round of accession in May 2004 has given citizens of the 10 new EU members unhindered access to the Irish labour market and this is reflected in the significant increase in the number of PPS numbers assigned to nationals from these countries in 2004. In particular, there was a marked increase in the number of migrants from Poland, Lithuania, Slovakia, Latvia, and Estonia increased significantly in 2004.

It is important to note that not all those issued with PPS numbers are working at any one time. Prior to May 2004 citizens of the accession countries required work permits to legally work in the country so it is instructive to look at the numbers who received permits from these countries in order to gain a more accurate view on the number of nationals from the new EU states working in Ireland during those years.

Amongst the accession countries, nationals from Poland, Lithuania and Latvia accounted for the largest number of work permits applications in Ireland. Application numbers dropped from each of the accession countries in 2004 as work permits were no longer required by their citizens to work in Ireland.

Table 5.12 Number of Work Permits Issued in Ireland to EU Accession State Nationals 2002- 2003

Country	2002	2003
Poland	3,142	4,808
Lithuania	3,816	4,551
Latvia	3,958	4,160
Czech Republic	1,138	1,111
Estonia	820	1,012
Slovakia	459	533
Hungary	379	398
Malta	24	15
Slovenia	13	16
Cyprus	3	2

1. The number of work permits issued to nationals from a country in year can exceed the number of PPS numbers issued in a year to nationals from a country as the number of work permits issued includes newly issued permits and renewed permits.

Source: Department of Social and Family Affairs, 2004

In order to ascertain likely sources of immigrant inflows, it is informative to compare average non-agricultural private sector earnings within the EU25. While such a measure is not a definitive statement of mobility, it can provide evidence of 'pull' factors which may draw migrants to Ireland. *Table 5.13* lists the EU countries for which this data is available in descending order of average earnings, measured in terms of Purchasing Power Parity (PPP)[70].

70 PPP is a theoretical exchange rate derived from the perceived parity of purchasing power of a currency in relation to another currency. In contrast to the 'real' exchange rate that the currencies are traded for in the official market, the PPP exchange rate is calculated from the relative value of a currency based on the amount of a "basket" of goods the currency will buy in its nation of usage. Typically, the prices of many goods will be considered, and weighted according to their importance in the economy. The most common PPP exchange rate comes from comparing goods in a GDP reporting area with equivalent goods in the US and through that come up with a PPP US dollar exchange rate.

Table 5.13 Average Industrial and Services Earning (excluding the Public Administration) Across EU-25

Countries	Average Earning (PPP)	Average Earning (PPP) Relative to Ireland	Ranking	Position Relative to Ireland (Higher, Similar, Lower)
Luxembourg	34,210	131%	1	Higher
Germany	33,460	128%	2	Higher
UK	31,500	121%	3	Higher
Netherlands	29,550	113%	4	Higher
Belgium	29,400	113%	5	Higher
Austria	29,260	112%	6	Higher
France	26,820	103%	7	Similar
Italy	26,340	101%	8	Similar
Ireland	*26,130*	*100%*	*9*	*Similar*
Finland	24,710	95%	10	Similar
Sweden	24,140	92%	11	Similar
Cyprus	23,050	88%	12	Lower
Spain	22,550	86%	13	Lower
Denmark	20,310	78%	14	Lower
Slovenia	14,680	56%	15	Lower
Czech Republic	12,510	48%	16	Lower
Poland	11,950	46%	17	Lower
Slovakia	11,450	44%	18	Lower
Hungary	11,020	42%	19	Lower
Estonia	8,470	32%	20	Lower
Lithuania	7,320	28%	21	Lower
Latvia	6,410	25%	22	Lower
Greece	n/a			
Malta	n/a			
Portugal	n/a			

Source: Eurostat (All data is relates to 2002 with the exception of Germany which relates to 2001)

The data above shows that average non-agricultural private sector earnings in Ireland stood at €26,130 in 2002, using the purchasing power parity standard which takes account of national price differentials and so reflects relative purchasing power. According to Eurostat, there are six countries where average earnings are at least 10 per cent higher than those in Ireland. As a result, it is unlikely that Ireland would attract significant migrants (specifically migrants other than returning expatriates) from these countries. The specific countries are Luxembourg, Germany, the UK, the Netherlands, Belgium and Austria. The UK may be somewhat of an exception to the rule. It is generally accepted that the UK and Irish labour markets are very closely linked, and indeed the existence of a land border between the Republic and Northern Ireland further increases mobility.

It is also unlikely that Ireland would attract significant migrants from four countries where average earnings are similar to those in Ireland, i.e. plus or minus 10 per cent. These are France, Italy, Finland and Sweden.

Table 5.13 also shows that there are 11 countries where average earnings are below those in Ireland. Earnings differentials are particularly noteworthy for eight of these countries where average earnings are less than 60 per cent of the average in Ireland. These countries are Slovenia (56%), the Czech Republic (48%), Poland (46%), Slovakia (44%), Hungary (42%), Estonia (32%), Lithuania (28%), and Latvia (25%). This suggests that Ireland offers considerable pull-factors for migrants from these countries.

Perhaps the main lesson for policy makers from this analysis is that while Ireland is nominally a member of the single European Union labour market, with a combined labour force of over 200 million individuals, in reality, the actual pool of labour likely to migrate to Ireland is in fact, much smaller. While wages are not the only, or indeed the primary motivating factor determining propensity to migrate, they are a significant element. Using comparative wages, therefore as a stand-alone criteria for determining propensity to migrate, it emerges that Ireland is in fact competing for a much more limited pool of labour. In fact, just 26 per cent of the current European labour force are living in countries earning average wages lower than Irish wages. This amounts to a labour market of 55 million people. This methodology is not entirely conclusive. What it does, however, is draw attention to the fact that the European labour market is highly competitive and finite.

EEA EFTA Countries, Switzerland, Romania and Bulgaria

This section aims to gauge the potential mobility of labour in the EEA EFTA countries, Switzerland, Bulgaria and Romania, using the same criteria as the previous section. *Table 5.14* shows the number of PPS numbers issued to citizens of EEA EFTA countries, Switzerland and Romania and Bulgaria. No data is available for Liechtenstein.

Table 5.14 Number of PPS Numbers Issued in Ireland to Nationals of EEA EFTA Countries, Switzerland, Romania and Bulgaria 2002- 2004

Country	2002	2003	2004	2002-2004
Romania	2,675	1,360	591	4,626
Switzerland	141	213	212	566
Norway	180	180	186	546
Bulgaria	427	357	104	888
Iceland	25	14	23	62

Source: Department of Social and Family Affairs, 2004

Romanians accounted for almost 70 per cent of the PPS numbers issued between 2002 and 2004 to EEA EFTA, Swiss, Romanian and Bulgarian citizens, although their numbers dropped in 2004. Bulgaria was next on the list with Switzerland and Norway.

From *Table 5.15* it can be seen that the there were over 7,000 work permits issued to Romanians in the past 3 years and another 2,300 issued to Bulgarians. These numbers have remained relatively constant over the period. Work permits are not needed for citizens of EEA countries or Switzerland.

Table 5.15 Number of Work Permits Issued in Ireland to Nationals of Romania and Bulgaria 2002- 2004

Country	2002	2003	2004	2002-2004
Romania	2,459	2,527	2,113	7,099
Bulgaria	753	868	721	2,342

Source: Department of Social and Family Affairs, 2004

Finally, *Table 5.16* examines average non-agricultural private sector earnings for Norway, Romania and Bulgaria. Data is not available for Iceland, Switzerland or Liechtenstein.

Table 5.16 Average Industrial and Services Earning (excluding the Public Administration) In Norway, Romania and Bulgaria in 2002

Countries	Average Earning (PPP)	Average Earning (PPP) Relative to Ireland	EU25 Ranking + EEA, Bg, Ro	Position Relative to Ireland (Higher, Similar, Lower)
Norway	29,080	111%	7	Higher
Romania	5,044	19%	24	Lower
Bulgaria	3,824	15%	25	Lower
Ireland	*26,130*	*100%*	*10*	*Similar*

Source: Eurostat

Average earnings in Norway are 11 per cent higher than average earnings in Ireland measured in real terms using the PPP. Average earnings in Romania and Bulgaria are the lowest among both the EU member countries and the proposed accession states. Average earnings in Bulgaria and Romania are only 19 per cent and 15 per cent respectively of those in Ireland. This suggests there is a considerable financial incentive for workers in these countries to migrate to Ireland.

5.2.4 Conclusions on the Overall Availability of Labour Supply

Sections 5.2.1 to *5.2.3* examined data on the availability, ability and mobility of potential labour supply across the EU-24 countries, the EEA EFTA countries, Switzerland, Romania and Bulgaria. In this section, we consider whether this availability of potential labour is likely to be sufficient to meet the needs of the Irish economy for low skilled and unskilled labour over the period to 2010.

It is estimated by the CSO that Ireland requires *net* in-migration of approximately 30,000 migrants per annum over the period 2002-2006, and between 20,000 and 30,000 per annum between 2006-2011. While high skilled migrants will be crucial to the maintenance of economic growth and the development of a knowledge economy, it will also be important to attract migrants, ideally from within the EEA, to boost the unskilled and non-graduate labour supply. Whether this is possible or not, is one of the main issues considered in this report.

Given Ireland's stage of economic development migrant inflows of non-graduate labour should ideally consist of people who have attained upper secondary education rather than those with lower secondary or below. Across the EU-24 the stock of labour with upper-secondary education as their highest level of education attainment is estimated at over 93 million. Adding the EEA EFTA countries, Romania and Bulgaria to the potential pool increases the labour force by another 12 million or so, bringing the overall figure to over 105 million.

Of course, the likelihood of most of this potential labour pool migrating to Ireland is limited and not required. A key factor is the financial incentive for workers to migrate to Ireland. Indeed, it is really only for the new member states that significant financial incentives exist in real terms from a move to Ireland. This is because average earnings in real terms of workers in these countries are less than 60 per cent of those available in Ireland. Nevertheless, the labour pool available from these countries is significantly large relative to Ireland's likely demands. Altogether, these countries provide a total labour force of 23 million people with upper secondary education.

In addition, recent migration trends from these countries also strongly suggests that this potential labour supply can translate into actual labour supply for Ireland, as evidenced by the rapid increase in the number of migrants from the 10 new EU members since accession. In fact, the number of PPS numbers issued in Ireland more than doubled between 2003 and 2004, from 45,438 to 92,467. This increase was driven primarily by the increase numbers of workers in Ireland from Poland, Lithuania, Latvia, Slovakia, the Czech Republic and Estonia.

The most recent employment and vacancies survey from FÁS and the ESRI show that the most frequently mentioned 'hard-to-fill vacancies' across the Irish economy in March 2005 were of a high skilled nature. The notable exception was sales agents and shop assistants in the retail sector. However, given the high number of people from the new member states already working in these areas it seems likely that these gaps

in low and unskilled labour could be addressed over time from resident labour and labour from the new member states.

These factors suggest that Ireland's demand for low skilled and unskilled labour over the period to 2010 is likely to be met from the labour supply available from the expanded EU member states. This assumes, of course, that Ireland's policy of allowing free movement of labour from the EU member states remains unchanged over the period to 2010.

5.3 Graduate Labour Supply

5.3.1 Graduate Labour Availability

EU Countries

We saw in earlier chapters that in order to sustain its continued economic development and progress towards a knowledge economy, Ireland requires in-migration of a substantial number of graduates over the 2005-2010 period. In order to determine the likelihood of sourcing this graduate requirement from within the EU, data on the graduate labour force stock, as measured by people in the labour force with ISECD level 5 and 6[71] educational attainment, and typical graduate outflows, as measured by graduate outflows at ISECD level 5 and 6 averaged over 2002 and 2003 are examined in *Table 5.17* below.

Table 5.17 Graduate Labour Supply Across the EU-25 Countries Average of 2002 and 2003

Countries	Stock: LF with Tertiary Education		Graduate Inflows: ISCED Level 5A and Level 6 Graduates	
	Number	Rank	Number	Rank
EU-23	**40,794,700**		**2,032,789**	
Germany	9,404,800	1	203,114	5
UK	8,526,900	2	444,285	2
Spain	5,486,300	3	217,868	3
Italy	3,069,800	4	120,711	6
Poland	2,681,100	5	466,517	1
Netherlands	2,058,500[1]	6	86,397	7
Belgium	1,501,300	7	36,338	12
Sweden	1,209,800	8	43,297	10
Greece	894,800	9	13,290	20
Denmark	875,100	10	18,067	18
Finland	847,900	11	18,514	17
Hungary	755,700	12	62,357	9
Austria	666,200	13	19,699	16
Czech Republic	648,800	14	38,157	11
Portugal	617,600	15	64,768	8
Ireland	*535,100*	*16*	*33,179*	*13*
Lithuania	415,600	17	21,729	15
Slovakia	324,800	18	26,163	14
Latvia	214,600	19	15,738	19
Estonia	205,100	20	5,773	22
Slovenia	181,300	21	6,966	21
Cyprus	110,300	22	640	24
Luxembourg	32,900	23	n/a	n/a
Malta	20,500	24	1,830	23
France	n/a	n/a	206,173	4

Source: Eurostat, Online Database, 2004 ([1]2002 data)

71 The International Standard Classification of Education (ISCED) was designed by UNESCO to serve 'as an instrument suitable for assembling, compiling and presenting statistics of education both within individual countries and internationally'. ISCED 5B refers to programmes at the tertiary level that focus on practical, technical or occupational skills for direct entry into the labour market. ISCED 5A refers to programmes at the tertiary level equivalent to university programmes. ISCED 6 refers to advanced research programmes at the tertiary level, equivalent to PhD programmes.

The data indicate that there is an estimated 40.8 million graduates in the EU labour force, and that typical graduate outflows are typically around 2.1 million per annum. Ireland's graduate labour gap then is equivalent to minute fraction of the stock of graduates in the EU labour force and accounts for a larger proportion of the annual outflow of graduates (approximately 9 per cent).

Examining the availability of graduate labour supply from individual countries shows a similar pattern to overall labour supply. As noted in *Chapter 5.2.1*, large labour pools are associated with countries with large populations. Likewise, the five countries with the largest pools of graduate labour are Germany, the UK, France, Italy and Spain.

Chapter 5.3.1 also revealed that 'pull factors' are likely to be relatively weak for some of these countries, as in many cases average earnings are higher than those in Ireland. *Chapter 5.3.3* will demonstrate that these differentials are actually magnified in the case of graduates. That is, in the countries where average private sector earnings are greater than those in Ireland, the earnings differential is even greater for those with tertiary education and so 'pull factors' are likely to be even weaker for graduates living in these countries.

When countries are ranked by the size of their graduate labour stock Poland is the only new member states to rank in the top ten. Examining recent graduate flows rather than graduate stocks, however, reveals that Poland produces the highest number of graduates per annum, with approximately 466,000 graduates per year. By comparison, current outflows in Ireland are around 33,000 per year. Bearing this in mind, we see that other new member states with relatively significant outflows of graduates are Hungary (62,357), the Czech Republic (38,157), Slovakia (26,163), Lithuania (21,729), Latvia (15,738), Slovenia (6,966) and Estonia (5,773).

EEA EFTA Countries, Switzerland, Romania and Bulgaria

Table 5.18 shows the graduate stock across the EEA EFTA countries, Switzerland, Romania and Bulgaria.

Table 5.18 Graduate Labour Supply Across the EEA EFTA Countries, Switzerland, Romania and Bulgaria Average of 2002 and 2003

Countries	Graduate Stock: Labour Force with Tertiary Attainment		Recent Graduate Inflows: ISCED Level 5A and Level 6 Graduates	
	Number	Rank	Number	Rank
EU-23	**40,749,700**		**2,032,789**	
Switzerland	1,060,900	8	26,845	17
Norway	731,700	14	27,174	16
Iceland	n/a	n/a	2,053	27
Liechtenstein	n/a	n/a	61	30
Sub-Total	**1,792,600**		**56,133**	
Romania	995,700	n/a	100,340	7
Bulgaria	785,000	12	44,779	11
Ireland	*535,100*	*15*	*33,179*	*15*

Source: Eurostat, Online Database

The EEA countries and Switzerland add another 1.79 million graduates to the European stock. These countries also produce an average of over 55,000 graduates annually. Romania has almost 1million graduates in its labour force, while Bulgaria has almost 800,000. Taken together Romania and Bulgaria produce over 140,000 graduates a year.

5.3.2 Graduate Labour Ability

EU Countries

A key measure of the ability of the graduate labour supply is not just the total number of graduates but also the number of graduates with primary and master degrees and the number with PhD qualifications. In order to gauge the quantity of primary and masters degree level outflows, recent graduate outflows are analysed using the average number of graduates in 2002 and 2003 at ISECD level 5a. A similar exercise is performed at ISECD level 6 to estimate typical outflows of graduates with PhD level qualifications. Caution should be exercised when interpreting these data as there are differences in the education systems across EU countries and while ISCED is an attempt to ensure comparability across awards, there remain issues around the classification of certain courses.

Table 5.19 shows the level of graduate outflows in each of the EU-24 countries averaged over the two most recent years for which data is available.

Table 5.19 Recent Graduates at ISCED Level 5A, 5B and Level 6 Across the EU-24 Countries Average of 2002 and 2003

Countries	Primary and Masters Degree Level (ISECD Level 5a)	PhD Level (ISECD Level 6)
EU-24	**2,090,318**	**79,419**
Austria	17,538	2,161
Belgium	34,916	1,423
Cyprus	639	2
Czech Republic	36,720	1,437
Denmark	17,637	430
Estonia	5,566	207
Finland	17,868	647
France	201,963	4,210
Germany	179,674	23,441
Greece	12,713	577
Hungary	61,332	1,025
Ireland	*32,585*	*594*
Italy	118,484	2,228
Latvia	15,680	58
Lithuania	21,410	320
Luxembourg	n/a	n/a
Malta	1,822	8
Netherlands	83,827	2,570
Poland	458,867	7,650
Portugal	61,411	3,357
Slovakia	24,733	1,430
Slovenia	6,623	343
Spain	210,676	7,192
Sweden	39,759	3,538
UK	429,702	14,584

Source: Eurostat, Online Database

The table shows that across the countries for which data is available an estimated 2.09 million (96%) of the graduate outflows attained primary and masters and 0.079 million (4%) attained PhDs.

The top five countries in terms of graduate outflows at primary and master degree level are Poland (458,867), the United Kingdom (429,702), Spain (210,676), France (201,963), and Germany (179,674). In terms of graduates with PhD qualifications,

these countries are also the top five producers of graduates, albeit with some changes in relative rankings. For instance, the five countries with the highest outflow of PhD qualifications in descending order are Germany (23,441), the UK (14,584), Poland (7,650), Spain (7,192), and France (4,210).

Ireland produces less than 600 graduates with PhD qualifications and it is noteworthy that a number of the new member states top this figure. For example, in addition to Poland with an outflow of 7,650, the Czech Republic and Slovakia each have an output of around 1,400 and Hungary produces a little over 1,000 per annum.

As with other potential migrants, it is important that high skilled and highly qualified migrants possess sufficient English language skills to work and integrate into the Irish economy and society. Comparable information on the level of English proficiency across European graduates is not available but the average scores in the TOEFL (Test of English as a Foreign Language) exam offer a reasonable proxy. This exam is generally required by Universities in English speaking countries as proof that an applicant to a course will be able to communicate and converse in English. *Table 5.20* below shows the average score of nationals of EU countries in the TOEFL score in 2003/2004.

Table 5.20 Average CBT TOEFL Scores Obtained by Nationals of EU Member States in 2003/2004

Countries	Mean Score	Countries	Mean Score	Countries	Mean Score
Denmark	263	Germany	253	Latvia	234
Luxembourg	262	Sweden	247	Greece	232
Netherlands	260	Estonia	238	Lithuania	229
Belgium	256	Slovakia	238	Poland	229
Finland	255	Spain	236	Cyprus	222
Austria	255	France	236	Italy	217
Portugal	255	Czech Rep.	236	*Ireland*	*n/a*
Slovenia	253	Hungary	235	UK	n/a

Source: TOEFL Test and Summary Score Data, 2003/2004

Denmark leads the way in average TOEFL scores at 263, closely followed by Luxembourg at 262. As would be expected the Northern European and Nordic countries score highly in English proficiency. It is also notable that are differences in the performance of the new member states. Slovenia, Estonia, Slovakia and Hungary perform better than Lithuania and Poland.

EEA EFTA Countries, Switzerland, Romania and Bulgaria

Table 5.21 provides information on recent graduates in the EEA EFTA countries, Switzerland, Romania and Bulgaria.

Table 5.21 Recent Graduates at ISCED Level 5A, 5B and Level 6 Across the EEA EFTA Countries and Switzerland Average of 2002 and 2003

Countries	Primary and Masters Degree Level (ISECD Level 5a)	PhD Level (ISECD Level 6)
EU-24	**2,090,318**	**79,419**
Norway	26,447	727
Switzerland	24,094	2,771
Iceland	2,048	6
Liechtenstein	61	n/a
Sub-total	**52,650**	**3,504 (minus Liechtenstein)**
Romania	89,420	10,921
Bulgaria	44,387	393
Ireland	*32,585*	*594*

Source: Eurostat, Online Database

Overall, the split between level 5a and level 6 qualifications is roughly the same as in the rest of Europe with 94 per cent of the awards being at primary and masters level and 6 per cent being at the PhD level. In terms of graduates at primary and masters degree level, Norway leads the EEA EFTA countries with an average of 26,000 graduates per annum in 2002 and 2003. In relation to PhD's, Switzerland has almost four times the number of PhD's awarded than Norway which suggests that a larger proportion of Swiss graduates continue their education past the primary degree stage. Romania produces large numbers of graduates with almost 90,000 at primary and master degree level and almost another 11,000 at doctorate.

Table 5.22 shows TOEFL scores for these countries. The scores for Romania and Bulgaria would rank them in the middle of the EU-24 and above every other Eastern country except Slovenia.

Table 5.22 Average CBT TOEFL Scores Obtained by Nationals of EEA EFTA Countries, Switzerland, Romania and Bulgaria in 2003/2004

Countries	Mean TOEFL Score
Iceland	256
Norway	255
Switzerland	251
Romania	249
Bulgaria	242
Liechtenstein	n/a

Source: TOEFL Test and Summary Score Data, 2003/2004

5.3.3 Labour Mobility

EU Countries

Data on the migration flows of highly skilled labour is limited. Nevertheless, information is available from the OECD on the number of people with tertiary education born in each of the EU-24 countries and now living abroad, i.e. the number of highly skilled expatriates for each country. Expressing the absolute number of highly skilled expatriates from each country as a percentage of the number of people with tertiary education currently in the labour force in each country gives an indication of the tradition for skilled labour to migrate from each country.

Comparing these percentages across the EU-24 countries, the data indicates that six countries have a high propensity to migrate[72]. Indeed, for these six countries the

72 This excludes Ireland, which tops the list with the greatest number of expat graduates.

percentage of highly skilled expatriates is 15 per cent or more of the current high skilled labour force in each country. These countries are Malta, Cyprus, Luxembourg, Slovakia, Austria and the UK.

Examining average earnings data, expressed in PPP, for people with tertiary education employed in the non-agricultural private sector shows that Ireland drops down the league table in terms of attractiveness to potential migrants: Ireland drops from having the 9th highest average earnings for all those in employment regardless of educational attainment to having only the 14th highest average earnings when we focus on those with tertiary education. The implication of this is that Ireland's 'pull factor' for graduate labour supply is considerably less than its 'pull factor' for non-graduate labour supply.

As *Table 5.23* shows there are ten countries where average earnings for workers with tertiary education are at least 20 per cent more that those in Ireland, there are seven countries with similar levels of earnings as Ireland (i.e. within 10 per cent), and there are now only seven countries for which average earnings in Ireland are greater. These seven countries are Hungary (77%), the Czech Republic (75%), Slovakia (69%), Poland (67%), Estonia (43%), Lithuania (35%), and Latvia (34%).

Table 5.23 Average Industrial and Services Earning (excluding the Public Administration) Across the EU-25 Countries for Those with Tertiary Education in 2002

Countries	Average Earning (PPP) for those with Tertiary Education	Average Earning (PPP) for those with Tertiary Education Relative to Ireland	Rank	Position Relative to Ireland (Higher, Similar, Lower)
Germany	59,461	179%	1	Higher
Luxembourg	57,199	172%	2	Higher
Austria	54,393	164%	3	Higher
Netherlands	49,420	149%	4	Higher
UK	47,862	144%	5	Higher
Belgium	45,015	136%	6	Higher
Italy	43,991	133%	7	Higher
France	42,617	128%	8	Higher
Denmark	42,278	127%	9	Higher
Portugal	41,062	124%	10	Higher
Spain	35,193	106%	11	Similar
Sweden	34,832	105%	12	Similar
Greece	34,612	104%	13	Similar
Ireland	*33,200*	*100%*	*14*	*Similar*
Slovenia	33,128	100%	15	Similar
Cyprus	32,576	98%	16	Similar
Finland	31,527	95%	17	Similar
Hungary	25,684	77%	18	Lower
Czech Republic	24,920	75%	19	Lower
Slovakia	23,042	69%	20	Lower
Poland	22,240	67%	21	Lower
Estonia	14,129	43%	22	Lower
Lithuania	11,586	35%	23	Lower
Latvia	11,139	34%	24	Lower
Malta	n/a	n/a	n/a	n/a

Source: Eurostat, Structure of Earnings Survey 2002

Crucially, an examination of graduate labour supply and average graduate earnings reveals that the pool of migrant workers who are likely to be attracted to migrate to Ireland is significantly reduced. In fact, just 6 million (16.8%) EU graduates, actually graduate in countries where the average wage is significantly lower than the average Irish wage. Furthermore, the differential between graduate wages in these countries and Ireland is much narrower than the differential for average wages across the whole economy. This effect is particularly noteworthy for Hungary, the Czech Republic, Slovakia and Poland.

EEA EFTA Countries, Switzerland, Romania and Bulgaria

Data on the migration flows of highly skilled labour is more limited for these countries than for the EU-24 countries. Nevertheless, information is available on the number of people with tertiary education born in each of these countries and now living abroad for some of the countries from the OECD (i.e. the number of highly skilled expatriates for each country). The data suggests that there is a strong tradition of skilled migration from Romania (where highly skilled expatriates account for 16 per cent of the current high skilled labour force). In Bulgaria, high skill expatriates account for 10 per cent. The figures are extremely low in Iceland and Norway, at less than 5 per cent. Data is not available for Switzerland or Liechtenstein for this measure.

Looking next at earnings data, *Table 5.24* examines average earnings data, expressed in PPP, for people with tertiary education employed in the non-agricultural private sector. Data is not available for Switzerland or Liechtenstein.

Table 5.24 Average Industrial and Services Earning (excluding the Public Administration) Across EEA EFTA Countries, Romania and Bulgaria for Those with Tertiary Education in 2002

Countries	Ave Earning (PPP) for those with Tertiary Education	Ave Earning (PPP) for those with Tertiary Education Relative to Ireland	EU 25 + EEA, Bg, Ro Ranking	Position Relative to Ireland (Higher, Similar, Lower)
Norway	39,370	119%	11	Higher
Romania	11,966	36%	24	Lower
Bulgaria	7,265	22%	27	Lower
Ireland	*33,200*	*100%*	*15*	*Similar*

Source: Eurostat, Structure of Earnings Survey 2002

The table shows that average earnings in real terms are notably higher in Norway than in Ireland. However, average earnings in real terms are much lower in Romania and Bulgaria, suggesting a substantial financial incentive for graduates from these countries to work in Ireland.

5.3.4 Conclusions on Overall Availability of Graduate Labour Supply

Sections 5.3.1 to *5.3.3* consider the availability of potential skilled labour supply across the EU-24 countries, as well as the other members of the EEA EFTA, Switzerland, Bulgaria and Romania. The overall conclusion of the foregoing analysis is that it is unlikely that Ireland's demand for skilled graduate labour would be adequately addressed entirely by the skilled labour supply from within the countries of the EU over the period to 2010. This conclusion is based on the following key findings:

- It is estimated that Ireland requires significant in-migration of graduates over the 2005-2010 period;
- For certain qualifications, notably PhD's, the desired level of graduate inflows will exceed the level of inflows achieved over the last few years;
- Ireland has only the 14th highest graduate earnings in real terms across the EU countries. Therefore, for graduates living in most EU countries the financial

incentive to move to Ireland is limited. Indeed, there are only eight countries where there are significant financial incentives for graduates to move to Ireland, i.e. where average graduate earnings in real terms are less than 80 per cent of those in Ireland;

Given the above, it seems highly appropriate to develop a migration framework to facilitate the in-migration of high skilled labour from countries outside the EU. Despite this conclusion, it is important to bear in mind the EU-24 countries still offer considerable potential in terms of the availability of potential labour supply. In particular the increase in potential labour supply is very timely for Ireland as it occurs when our demand for graduate labour is at it highest. *Table 5.25* below provides an assessment of the potential offered by countries across the EU to meet Irish graduate demand. The table is based on graduate labour force stock, average graduate earnings in real terms relative to Ireland and the number of PPS numbers issued to people from each country in 2004.

Table 5.25 Summary Rank of Countries by Potential Graduate Labour Supply Across the EU-24 Countries

Countries	Combined Rank Score	Graduate Labour Force	Ave Graduate Earnings (PPP) relative to Ireland	Number of PPS Numbers Issues in 2004
Poland	21.8	2,681,100	67%	27,295
Lithuania	19.6	415,600	35%	12,817
Latvia	19.2	214,600	34%	6,266
Slovakia	17.4	324,800	69%	5,187
Czech Republic	16.4	648,800	75%	3,298
UK	16.2	8,526,900	144%	13,909
Spain	16.2	5,486,300	106%	4,456
France	15.6	n.a.	128%	4,678
Hungary	15.2	755,700	77%	1,839
Estonia	15	205,100	43%	1,788
Sweden	13.2	1,209,800	105%	943
Italy	13.2	3,069,800	133%	2,927
Finland	12.2	847,900	95%	346
Germany	12	9,404,800	179%	3,147
Greece	10.2	894,800	104%	158
Netherlands	10	2,058,500	149%	924
Portugal	9.8	617,600	124%	680
Belgium	9.4	1,501,300	136%	383
Denmark	9.2	875,100	127%	267
Slovenia	8	181,300	100%	64
Austria	7.8	666,200	164%	851
Cyprus	7.8	110,300	98%	27
Malta	2.6	20,500	n.a.	205
Luxembourg	2	32,900	172%	12

Countries are ranked in accordance with their potential labour supply for Ireland. Therefore, countries are ranked in descending order in relation to size of the labour force, i.e. the country with the largest labour force gets a rank score of 24. While, countries are ranked in ascending order in terms of average earnings, i.e. the country with the lowest earnings relative to Ireland gets a rank score of 24. In addition, countries are ranked in descending order of the number of PPS numbers issued. A weight of 0.2 is applied to the graduate labour stock score, a weight of 0.4 for relative earnings and 0.4 for number of PPS numbers issued. The overall score is the sum of these three scores.

5.4 Sector Specific Skills

5.4.1 Computing, Engineering and Science

Overview

Chapter Four discussed the likely supply gaps facing Ireland in computing, engineering and science over the 2005-2010 period. Looking at the skills gap analysis, there is likely to be a shortfall in domestic supply of up to 5,700 suitably qualified computing graduates, and a shortfall of over 5,000 science graduates. The outlook is more mixed for engineering, domestic supply of engineers at degree level is likely to be sufficient to meet demand but a shortfall is predicted in several categories of engineering, notably electronic, software and chemical engineering.

The exact number of people working in these areas is not available across the EU-24 countries. Nevertheless, a good estimate of the size of the stock of workers in these sectors is given by number of workers in Eurostat's occupational category 'Scientists and Engineers' which includes people working in physical, mathematical and engineering occupations or life sciences and health occupations.

EU Countries

Table 5.26 presents available data on the potential skilled labour available to meet Ireland's needs in the computing, engineering and science sectors.

Table 5.26 Key Labour Supply Variables for the Computing, Engineering and Science Across the EU-25 Countries

Countries	Number of SE HRST	Science Graduates	Engineering Graduates	Computing, Maths and Stats	Earnings
EU-25 Total	**419,776**	**133,761**	**163,118**	**95,093**	
Austria	n/a	1,267	1,997	695	164%
Belgium	22,363	2,739	2,646	1,330	136%
Cyprus	861	40	n/a	76	98%
Czech Republic	12,201	1,637	3,489	2,246	75%
Denmark	7,029	855	1,032	363	127%
Estonia	n/a	275	320	249	43%
Finland	8,814	578	3,285	836	95%
France	38,578	21,873	22,747	11,349	128%
Germany	85,716	16,403	18,341	10,817	179%
Greece	3,302	n.a.	n.a	n.a.	104%
Hungary	9,678	922	3,282	853	77%
Ireland	*12,816*	2,639	1,497	3,204	*100%*
Italy	17,159	5,691	12,838	3,662	133%
Latvia	n.a.	453	735	753	34%
Lithuania	5,998	569	2,433	832	35%
Luxembourg	n.a.	n.a.	n.a.	n.a.	172%
Malta	n.a.	29	72	47	n.a.
Netherlands	n.a.	2,601	5,621	1,846	149%
Poland	23,179	8,721	22,860	8,323	67%
Portugal	8,449	1,953	4,683	1,739	124%
Slovakia	2,528	1,364	2,849	1,235	69%
Slovenia	n.a.	279	466	160	100%
Spain	34,654	11,861	20,379	9,857	106%
Sweden	8,462	2,114	7,642	1,882	105%
UK	117,989	48,905	23,907	32,746	144%

Source: Eurostat

The table illustrates that for the 17 countries for which data is available, there is an estimated stock of workers of 0.385 million. Given that data is missing for seven countries, however, the actual stock is likely to be closer to somewhere between 0.4 million and 0.45 million. This suggests that Ireland's supply gap in science and computing is equivalent to around 3-4 per cent of the stock of workers across the EU-24.

The top five countries in terms of the stock of scientists and engineers are the UK (117,989), Germany (85,716), France (38,578), Spain (34,654) and Poland (23,179). It is notable, however, that average earnings in these countries for workers with tertiary education are higher than those in Ireland with the single exception of Poland. This limits Ireland's 'pull factor' for potential migrants from these countries. Looking at countries where relative earnings are lower than in Ireland, and hence the financial 'pull factor' is greater, the countries with the largest stock are Poland (23,179), the Czech Republic (12,201), Hungary (9,678), Lithuania (5,998) and Slovakia (2,528).

More detailed data is available on recent graduate outflows in disciplines relevant to each of the above sectors. For instance, the third column in *Table 5.27* shows recent graduate outflows in science averaged for 2002 and 2003. It shows there were an estimated 133,761 graduates, almost 116,760 at non-PhD level and 17,001 at PhD level.

The top five countries in terms of science graduate outflows are the UK, Germany, France, Spain and Poland. Of the countries where average earnings are below Ireland, outflows are around 14,000, as follows Poland (8,721), the Czech Republic (1,637), Slovakia (1,364), Hungary (922), Lithuania (569), Latvia (453) and Estonia (275).

The fourth column in *Table 5.27* shows the outflow of engineering graduates stands at around 163,118, with 156,838 non-PhD graduates and 6,280 graduates with PhD qualifications. The top five countries in terms of outflows are the UK (23,907), Poland (22,860), France (22,747), Spain (20,379) and Germany (18,341). Of the key countries where average earnings are below Ireland, outflows are around 33,000 as follows: the Czech Republic (3,489), Poland (22,860), Hungary (3,282), Lithuania (2,433), Latvia (735) and Estonia (320).

Finally, the fifth column in *Table 5.27* shows that the number of graduates in Computing, Mathematics and Statistics (average over 2002 and 2003) stands at nearly 95,093. Of these 91,663 are at non-PhD graduate level and 3,430 are at PhD level. This suggests that the numbers of immigrants with computing qualifications required up to 2010 is equivalent to 10 per cent of the total graduate outflows in Computing, Mathematics and Statistics.

The top five countries in terms of outflows are the UK (32,746), France (11,349), Germany (10,817), Spain (9,857) and Poland (8,323). Of the countries where average earnings are below Ireland, outflows are around 14,500. These countries are Poland (8,323), the Czech Republic (2,246), Slovakia (1,235), Hungary (853), Lithuania (832), Latvia (753) and Estonia (249).

EEA EFTA Countries, Switzerland, Romania and Bulgaria

Table 5.27 presents available data on skilled labour potentially relevant to Ireland's needs in the Computing, Engineering and Science sectors in the EEA countries, Switzerland, Romania and Bulgaria.

Table 5.27 Key Labour Supply Variables for the Computing, Engineering and Science Across the EEA EFTA Countries Switzerland, Romania and Bulgaria

Countries	Number of SE HRST	Science Graduates	Engineering Graduates	Computing, Maths & Stats	Earnings
EU Total	**419,776**	**133,761**	**163,118**	**95,093**	
Switzerland	23,003	1,956	2,524	1,728	n/a
Norway	n/a	579	1,441	1,581	119%
Iceland	n/a	117	83	128	n/a
Romania	n/a	3,813	12,806	1,946	36%
Bulgaria	n/a	1,335	6,683	1,122	22%
Ireland	*12,816*	2,639	1,497	3,204	*100%*

Source: Eurostat, 2004

Figures are not available for the EEA countries or the Eastern European countries for the Eurostat occupational category 'Scientists and Engineers'. Switzerland is the only country with data on science and engineer numbers but it has a higher average wage than Ireland which would dampen the 'pull' factor for Ireland as a destination. Romania especially, is likely to also have substantial numbers of scientists and engineers and its' low wages relative to Ireland, would make Ireland an attractive destination for Romanians. More detailed data is available on recent graduate outflows in disciplines relevant to each of the above sectors.
For instance, the third column in *Table 5.28* shows recent graduate outflows in science averaged for 2002 and 2003. Amongst the EEA countries and Switzerland, it shows there were an estimated 2,652 graduates, almost 1,985 at non-PhD level and 667 at PhD level. The fourth column shows that the outflow of engineering graduates in the EEA and Switzerland stands at 4,047, with 3,782 non-PhD graduates and 265 graduates with PhD qualifications.

Finally, the fifth column shows that the number of graduates in Computing, Mathematics and Statistics stands at approximately 3,437 in the EEA and Switzerland. Of these 123 are at PhD level. In Romania and Bulgaria there were 5,148 graduates including 540 science doctorates. In the Eastern European countries there were 1,115 engineering PhD's among 19,489 graduates annually. There were 3,067 Computing, Mathematics and Statistics graduates annually in Romania and Bulgaria.

5.4.2 Financial Services

EU Countries

Table 5.28 below shows the stock of employment in the financial intermediaries sector for the countries for which data is available.

Table 5.28 Key Labour Supply Variables for the Financial Services Sector Across the EU-25 Countries

Countries	Employment	Grad. Outflows	Outflows at PhD Level	Average Earnings € in Financial Intermediaries
EU-22	**4,201,000**	**964,979**	**21,765**	**n.a.**
Austria	143,000	9,683	1,062	65,504
Belgium	153,000	18,112	354	48,537
Cyprus	16,000	317	1	33,936
Czech Republic	95,000	13,487	383	27,105
Germany	n.a.	86,443	5,584	65,064
Denmark	80,000	7,198	85	46,627
Estonia	9,000	3,056	31	25,864
Spain	418,000	91,902	2,458	44,969
Finland	47,000	6,594	274	33,458
France	671,000	115,202	1,486	54,021
Greece	114,000	n.a.	n.a.	36,815
Hungary	82,000	30,650	432	35,818
Ireland	*86,000*	*15,409*	*145*	*36,611*
Italy	632,000	56,628	625	52,798
Lithuania	15,000	9,050	138	19,190
Luxembourg	19,000	n.a.	n.a.	64,714
Latvia	20,000	9,106	20	21,484
Malta	4,000	1,087	7	n.a.
Netherlands	n.a.	30,650	653	59,951
Poland	271,000	218,432	1,666	24,761
Portugal	97,000	23,874	1,356	40,106
Sweden	83,000	11,472	669	44,196
Slovenia	19,000	3,720	92	41,167
Slovakia	45,000	10,099	508	31,203
UK	1,168,000	208,223	3,886	64,655

Source: Eurostat

The table shows that an estimated 4.2 million people are employed in the financial sector. Data is not available for Germany and the Netherlands, which suggests that the true figure is likely to be between 4.6 million and 6.3 million.

The countries with the largest stock of employment in financial services are Germany, the UK (1.168mn), France (0.671mn), Italy (0.632mn) and Spain (0.418mn). The high share of total employment in the financial services sector is also notable in Luxembourg, which is more than double the share in other countries, reflecting the country's strong tradition is financial services.

The education qualifications most relevant to a career in the financial services sector typically are 'Humanities and Arts' and 'Social Science, Business and Law'. *Table 5.29* shows that graduate outflows over the last two most recent years averaged around one million. Outflows from these disciplines exceeded 200,000 in two cases, notably Poland (218,432) and the UK (208,223). In addition, four countries also have typical outflows of more than 55,000, namely France (115,202), Spain (91,902), Germany (86,443) and Italy (56,628).

There were more than 21,000 PhD awards in the disciplines of 'Humanities and Arts' and 'Social Science, Business and Law'. More that half of these come from three countries – Germany (5,584), the United Kingdom (3,886) and Spain (2,458). Another

four countries also have outflows of more than 1,000. These are Poland (1,666), France (1,486), Portugal (1,356), and Austria (1,062).

The fifth column in *Table 5.28* shows average earnings for workers in the financial intermediaries sector. It shows that workers in the financial sector in Ireland have only the 15th highest earnings in real terms across the EU-25 countries. This means that Ireland's 'pull factor' for those employed in financial intermediates is less than its pull factor for non-graduate labour supply and indeed for overall graduate labour supply. For example, average earnings of those working in the financial intermediaries sector in Slovenia are 112 per cent of average earnings in the sector in Ireland, and average earnings of those in Hungary are very similar to those in Ireland, standing at 98 per cent. Additionally, earnings of workers in this sector in a number of the other new member states where Ireland offers a considerable pull factor for non-skilled labour are actually 70 per cent or more of the average in Ireland. These countries include Slovakia (85%), the Czech Republic (74%), Estonia (71%), and Poland (68%).

EEA EFTA Countries, Switzerland, Romania and Bulgaria

Table 5.29 shows the stock of employment in the financial intermediaries sector for the EEA countries for which data is available (data is not available for Liechtenstein) and for Bulgaria and Romania.

Table 5.29 Key Labour Supply Variables for the Financial Services Sector Across the EEA EFTA Countries, Switzerland, Romania and Bulgaria

Countries	Stock of Employment	Relevant Recent Graduate Outflows	Relevant Recent Graduate Outflows at PhD Level	Average Earnings in PPP € in Financial Intermediaries
EU-22	**4,201,000**	**964,979**	**21,765**	**n/a**
Switzerland	n/a	12,499	625	n/a
Norway	49,000	7,819	190	42,516
Iceland	7,000	944	2	n/a
Sub-Total	**n/a**	**21,262**	**817**	**n/a**
Romania	87,000	56,769	2,669	21,423
Bulgaria	32,000	24,420	145	12,097
Ireland	*86,000*	*15,409*	*145*	*36,611*

Source: Eurostat

While there are no details available for the numbers in employment in financial services in Switzerland, it is reasonable to assume that due to the country's tradition in the sector they eclipse those of Norway. In addition, Switzerland also produced an average of almost 12,500 graduates in disciplines most relevant to a career in financial services such as arts, business and law. Switzerland awarded over 600 doctorates annually in relevant disciplines.

Again, no data exist for the average earnings of those working in financial intermediation in Switzerland but it is to be expected that it would be amongst the highest in Europe and considerably higher that that in Ireland. Norwegian financial professionals earn 16 per cent more than their Irish counterparts – the 12th highest in Europe.

Due to their large population, Romania has over 50,000 graduates annually, while Bulgaria has almost 25,000 – approximately three times larger than the number of Norwegian graduates. As reflected in the cumulative figures, Romania awarded a large number of PhD's (2,669) annually, compared to the 145 awarded Ireland. As may have been expected, average earnings in real terms for Bulgarians and Romanians are amongst the lowest in Europe.

5.4.3 Research and Development

Overview

Section 4.1.5 highlighted a potential shortfall of 609 PhD and 2947 non-PhD researchers if Ireland is to reach target levels of R&D expenditure.

Given the specific nature of the likely skills gaps in Ireland in research and development, it is very difficult to find data across the EU-24 and other relevant countries that is detailed enough to hone in on likely supply sources. A key issue therefore is which countries are likely to offer the greatest potential labour supply for addressing gaps based on overall research and development activity and potential supply in these countries.

EU Countries

Table 5.30 summarises a number of variables relevant to research and development. In particular, the table examines the overall number of researchers, recent graduate outflows at PhD level, expenditure as a percentage of GDP, and recent trends in expenditure on research and development for each of the EU countries where data is available.

The second column in *Table 5.30* shows the number of researchers in each country, defined as professionals engaged in the conception or creation of new knowledge, products, processes, methods or systems and in the management of such projects. Data is only available for 13 of the relevant 24 EU countries putting the total stock at 0.665 million. Of course, in practice the figure is likely to be much higher than this, given the absence of data for so many countries. In fact rough estimates would suggest the figure is more likely to lie at somewhere between 1.2 million and 1.6 million. This suggests that Ireland's likely supply gap is equivalent to 0.4-0.6 per cent of the total stock of researchers in the EU-24 countries.

Data on expenditure on research and development as a percentage of GDP indicates that Sweden (4.3%) and Finland (3.5%) have the largest expenditure. It also shows that there are five other countries where expenditure exceeds 2 per cent of GDP. These are Denmark, Germany, Belgium, Austria and France. These countries also offer potential sources of research and development labour supply, although it is notable that average earnings of workers with tertiary education is higher in each of these countries than in Ireland.

Table 5.30 Key Labour Variables for the Research and Development Across the EU-25 Countries

Countries	Stock of Researchers in 2002	Recent Graduate Outflows at PhD Level Aver of 2002 and 2003	Expenditure on R&D as a % of GDP in 2003[1]	% Change in R&D Expenditure 1998-2003
Austria	n.a.	2,161	2.19	6
Belgium	n.a.	1,423	2.33	6.2
Cyprus	1,014	2	0.33	11.6
Czech Republic	30,635	1,437	1.35	6.4
Germany	n.a.	23,441	2.5	2.7
Denmark	37,883	430	2.6	6.6
Estonia	5,089	207	0.77	11.6
Spain	150,098	7,192	1.11	7.6
Finland	50,215	647	3.51	6.9
France	231,816	4,210	2.19	2.4
Greece	n.a.	577	0.64	1.7
Hungary	29,764	1,025	0.97	11
Ireland	*n.a.*	*594*	*1.12*	*4.8*
Italy	n.a.	2,228	1.16	3.8
Lithuania	9,517	320	0.68	9.4
Luxembourg	n.a.	n.a.	n.a.	n.a.
Latvia	6,101	58	0.39	4.9
Malta	n.a.	8	n.a.	n.a.
Netherlands	n.a.	2,570	1.89	1.9
Poland	90,842	7,650	0.59	-1.1
Portugal	n.a.	3,357	0.79	2.3
Sweden	n.a.	3,538	4.27	9.1
Slovenia	7,027	343	1.53	5.8
Slovakia	15,385	1,430	0.57	-2.7
UK	n.a.	14,584	1.87	3.5

1 All R&D Expenditure data is for 2003, with the exception of the UK, which is for 2002 and with the exception of Greece, Netherlands, and Sweden which is 2001.

Source: Eurostat, Online Database

EEA EFTA Countries, Switzerland, Romania and Bulgaria

As with the EU Member States, accurate data on researchers is difficult to find. The available data is shown in *Table 5.31* below.

Table 5.31 Key Labour Variables for the Research and Development Across the EEA EFTA Countries, Switzerland, Romania and Bulgaria

Countries	Stock of Researchers in 2002	Recent Graduate Outflows at PhD Level Aver of 2002 and 2003	Expenditure on R&D as a % of GDP in 2003[1]	% Change in R&D Expenditure 1998-2003[2]
Norway	34,554	727	1.89	2.9
Iceland	3,243	6	3.09	14.5
Switzerland	n/a	n/a	2.5	n/a
Romania	24,636	10,921	0.4	3.6
Bulgaria	10,445	393	0.5	1.6
Ireland	*n.a.*	*594*	*1.12*	*4.8*

1 All R&D Expenditure data is for 2003, with the exception of Iceland which is for 2002 and Switzerland which is 2001.
2 % Change in R&D Expenditure for Iceland is for the period 1998-2002

Source: Eurostat, Online Database

In relation to the EEA, data in relation to the stock of researchers is only available for Norway and Iceland, although according to the Swiss Statistics Bureau, Switzerland had 12 R&D personnel per 1,000 jobs in the country in 2001. This was higher than the EU15 average of 10 R&D personnel per 1,000 jobs. It should be noted, however, that the number of R&D personnel exceeds the stock of researchers as it includes administrative staff. In terms of researchers per thousand jobs, however, Switzerland ranks somewhat lower.

Examining data on research and development expenditure as a percentage of GDP, Iceland leads the way with expenditure of over 3 per cent of GDP.

All of these countries offer potential sources of research and development labour supply, although it is notable that average earnings of workers with tertiary education is higher in Norway and Switzerland than in Ireland.

Bulgaria and Romania have a combined stock of researchers of 35,081. Consequently, Ireland's supply gap is equivalent to approximately 9.5 per cent of the total number of researchers in Bulgaria and Romania. Both countries have low spend in this area although Romania in particular is attempting to address this situation. The higher wages available in Ireland could be a 'pull' factor for R&D experts from these countries.

5.4.4 Conclusions on the Availability of Labour Supply for Specific Sectors

This Section considers whether Ireland's demand for skilled labour required by a number of high skilled sectors can be entirely meet by the skilled labour supply from the countries of the EU over the period to 2010.

It is unlikely that the demand for skilled labour from these key sectors could be addressed in its entirety from within the EU countries over the period to 2010. This is because the level of in-migration of labour of the required quality seems unlikely to be attainable due to:

- Ireland's skill gap is high relative to the stock of relevant workers and typical outflow of relevant graduates across the EU countries;
- For most of the EU countries, with the notable exception of the new member states, the financial incentive from a move to Ireland is very limited;
- The very high levels of English speaking and writing ability required;
- The specialised nature of most of the jobs where skills gaps are predicted.
- The highly competitive nature European labour market and the fact that all of the desired skills are sought after by most developed economies.

It therefore seems highly appropriate to develop an economic migration policy to facilitate the immigration of labour with the appropriate skills from countries outside the EU.

5.5 Profile of Other Relevant Countries

5.5.1 Introduction

In selecting the countries to be profiled, a number of factors were considered:

- The need to cover countries which represent a significant share of the English speaking population outside the EU, e.g. America, Canada, and Australia;
- The need to cover countries with significant population centres where English is increasingly used as a business language, e.g. China and Russia;
- The need to cover countries with a strong tradition of out migration of skilled labour in areas where Ireland faces skill gaps, e.g. India;
- The need to ensure that within the countries selected there are at least two countries with considerable sectoral expertise across the key sectors discussed in Chapter 4 of this report, hence the inclusion of Israel.

The countries chosen for analysis were agreed in consultation with the EGFSN, the IDA and based on a review of readily available information and literature. *Section 5.5.2* profiles the overall labour supply and graduate labour supply across these countries. *Section 5.5.3* gives a profile of each of the sectors, discussed in *Chapter 4* of this report, for a selection of these countries. *Table 5.32* illustrates the countries profiled.

Table 5.32 Non-EU Countries Profiled

Overall supply	America, Canada, and Australia, China and Russia, India and Israel	
Grad. supply	America, Canada, and Australia, China and Russia, India and Israel	
Key sectors:		
Science	America	Australia
Engineering	Israel	China
R&D	America	Russia
ICT/Computing	India	China
Fin. services	Canada	America

5.5.2 Overall Labour and Graduate Labour Supply

This section examines the overall supply of labour and the graduate labour supply in selected Non-EU countries that have the potential to supply high-skilled labour to Ireland as outlined in the previous section. *Table 5.33* below examines the size of the labour force, the numbers in the labour force with a tertiary education, the unemployment rate and the GDP per capita, adjusted for currency differentials in US$.

Table 5.33 Economic Indicators for Selected Non-EU Countries

Countries	Size of Labour Force (2003)	Nos. in Labour Force with Tertiary Education (Various)	Unemployment Rate (2004)	GDP Per Capita (PPP) US$ (2002/2003)
America	124mn	40mn (2003 est.)	5.5%	34,740
Canada	17.4mn	8.8mn (2002 est.)	7.2%	28,570
Australia	10.4mn	2.02mn (2003)	5.5%	27,540
Israel	2.6mn	0.71mn (2003)	10.7%	20,000
India	482mn	n/a	9.2% (est.)	2,560
China	760mn	n/a	20.0% (est.)	4,240
Russia	72mn	19mn (2003 est.)	8.3%	7,720

Source: ILO Laborsta Online Database, OECD Online Database, UNESCO Online Database, CIA Worldbook

Since China has the largest population in the world it is not surprising that it also has the largest labour force. Many of these potential workers would be skilled in agriculture but it is reasonable to assume that there are several hundred million who are educated to tertiary level. India also has an extremely large labour force at over half a billion people although no figures are available for those with third level educations. India's history as a former British colony increases its attractiveness as a pool of labour as English is already established as a major language among many of the population.

China has the largest unemployment rate of the countries studied at over 20 per cent. This is an unofficial estimate and there is a likely to be a substantial element of under-employment which has not been accounted for in these figures. Israel has an unemployment rate of over 10 per cent and is relatively high due to security concerns and weak domestic consumer demand. This suggests that there may be scope for Israelis to migrate to Ireland in search of employment prospects. Russia and India have unemployment rates of 8 per cent and 9 per cent respectively while the figure in Canada is over 7 per cent. America and Australia have the lowest rates at 5.5 per cent. All of these rates are above the Irish figure of 4.5 per cent. America has the highest GDP per capita (as measured by PPP) at almost $35,000 followed by Canada at $28,500, Australia at $27,500 and Israel at $20,000. There is a large differential between the developed and less-developed countries as China has a GDP per capita of $4,240 and India's comes in at $2,560.

Among countries for which data on levels of tertiary education among the labour force is available America has the largest absolute number at approximately 40 million in 2003 – over 30 per cent of the labour force. As another English speaking country it provides an obvious stream of large numbers of highly educated people. Canada and Australia share the same advantage albeit with smaller graduate numbers of 8.8 million and 2 million respectively. Russia has almost 20 million graduates working in the country from an entire labour force numbering over 70 million.

5.5.3 Sectoral Specific Profiles

(i) Biotechnology

America

There are an estimated 1,473 biotech companies in America as of March 2004. Market capitalisation of these companies was $311bn in March 2004. Revenues in 2003 amounted to $39.3bn. This is a considerable increase over recent years as in 1992 revenue was $8bn.

America biotech industry employed 198,300 people in December 2003. The top eight biotech companies spent an average of $104,000 per employee on R&D in 2003. Almost a third of these companies are located in California. The next largest hubs in America are Massachusetts followed by North Carolina and Maryland. A survey in

2003 for the US Department of Commerce found that 77 per cent of American Biotech firms were engaged in Human Health applications and within this sector 70 per cent focused on therapeutics. Diagnostic tests were the most commercially available product to come out of these companies.

Australia
There are approximately 370 biotech companies and 600 medical device companies in Australia. Compound annual growth in the number of biotechnology companies in Australia in the 2000-2004 period is 16 per cent.

The industry employs about 6,000 people in Australia. In 2003 the biotech and healthcare sectors were the leading sectors for attracting venture capital. Market capitalisation of the sector was $18.24bn in 2004.

(ii) Engineering
Israel
It is estimated that Israel has 135 professionals with engineering degrees per 10,000 of population. A number of factors are reported to have supported the development of the sector over recent years, these include the following:

- Adjustments to the education sector to strengthen science and engineering participation;
- The influx of Russian engineers in the early 1990's;
- The Office of the Chief Scientist was also created to play a major role in increasing the access to capital and incubators;
- A close relationship between the private sector and third level was built up with Technion, the Israel Institute of Technology, providing over 70 per cent of graduates into the private sector.

China
The number of engineering graduates in China is very high. In fact in 2002 China graduated 219,600, this is in comparison to less than 60,000 engineering graduates in America. This reflects the higher underlying student population but also the higher share of graduates in engineering studies, in 2002 they accounted for 39 per cent of all college graduates in comparison to less or 5 per cent in America. Allied to this it is estimated that there are 1.5m engineers in China who could theoretically form part of the engineering stock who could be persuaded to move countries. However, English language skills remain an issue although this is less of a problem for Chinese engineering graduates than for other sectors as a number of engineering courses are given through the medium of English.

(iii) Information Communications Technology
India
According to the Indian government, the country in 2002 had two per cent of the world market in software and IT services. Every year there are 500,000 new IT and engineering graduates in India and the country's five Institutes of Technology take just 1,000 on their elite courses from 1 million applicants.

Indian firms account for 17 per cent of the worlds software services – this has been growing by more than double world export growth in recent years. India also accounts for more than half the worlds IT and back office outsourcing market.

There has been a healthy growth in the number of India's IT professionals over the last decade. From a base of 6,800 knowledge workers in 1985-86, the number increased to 522,000 software and services professionals by the end of 2001-02. It is estimated that out of these 522,000 knowledge workers, almost 170,000 are working in the IT software and services export industry; nearly 106,000 are working in the IT enabled services and over 220,000 in user organizations.

India has more than 250 universities (over 900 colleges) and engineering colleges providing computer education at the degree/diploma level. The output of trained human power at the degree/diploma level has been consistently increasing since 1985 and touched a figure of 130,000 during the 2000. The formal education system is supplemented and complemented by thousands of private training institutes across the country, which are providing computer education. The private training institutes are also perceived to be providing a backbone to the computer literacy program.

China

China's software industry is growing rapidly, mainly due to domestic demand based on the IT spending of government and private industries. This growth is likely to continue based upon the upward growth path of the Chinese economy and the fact that its automation lags behind that of other developed countries. As of June 2005 China's IT industry was valued at US$27.8bn – larger than the Indian IT industry. In another difference between the two countries, product sales account for more than one third of China's IT sales, unlike the services driven revenue of Indian firms. The strongest feature of the industry in China is the availability of skilled and low-cost manpower. With an abundant supply of university graduates and substantial government investments being made to establish specialised software engineering institutes this supply of low-cost human resources is likely to continue into the future. There are more than 8,000 firms in the Chinese IT industry and the industry is highly fragmented (the top 10 firms only constitute 20 per cent of the market as opposed to the top 10 Indian firms accounting for 50 per cent of the Indian IT industry). This fragmented industry structure has resulted in lower productivity, poor human resources development. Another major disadvantage for China is the relatively poor level of English among its population – while there are 24 million English graduates in the country, their level of English is frequently not advanced enough to communicate effectively in a Western environment. Another potential factor going forward is the aging Chinese population due to the one child policy which will impact upon labour availability in the long term.

(iv) Financial Services

Canada

Overall, the sector in Canada employs over 600,000 people and represents 6 per cent of Canada's GDP. It is estimated that there are 69 banks employing 237,000 staff and 1,298 credit unions employing 53,000 people. In addition, there are approximately another 1,000 companies in financial areas such as insurance, mutual funds, securities and leasing in Canada with an estimated employment of over 325,000 people.

America

The American financial services industry is an aggregation of a number of different industries although these can be grouped under four main headings – banking, insurance, asset management and securities. According to the US Bureau of Statistics 2002 Economic Census there were over 1.2 million financial services companies in America in 2002 employing over 17 million people. According to America Government figures, the supply of finance and accounting professionals in America is growing by 2 per cent annually. The industry is currently in a mood of recovery following much adverse publicity in recent years. There are several key challenges which cut across all financial services sectors in the coming years most notably risk management and a focus on compliance and governance, increased focus on efficiency as well as strategies to improve revenues. The key to growing the sector is expansion into new markets such as China and other Asian countries and as a result it is likely that America financial institutions will begin to actively recruit young financial professionals in these markets.

(v) Research and Development

America

According to the National Science Foundation of America R&D expenditures in America were projected to reach $284bn in 2003m, up from $276bn in 2002. Industry

carried out 68 per cent of the national total of R&D and funded 63 per cent of the research. California had the highest R&D expenditure of any state, at $51bn in 2001.

In 2003 an estimated 25,258 PhD's were awarded in Science and Engineering in America universities including 5,265 in engineering and 19,993 in the various sciences. In terms of the labour force the latest figures from the National Science Foundation date from 2000 and suggest that there were 5,718,300 scientists, engineers and technicians employed in America economy at that point. Since the sector has grown since then it is reasonable to assume that these figures have increased in the interim. Of the 5.7 million, 2.17 million are scientists, 1.28 million are engineers with technicians making up the balance.

Russia

Russia has traditionally been a world leader in research and development, especially in the fields of science and space exploration. However, investment in R&D in Russia has almost halved to 1 per cent of GDP since the break-up of the Soviet Union. The collapse of the military/industrial complex to which the Soviet Union directed funding has given way to smaller and fewer research institutions. The emigration of many scientists to places such as Israel in the early 1990's has also contributed to this decline.

The government still funds the majority of R&D with only a third coming from industry which is significantly lower than other developed countries. It is perceived that a number of challenges face the sector in the R&D as follows: institutional rigidities remain a major constraint on R&D; that other structural frameworks need to be put in place for the sector to thrive in Russia such as a strong intellectual property rights framework, greater involvement of the banks and venture capitalists as well as measures to improve the mobility of scientists between the public and the private sector.

6 Ireland's Existing Migration System

Chapter Six: Summary

- Citizens from within the EEA are free to work in Ireland without restrictions
- Ireland currently operates a relatively laissez-faire immigration system
- The system has developed in response to rapidly changing economic circumstances
- It is primarily a demand led system
- The main elements of the system are:
  - Work permits;
  - Working visas/work authorisations;
  - Intra-Company Transfer (currently suspended and under review);
  - Business permits.

6.0 Introduction

All citizens from within the European Union are entitled to unrestricted access to the Irish labour market. Likewise, all EEA nationals are allowed to work in any European Union country without requiring Work Permits. Non-EEA nationals will require differing types of employment permission depending on their circumstances. An employment permit is any one of the following forms of permission to work in Ireland:

- A work permit;
- A working visa/work authorisation;
- An Intra-Company Transfer (currently suspended and under review); and
- Business permit.

The system outlined below has developed in response to rapidly changing circumstances and as such, has evolved on a somewhat ad hoc basis. It has been primarily employer led to date and over time, has become more interventionist, with restrictions being imposed on the job categories deemed eligible for work permits and a bias towards skilled immigrants. Nevertheless, Ireland remains one of the most open economies in Europe in relation to labour mobility.

6.1 Working Visa/Work Authorisation

The Working Visa/Work Authorisation program is administered by the Department of Foreign Affairs. The Department of Enterprise, Trade and Employment is responsible for providing information in relation to this program via the Economic Migration Policy Unit.

The Working Visa/Work Authorisation program is a fast-track employment permit issued to highly skilled personnel seeking employment in the Republic of Ireland. It makes it possible for prospective employees with a job offer from an Irish employer to obtain immigration and employment clearance in advance from Irish Embassies and Consulates. Generally speaking it covers highly specialised areas of the economy requiring a high level of skill and educational achievement. The high-tech, medical, social care and engineering sectors have traditionally represented the core of the Working Visa/Work Authorisation program.

The criteria for issuing working visas and work authorisations change regularly according to the demands of the economy. Working Visas are issued to nationals from visa-required countries, hence the term 'working visa'. Work authorisations are issued to non-visa required countries. Leaving aside their different names these employment permits are identical. This form of employment permit is issued to an individual, as opposed to an employer. The working visa/work authorisation entitles the holder to work for any company in the specified sector for the duration of the employment permit.

6.2 Work Permits

The second method of employing non-EEA nationals in Ireland is to apply for a Work Permit. Work permits are issued by DETE.

A work permit is applied for and issued to an employer as permission to employ a specific, named, non-EEA national, for a specific job, for a specific period of time not exceeding one year in duration. The holder of the work permit is not allowed to work for other employers during the period of the permit. Non-EEA nationals working in Ireland on foot of a work permit can change employer and job, so long as the new employer has made a successful application for a new work permit. In order to receive a work permit employers are obliged to have demonstrated that they have made

every effort to employ an EEA national before a Work Permit will be issued.

The recent expansion of the European Union has resulted in a very significant reduction in the number of new work permits being issued by DETE. Essentially, DETE will only consider new work permit applications from employers, where the employer is seeking to employ highly qualified or highly specific personnel and where there is also a demonstrable and verified shortage of such staff in the labour market. While the FÁS advertising procedure is the principal means by which we determine and verify labour shortages in the specific job categories applied for through the work permits system, DETE has determined that for the foreseeable future there will be no requirement to issue new work permits for anything but the most highly specialised vacancies.

6.3 Intra-Company Transfer

A third method of working in Ireland, known as the Intra-Company Transfer, has been suspended and is currently under review. An Intra-Company transfer is permission for a specified employer, with operational bases in Ireland and abroad, to transfer key personnel on assignment to work in Ireland. The purpose of this form of employment permit is to facilitate the needs of large, established multi-national, corporations. This form of employment permit is issued on a highly restrictive basis and is intended solely to meet the short-term needs of the companies concerned. In the interim, DETE will only consider Intra-Company Transfer applications in exceptional circumstances from established companies, of an urgent and genuine nature. This scheme is restricted to very senior executives.

6.4 Business Permit

Business permits are required by non-EEA citizens who wish to set up a new business in Ireland. Permits are issued by the Department of Justice, Equality and Law Reform and are initially valid for one year. In order to obtain Business Permission a number of criteria must be met, including:

- The proposed business must result in the transfer to the State of capital in the minimum sum of €300,000;
- The proposed business must create employment for at least two EEA nationals for a new project or, at the very least, maintain employment in an existing business;
- The proposed business must add to the commercial activity and competitiveness of the State; and
- The proposed business must be a viable trading concern and provide the applicant with sufficient income to maintain and accommodate themselves and any dependants without resorting to social assistance or paid employment for which a work permit would be required.

6.5 Departmental Responsibilities

The three departments, which have responsibility in the area of labour migration, are DETE, the Department of Foreign Affairs (DFA) and the Department of Justice, Equality and Law Reform.

Essentially, the DETE defines and legislates for the State's policy on labour migration. It also implements the Work Permits Scheme and the Intra-Company Transfer Scheme.

The Department of Foreign Affairs implements the Working Visa/Work Authorisation Program on behalf of DETE.

The Department of Justice, Equality and Law Reform has responsibility for

immigration control. Within the DJELR, the Immigration and Citizenship Policy Unit is responsible for the development of immigration and citizenship policy and proposals for legislative change in this area. The Garda National Immigration Bureau is the specific office, under the control of the DJELR, charged with the responsibility of overseeing immigration control.

6.6 Naturalisation

Naturalisation in Ireland means the process whereby a non-national living in Ireland may apply to become an Irish citizen. In order to apply for naturalisation in Ireland, you must have been physically resident in Ireland for a certain length of time. All applications to become a naturalised Irish citizen are decided by the Minister for Justice, Equality and Law Reform.

In order to become an Irish citizen through naturalisation, an individual must:

- Be 18 years or older (you must be married if you are under the age of 18);
- A minor born in the State (from 1 January 2005);
- Be of good character. Any criminal record or ongoing proceedings will be taken into consideration by the Minister for Justice, Equality and Law Reform in deciding whether or not to grant naturalisation.;
- Have had a period of one year's continuous 'reckonable residence' in the State immediately before the date of application for naturalisation and, during the eight years preceding that, have had a total reckonable residence in the State amounting to four years[73];
- Intend in good faith to continue to reside in the State after naturalisation; and
- Make a declaration of fidelity to the nation and loyalty to the State.

The process of dealing with applications that have been properly completed and are accompanied by all of the necessary documentation currently takes approximately 24 months from the time of receiving the application. If an application is approved, a letter notifying the applicant of this decision is issued and contains instructions regarding the final procedures that must be completed before the certificate of naturalisation can be issued. Once the appropriate procedures have been finalised, a certificate of naturalisation will normally be issued within 30 days. The applicant is officially an Irish citizen from the date of issue of the certificate and can apply to the Department of Foreign Affairs for an Irish passport any time after that date.

6.7 Permission to Remain

Provisions are in place to grant non-EEA nationals long-term residency status in Ireland, without any time conditions once they have been resident in the country for over eight years. Permission to remain, however, in Irish terms offers a minimalist interpretation of long term residency: while the individual is exempt from work permits requirements, they gain no additional benefits in relation to family reunification, social welfare or visa conditions.

73 'Reckonable residence' encompasses periods of residence taken into account when examining an application for naturalisation. Certain periods of residence may be excluded from the reckoning when calculating periods of residence in the State. These are periods when the applicant's presence in the State was not properly documented or (in certain cases) a period covered by a permission to remain that was for study purposes or while having a claim for asylum examined.

7 Findings: Policy Options and Models to Regulate Migration

Chapter Seven: Summary and Recommendations

- Economic immigration should make a positive contribution to Irish society and the Irish economy
- Economic migration policy must be:
  - Transparent;
  - Reactive to the labour market;
  - Flexible;
  - User friendly;
  - Facilitative of integration;
  - Cognisant of all interests; and
  - Enforced.
- Managed economic migration is of benefit to the Irish Economy.
- Migration alone is not a sustainable long-term solution to *skills shortages*. The primary policy objective of Government should be the upskilling of the resident population at all levels
- Ireland's economic migration policy has to be addressed in a context relative to our overall population size and the free movement of labour from within the EEA region
- All of Ireland's high skilled migration needs are unlikely to be filled from within the EEA
- Ireland has to compete with other countries for migrant labour, particularly at the high end of the skills continuum
- Migration is justified for the following categories of skills: those with very high skills; entrepreneurs; those with company specific skills; those with knowledge and skills emanating from their host nationality which can be employed e.g. knowledge of markets, culture, and native language
- Consideration should be given to a dual system of dealing with economic migration i.e. a *Green Card System* leading to permanent residency and a *Work Permit System* which offers temporary employment opportunity in Ireland
- The interaction of the revised work permits system and the permanent Green Card system is intended to facilitate required high skilled migration, whilst encouraging employers to source low skills from within the EEA. This is achieved by offering skills migrants a fast-track entry into the Irish labour market and at the same time ensuring that the mechanism to bring in low skilled migrants from outside of the EEA is significantly tightened

7.0 Introduction

Ireland currently operates one of the most open systems of economic migration in Europe. Ireland's decision in 2004 not to impose any restrictions in relation to the free movement of labour from the ten EU accession countries in effect gave Ireland access to a potential labour market of 208 million people. As discussed in *Chapter 5*, however, only a relatively small proportion of that amount is likely to migrate to Ireland. All EU citizens currently enjoy the right to live and work in Ireland without restriction. It is envisaged that much of Ireland's future migratory labour needs will be met from within this labour market. In discussing the regulation of migration in this context, it is third country nationals from outside the EEA region which this policy and associated regulatory system attempts to address.

It is important to point out the individuality of Ireland's situation in relation to migration. Ireland is a small country with a relatively small population by European and world standards. While Ireland does require significant migrant labour relative to its size, it does not require similar volumes in absolute terms to larger countries such as the US and Australia. There are also significant differences which set it aside from countries of similar size such as New Zealand. The primary difference is Ireland's open access to the EEA labour market, which provides it with a large labour resource.

This chapter sets out the findings of this study and discusses policy objectives, principles and options facing policy makers. It is clear from the analysis in earlier chapters that immigration whether from within the EEA or from third countries will continue to play a vital roll in the evolution of the Irish economy over the coming years and indeed, decades. High skilled migration will be required to fill many of the skill shortages identified in the short and medium term. At the same time, as the high skilled sector grows, demand for services is likely to increase, thus creating demand for the supply of unskilled labour, and low to medium skilled labour. How these demands will be met is the subject of this chapter. The discussion in this chapter does not aim to be overly prescriptive, rather it sets out to discuss policy options and outlines possible regulatory systems for achieving them with the aim of stimulating and informing the economic migration debate.

7.1 Policy Objectives

At the highest level, all economic immigration should make a positive contribution to Irish society and the Irish economy. Economic migration is intended to provide employers with access to an expanded pool of workers and is intended to alleviate skills shortages, thus helping to sustain Ireland's economic growth. At the same time, consideration needs to be given to the social costs and benefits which accrue as a result of immigration. The need for social infrastructure such as housing, education and healthcare are all impacted on by immigration. There are other societal issues such as the integration of the host country (Irish) nationals with the immigrant population and vice versa which also need to be addressed. The National Economic and Social Council (NESC) are examining many of these issues[74] and the output of their deliberations should be considered in tandem with the recommendations herein.

In discussing policies and procedures to regulate migration, the challenge is to arrive at a system which facilitates economic immigration of third country nationals into Ireland which meet the needs of enterprise, while balancing them with the needs of sending countries, migrants and Irish society as a whole. The policy and procedures

74 International Organization for Migration, Economic and Social Implications of Migration to Ireland, Commissioned by NESC and due for publication in late 2005.

should also allow Ireland to compete competitively for high skilled migrants and reduce obstacles to their migration to Ireland.

7.2 Policy Tenets

Over the course of the consultation process, a number of key policy tenets emerged that should be reflected in Ireland's skilled migration policy. In particular, it was emphasised that a successful skilled migration policy must be:

- Transparent;
- Reactive to the labour market;
- Flexibile;
- User friendly;
- Facilitative of integration;
- Cognisant of all interests; and
- Enforced.

7.2.1 Transparency

The policy that emerges from this process and the procedures that are then put in place to administer the system must be transparent. This ensures that the system is not seen as discriminatory. The system must also be seen to be independent of political considerations. Economic or labour market needs should be the primary factors in determining economic immigration needs, whilst recognising the social and political ramifications of such decisions.

Transparency is also important due to Ireland's co-dependent relationship with other countries. Our openness and dependence on trade underlines the need for transparency when dealing with immigration requests from all nationalities. The system should also be transparent in that all information in relation to policies and procedures should be freely available and widely promoted to prospective migrants and employers. Likewise, any proposed appeals mechanism should be transparent, with a requirement that all of it's decisions be explained where requested. As part of the process of transparency, the responsibilities of each Government Department should be made clear.

7.2.2 Reactive to the Labour Market

A system of economic migration should be reactive to labour market needs. While labour market analysis is imperfect and poses challenges, it is vital that ongoing analysis is conducted to evaluate the success or otherwise of the migration system in meeting the needs of the enterprise sector. The system must be flexible enough to cope with both domestic and external shocks. While the flexibility to react to changing circumstances is vital, the system must also offer a degree of security to those who depend on it. With this in mind, it is appropriate that all relevant administrative procedures continue to be handled outside of the legislative process.

Finally, it is important that the system is capable of generating the data required to effectively make policy decisions and to manage the system effectively. Policymakers should be aware that even where migration-related data does exist, it will often significantly lag the reality of the situation on the ground. This would impact on the timeliness of a central labour market assessment.

7.2.3 Flexible

The system must be flexible enough to deal with exceptional cases (such as rapidly evolving or emerging skills sets, or exceptional company-specific skills) in an expedient manner. In order to achieve this, transparent mechanisms should exist to progress exceptional cases.

7.2.4 User Friendly

Given the level of competition to attract highly sought skilled migrants, it is crucial that Ireland's migration procedures do not increase the burden on the state,

employers (often highly mobile industries) or potential migrants. Information Communication Technology should be used to its full potential to implement an administratively expedient system[75]. In attempting to reduce administrative burdens, it would seem appropriate to consider possibilities which might serve to reduce unnecessary administration. For example, to facilitate migrants who have already been granted permission to reside or work in Ireland (whether through the existing work permit or work visa/authorisation system, or through any revised system recommended by DETE), to leave and re-enter Ireland freely as often as they deem fit. Such considerations would have to be balanced with recognising the need to maintain the State's control over who enters the country, both from a security and sovereignty point of view. The ability for applicants and employers to be able to access information on the progress of an application would be desirable under a reformed system.

7.2.5 Integration

In order to minimise social costs and to maximise the economic returns to immigration, economic migration policy should be cognisant of integration issues. While integration is not the primary remit of this report, it is important to note the large body of work that exists on this matter. Already countries such as Australia and New Zealand have recognised the importance that certain factors (in particular language proficiency and age) play in the successful integration of migrants and Irish policy makers should consider these factors when implementing their procedures. One of the key issues which policy makers have to grapple with in this regard is the extent to which an economic migration system should facilitate the progression to permanent forms of residency or citizenship. Rather than viewing migrant as merely temporary guest workers.

7.2.6 Balancing Other Interests

It is important that economic immigration policy be designed in a way that benefits employers without harming local (EEA) workers. Although there is little evidence to suggest that immigration has had a detrimental effect on local employment or wages, considerations such as the ability not to renew work permits, to repatriate workers in the event of an economic downturn and the effect of migrant labour on youth employment and the long-term unemployment in the host country must be constantly monitored.

In addition to the protection of EEA workers, the economic migration system must ensure that violations of migrants' rights are prevented and that breaches of these rights are not tolerated. There have been a number of high profile cases in the recent past that have highlighted the need for strict enforcement of employment legislation in relation to migrant workers. The *Employment Permits Bill 2005* contains a number of important enforcement provisions, including the levying of fines etc. which can be expected to reduce cases of abuse. Elsewhere, the *Labour Relations Commission*, through its Rights Commissioner Service, has undertaken some research examining the position of migrant workers in Ireland and their access to the Industrial Relations Institutions[76]. The *Labour Relations Commission* publication gives an overview of the work-place problems faced by migrant workers in Ireland. The most common complaints from migrants were in relation to underpayment of wages, non-payment of overtime and excess hours. Given the increasing number of migrants active in the Irish labour market, it is inevitable that the proportion of cases brought to the Labour Relations Commission involving foreign nationals will increase over time. The findings of *Labour Relations Commission* report should help to inform policymakers with regard to any further procedures or protections required.

75 For example Canada and other countries use online application forms.

76 Labour Relations Commission, Migrant Workers and Access to Industrial Relations Services: A study of the position of migrant workers in Ireland and their access to, and use of the State's Dispute Resolution Agencies, August 2005.

7.2.7 Enforcement of Legislation

Regardless of the policy implemented by government to regulate economic migration, adequate resources should be provided to ensure that all relevant employment legislation is enforced. This is vital in order to protect the interests of the migrants, employers and society at large. In particular, the role of the *Labour Inspectorate* is emphasised[77]. Given the increasing numbers of non-national employees in Ireland and the potential for abuse of workers, the *Labour Inspectorate* should have resources commensurate with the task it faces in acting as a serious deterrent to abuse.

7.3 International Context

Ireland's consideration of its economic migration system is against the background of important international developments, the most relevant of which is the EU's Green Paper entitled '*On an EU approach to managing economic migration'*. The Green Paper will serve as a basis for discussions on the most appropriate form of Community rules for admitting economic migrants, while not impinging on the responsibility of Member States to decide on the numbers of immigrants to be admitted.

Already, EU-wide proposals are in place to facilitate the entry of third-country researchers into the European labour market. An EU Directive to improve researcher mobility was agreed in 2004[78]. The purpose of the Directive is to speed up the admissions process by providing authorised research organisations, which have been designated by a competent authority, with a role in the procedure for the issuing of residence permits. Specifically, these authorised research organisations will be responsible for certifying whether the research project is credible, including financially, and whether the person has the necessary skills. A hosting agreement will be signed between the research organisation and researcher which will offer guarantees concerning the conditions under which the research will be carried out and the researcher's ability to complete the project. It seems reasonable to presume that similar arrangements could easily be extended to other key sectors within a relatively short time period, if they prove successful.

7.4 Policy Considerations, Findings and Underpinning Principles

To arrive at a policy and system for economic migration, there are a number of policy dimensions which either implicitly or explicitly need to be considered:

(i) The type and nature of enterprises' requirements i.e. whether their requirements are skill requirements or labour requirements, whether they are immediate, medium term or long term;

(ii) Based on the type and nature of requirements, the extent to which they are likely to be met from within the EEA including Ireland;

(iii) The type of system which would best support both the regulation and facilitation of migration and in the current climate provide Ireland with advantage in the attraction of certain categories of skilled economic migrants;

(iv) The best way to balance enterprises' requirement for immigrants with the wider social impact of migration on the economy;

77 The Labour Inspectorate is responsible for the enforcement of all employment rights legislation. The staff of the Inspectorate deal directly with the general public in the course of handling complaints from employees regarding the infringement by employers of their statutory rights.

78 Council Directive on a specific procedure for admitting third-country nationals for the purposes of scientific research.

(v) The best way to protect employment prospects for both the indigenous workforce and EEA nationals;

(vi) The best way to protect the rights of immigrant labour from outside the EEA;

(vii) How best to achieve the optimum balance between the ideal requirements of a system and the need for an administratively workable, efficient and effective procedures.

Before presenting options for consideration as to what policy and type of system might be used to regulate third country migration into Ireland, it is appropriate to summarise the key findings of previous chapters.

7.4.1 Summary of key findings from previous chapters

The following key findings have acted as a guide to discussing the policy options set out in the report.

- Managed economic migration is of benefit to the Irish Economy.
- Ireland currently possesses a relatively open and '*laissez faire*' system of economic migration compared to its European counterparts.
- In general, a sufficient pool of potential migrant labour exists within the EEA to meet Ireland's skills requirements at the lower end of the skills continuum.
- The ten new EU accession countries offer the best potential for Ireland in attracting labour at the lower end of the skills continuum.
- The pool of labour available from within the EEA region which is likely to migrate to Ireland contracts significantly at the higher end of the skills continuum.
- Within the EEA, Poland, Lithuania, Latvia, Slovakia, Czech Republic and the UK offer the best opportunity for attracting graduate labour.
- All of Ireland's high skilled migration needs are unlikely to be filled from within the EEA.
- The attractiveness of Ireland to potential migrants in specific sectors varies significantly from country to country.
- Shortages currently exist within the Irish labour market. These shortages can be broadly characterised as skill shortages and labour shortages.
- *Skill shortages* have been identified in the following occupations:
  - Construction: (architects, civil engineers, planners, quantity surveyors, construction craftpersons, site managers);
  - Financial: (accountants, tax experts, actuaries and financial analysts);
  - Engineering (design engineers, electronic and electrical engineers, multiskilled maintenance technicians, welders and related trades);
  - Information Technology (software engineers, computer analysts /programmers);
  - Pharmaceuticals (chemical engineers, biologists, physicists, research scientists);
  - Healthcare (medical practitioners, dentists, therapists, radiographers, nurses, social workers);
  - Transport (HGV drivers, supply chain managers, transport related clerks);
  - Sales (technical sales representatives and marketing personnel); and
  - Services (chefs).
- *Labour shortages* have been identified in following occupations:
  - Financial (credit controllers, financial clerks);
  - Services (security guards, waiters/waitresses);
  - Food manufacturing (deboners);
  - Healthcare (care assistant);
  - Sales (sales assistant); and
  - Other labour shortages were identified in agriculture, forestry and fishing.

7.4.2 Underpinning Principles

In developing an economic migration policy and system for Ireland, the following were the underpinning principles observed.

- Ireland's economic migration policy has to be addressed in a context relative to our overall population size and the free movement of labour from within the EEA region.
- Economic policy makers and enterprise should be cognisant of the social impact and costs that result from economic migration.
- In an effectively functioning labour market, real wages adjust to address *labour* shortages[79]and skill shortages [80]. Wage levels should be free to move in both directions. This does not always occur due to rigidities in market e.g. government intervention (minimum wage) lack of information, mobility issues etc.
- Migration alone is not a sustainable long-term solution to *skills shortages.*
- Economic migration does not have an observable effect on GDP per capita but does impact on the distribution of income.
- Migration can in some circumstances help to perpetuate skills shortages in the economy.
- The primary policy objective of Government should be the upskilling of the resident population at all levels.
- The observance of *Community Preference*[81] over third country nationals.
- A narrowing of the occupational gap which currently exists i.e. maximising the full potential of migrants currently working within Ireland would significantly reduce skills shortages and increase productivity.
- Ireland has to compete with other countries for migrant labour, particularly at the high end of the skills continuum.
- Migration is justified for the following categories of skills: those with very high skills; entrepreneurs; those with company specific skills; those with knowledge and skills emanating from their host nationality which can be employed e.g. knowledge of markets, culture, and native language.

7.4.3 Provision of Labour Market Information

In order to assist in the proper functioning of the enlarged EEA labour market, there is an important role for the state in pro-actively providing information to potential migrants about the availability of job opportunities within Ireland along with factual information on employment and social conditions. This function is currently undertaken by FÁS as the national authority for the European Union's EURES network. In view of the on-going importance of encouraging immigration to Ireland, the level of resources devoted to this function needs to be strengthened. In addition, while recognising the role of enterprise, there is also a role for the State in providing information and contacts to employers. Again, this is a role that FÁS has played over the last decade in relation to EEA sources of labour. FÁS may need to strengthen its activities over the coming years.

7.5 Irish Economic Migration Policy and System for Third Country Nationals

Outlined in this section are proposed economic migration policy options for Ireland and suggested alternative procedures as to how it might be implemented. At a broad

79 A labour shortage refers to a situation where there are an insufficient number of individuals willing to take up employment opportunities at the prevailing wage and conditions.

80 Skills shortages refer to a situation where there are an insufficient number of trained/qualified individuals in the domestic market to meet the demand for an occupation. Skills shortages arise for occupations associated with specific skills which are usually acquired through education and training.

81 Preference given to workers from within the EEA region.

level, it suggests that consideration should be given to a dual system of dealing with economic migration i.e. a *Green Card System*[82] leading to permanent residency and a *Work Permit System* which offers temporary employment opportunity in Ireland.

Many of the countries with which Ireland competes for high skilled migrant labour already have systems in place to facilitate the entry of highly qualified individuals into their labour market; those that do not are currently developing proposals to do so. If Ireland is to achieve its goal of competing as a knowledge economy it too has to compete to attract skilled migrants.

The current economic migration system in Ireland whereby skilled migrants are offered a temporary employment permit with the possibility of acquiring permanent residency only through the cumbersome and time-consuming naturalisation process, (or through a series of work permit renewals) is a competitive disadvantage to Irish employers. Therefore, it would be beneficial to the enterprise sector and potential migrants if certain pre-defined categories of migrants were offered an opportunity to gain permanent residency (or 'indefinite leave to remain') after a minimum, stated period. While the idea of creating a category of permanent migrants brings with it fresh challenges (concerning integration etc.) it also offers more of an incentive to potential migrants to consider building their entire career and life in Ireland.

The introduction of a permanent *Green Card* system is intended to address *skills shortages*. In suggesting the retention of a work permits system, it is envisaged that its usage would be increasingly employed in facilitating high-skilled migration on a temporary basis or to address *labour shortages* which exist on a temporary basis. It is not envisaged that 'very low skilled' or 'unskilled' labour would be sourced through such a mechanism. In fact, as set out in *Chapter 5*, it is envisaged that all of Ireland's needs for low and unskilled labour could be met from within the EEA. Therefore, any work permit system should aim to further constrict the flow of low-skilled or unskilled labour into the economy from outside the EEA. The creation of these parallel systems could negate the need for the continued operation of the working visa/authorisation scheme[83].

A set of migration procedures that differentiate between the various categories of migrants and types of migration would not be out of step with other developed countries' systems. At a European level, many economies (particularly the Nordic countries) maintain restrictive regimes in relation to low skilled migration. In part this is a reflection of a 'wait and see' approach to the impact of EU enlargement; it is generally believed that the enlarged EU will provide sufficient supplies of low skilled labour to satisfy demand[84]. Where identified and specific types of low skilled labour are required, many countries have put in place specific schemes to deal with this. For example, there are a variety of seasonal migration programmes in existence which address the need for temporary agricultural workers (e.g. Australia) as well as a number of 'working holiday' visa schemes to encourage short-term temporary migration (e.g. New Zealand). Finally, it must be remembered that in conjunction with a skilled migration programme, additional flows of migrant labour enter developed economies through family reunification programmes and student visa programmes, thus increasing the pool of available labour. Furthermore, the European labour market is likely to expand further in the coming years as Bulgaria and Romania are expected to become members of the EU. Depending on Government decisions in

82 There is no universal understanding of what constitutes a Green Card system. In general, a green card system can refer to any system whereby the migrant attains permanent residence in a country. Various administrative mechanisms can be used to determine who is awarded a green card.

83 Currently, working visas/work authorisations are available for certain workers in the following categories: Information and Computing Professionals; Construction Professionals; and Medical Professionals.

84 In Denmark it is felt that the increasing trend towards outsourcing of low skilled enterprises will further reduce the requirement for low skilled labour.

relation to the free movement of labour, this has the potential to add significantly to the pool of labour freely available to Irish employers.

The following sections outline the possible systems and procedures which could be used to regulate economic migration into Ireland.

7.6 Permanent Green Card System

An Irish *Green Card* might encompass the following elements:

(i) Long term residence status immediately which is confirmed after a two year probation period;

(ii) A single, combined residence permit and work visa;

(iii) Family reunification, preferably immediately, but certainly no later than six weeks after the Green Card is issued; and

(iv) Entitlement for spouses and dependants to work without a work permit or to automatically receive work permits.

7.6.1 Proposed Entitlements Accruing to a Green Card Holder

(i) Permanent residency

A high skilled migrant awarded a *Green Card* would be entitled to permanent residency in Ireland, without the requirement of applying for naturalisation. For an initial period (two years), the *Green Card* would remain conditional. This period of adjustment is intended to ensure that a skilled migrant in line for permanent residency possesses characteristics likely to facilitate smooth integration into Irish society [85].Once the initial adjustment period is completed, however, the *Green Card* would become permanent.

In order to maintain the currency of the *Green Card*, any long term resident who is absent from Ireland for a considerable period of time would forfeit their permanent status. The period of time in question could mirror the conditions determining *reckonable residence* outlined in *Chapter 6.*

(ii) Combined Residence Permit and Work Visa

The *Green Card* would confer both the right to reside in Ireland and the right to work, without the requirement to apply for a separate work permit.

(iii) Re-entry Visas

The current re-entry visa requirements need to be examined as part of the *Immigration and Residence Bill*. The current system, whereby an individual who has the right to work in Ireland must apply for a visa every time they wish to leave and return to the country, is burdensome and inconvenient. It is proposed that this requirement would be waived for *Green Card* holders.

(iv) Spouses and Family Reunification

In the case of migrants entering Ireland under the *Green Card* scheme, provisions are required to facilitate immediate family reunification. Once the prospective migrant demonstrates sufficient earnings capacity or already has proven reserves sufficient to support themselves and their family, the barriers to reunification should be minimal. The exact details of admission for the purpose of family reunification will be set out

85 The criteria might include provisions such that the migrant: (i) should be economically active; (ii) should not spend longer than a specified period e.g. 4 months in the first two years, outside of Ireland; (iii) should consider Ireland as their home; (iv) should pass a residency test whereby the migrant demonstrates knowledge of Ireland, and the rights of all permanent residents; and (v) must not have a criminal record, and (v) can communicate in either of the official languages of the state in order to conduct routine business. The Minister should retain discretionary powers to either refuse or cancel permanent residency.

in the forthcoming *Immigration and Residence Bill*, due to be published by the Department of Justice, Equality and Law Reform. The terms 'sufficient earnings' and 'proven reserves' should be clearly defined in such a system.

(v) Entitlements for Spouses and Dependants

As long-term residents in Ireland, the spouse and dependants of a *Green Card* holder would also be entitled to be employed in Ireland without a work permit (or else be granted work permits) and, subject to satisfying the criteria set out, could themselves apply for *Green Card* status.

The arrangements regarding the level of access which spouses and dependants of Green Card holders will have in relation to education and healthcare needs to be agreed prior to the implementation of a permanent migration system. For instance, while economic migrants who enter Ireland through the Green Card system would not be EEA citizens, the current high level of charges levied on third level students from outside of the EEA would represent a significant disincentive to potential skilled migrants.

(vi) Changing Employer

Migrants who enter Ireland under the *Green Card* system would be already in receipt of a job offer. Immediate job mobility, therefore, may not be practical. Nevertheless, the Irish immigration system should offer the potential skilled migrant the opportunity of changing employers, thus giving them the ability to maximise their earnings, once a certain time period has elapsed[86]. The duration of the period during which a migrant remains tied to their initial employer ought to take account of the time it would take an employer to recoup part of their investment in that migrant. While this will vary on a case-by-case basis, it seems reasonable that an initial period of one year should apply. In situations where abuse of migrant labour is documented, or other difficulties emerge this time restriction might be waived and the migrant would be free to move employer.

7.6.2 Determination of Eligibility for Award of Green Card

There are a number of considerations in developing an appropriate system to determine eligibility for a Green Card at the outset.

7.6.2.1 Receipt of an Offer of Employment

There are two main options in relation to how to regulate applications for a *Green Card*. These are demand driven i.e. based on labour market/employer requirements or supply driven through individual led application. During the course of this study both options were considered. Following consultations, there appears to be little likelihood that those at the highest end of the skills continuum would engage in a supply led approach i.e. they are likely to have a firm job offer in advance of application. It is therefore proposed that the *Green Card* system should be demand led by enterprise needs. In order to qualify for a *Green Card*, a potential migrant must be in receipt of an offer of employment.

7.6.2.2 Determination of Skill Level

As already outlined in this report, a *Green Card* system should facilitate high skilled migrants. The determination of skill level of applicants remains a problematic issue. There are three proxies which have been identified as possibilities in determining skills level and therefore eligibility for a *Green Card*. The three proxies are salary level of employment offer, destination occupation i.e. occupation applied for in Ireland, and qualification level. There are advantages and disadvantages to all three.

(i) Salary Level as a Determinant

The salary level of the employment offer received by a potential migrant possesses positives and negatives as a determinant of eligibility for a *Green Card*.

86 The restriction on labour portability ensures that migrants do not misuse the fast-track system as a means to gain access to an open Irish labour market.

From a positive perspective the salary level offered is normally a reflection of the enterprise's estimate of the value of a worker in potential returns to an organisation (potential productivity). Salary is likely to reflect an individual's skills derived from both formal and informal education and training as well as experience and other attributes and competencies where they are going to be employed in the enterprise.

From a negative perspective, using a minimum salary level as a sole determinant of eligibility for a *Green Card* curtails control over the exact type of skills which should be allowed. However, its use is likely to ensure a high level of skills if the appropriate benchmark is set. The use of salary level as the sole determinant of eligibility for a *Green Card* could also lead to abuse if an appropriately high salary level is not set in the first instance.

The setting of a minimum salary level in itself posses a challenge for policymakers. There are a number of options:

- The Minister for Enterprise, Trade and Employment could set a single salary level applicable to all occupations. This figure might reflect the level of pay at which it is believed that there would be a net benefit to the economy. Such a system would be administratively attractive and user friendly from the perspective of its simplicity. The determination of the salary level could be arbitrary and flexible while based on available economic and labour market data.
- A number of minimum salary levels could be set by sector or occupation. An occupation-specific or sector specific salary could be determined using data on average salaries or salary norms. An occupation or sector specific salary could be calculated using the previous year's average salary, adjusted for inflation. This would negate the inflationary impact that skills shortages would have on labour costs. An advantage of such a system is that it could be used in conjunction with a list of eligible occupations or sectors. A disadvantage is that it is likely to be administratively more cumbersome and possibly more confusing for users. This could be perceived as a serious negative given the perception of an already bureaucratic system.

(ii) Destination Occupation as a Determinant

Destination occupation is the second proxy by which eligibility for a green card might be determined. Again, there are both positives and negatives to such a system. The primary advantage of such a system would provide a high degree of control over the skills/occupation mix eligible for a *Green Card*. This would mean that *Green Cards* could be focused on occupations to which the most economic priority is attached or occupations which are experiencing the greatest shortages. The system could work on the basis of an eligible list or an ineligible list of occupations.

How an eligible or ineligible list of occupations would be arrived at poses the most significant question in relation to this procedure. A list of occupations and associated shortages can be derived from a central research/planning mechanism such as the skills identified in *Chapters 3 and 4*. It would also be preferable to engage with industry representatives when formulating such a list. This method however is open to contention on the basis of who might conduct it and the level of enterprise involvement in decision making. It is also open to the criticism that it is not open to a 'market test'.

Another negative in relation to such a system is an inability to categorise easily all possible occupations and at certain levels to clearly identify what someone's occupation is. This is also connected to a lack of a clear evidence of a link between skill level and occupation for many categories of occupation. This is discussed further in the next section.

(iii) Qualifications as a Determinant

The third possible proxy for skill level which might be used in determining eligibility for a *Green Card* is qualification. This is based on the assumption that many occupations require either training or education for entry to the occupation. This determinant has the advantage of being traditionally the most proximal substitute for skill and therefore would give a lot of control over the skills levels eligible for entry. Like occupation, it provides a lot of control over the skill level entering the country. Where a direct connection can be made to occupation it could be used as a mechanism to focus on occupations to which the most economic priority is attached or occupations which are experiencing the greatest shortages.

There are a number of key negatives which might outweigh the positives of this particular determinant. Firstly, not all occupations have clearly defined entry requirements. Secondly, there is a challenge in trying to establish comparisons for international qualifications. Thirdly, the verification of qualifications could be extremely bureaucratic and finally, the ability to judge the suitability of qualifications for specific jobs should fall to employers and not the state.

Whether a system which uses qualifications as a proxy is introduced or not, it appears that employers themselves have difficulty in comparing international qualifications with those of Irish workers. This is also the experience of the Immigrant Council of Ireland. Such a situation can work to the disadvantage of employers, migrants and possibly Irish workers where incorrect value is accorded to international qualifications. It may also be a reason for the existence of the 'occupational gap' where employer's make a decision to employ but at a level lower than may be the case if there was clarity around a qualification. DETE and employers groups should engage with the National Qualifications Authority of Ireland (NQAI) to develop a strategy to deal with this situation.

All systems are open to the possibility of some abuse; the salary criteria may encourage collusion while both the occupations and qualifications criteria create administrative challenges. In arriving at an optimum system to determine eligibility for a Green Card, policymakers may wish to employ more than one option outlined above in conjunction with another.

7.6.3 Safeguards

In order to establish and maintain the legitimacy of the *Green Card* system and to minimise fraud, a number of safeguards should be included in the system. First, for an employer to be granted permission to hire a non-EEA national, that firm would be required to sign a *declaration on the admission of highly skilled migrants*. This declaration would outline the terms of employment offered to the potential migrant, including information on pay and conditions. An employer would guarantee the role and position of the migrant for a minimum period and would vouch for the migrant's ability to perform the job offered. Additional safeguards which demonstrate the existence and legitimacy of a company should be considered. Such recommendations fall beyond the scope of this paper but an example would be the need to produce a valid tax clearance certificate.

Any employer found to be in breach of their *declaration*, or who abuses the migration system should face substantial penalties. As well as the option of imposing monetary fines, a system whereby employers would also lose the right to hire non-EEA labour for a number of years should be considered.

7.6.4 Administrative Procedures

It is vital that the *Green Card* is reactive to changes in economic circumstances. Therefore, in order to adequately control the flow of skilled migrants into the country, it will be necessary to be able to amend eligible sectors, occupations, salary levels or qualifications on a regular basis, in accordance with the changing needs of the enterprise sector (for example offering *Green Cards* to an emerging sector in the

light of a significant new investment). In order for such adjustments to be made in a timely fashion, the determination of eligible sectors should remain as an administrative function of the relevant Department and should not become part of the actual legislation.

7.6.5 Application for a *Green Card*

It may be desirable that applications for a *Green Card* could emanate for either an individual or an employing organisation. In either case the *Green Card* should be awarded to the individual. The reason for allowing organisations to instigate the application is that organisations based in Ireland are better positioned than individuals (based abroad) to progress an application through the appropriate channels. This is likely to reduce administration and time delays.

7.7 Options Relating to a Temporary Work Permit System

It is proposed that in tandem with a permanent *Green Card* system, the Government would employ a system which would facilitate temporary migration. In preparing this report a number of alternatives procedures were considered. These are outlined later in this chapter. The option which is given consideration in this section is reform to the existing work permits system to facilitate temporary migration. The existence of a temporary migration system has the advantage of increased flexibility vis-à-vis a permanent system, which would be an important element in the case of an economic downturn. The options for regulating and determining eligibility for a work permit broadly mirrors those set out above for a green card system although clearly the criteria used is likely to be different i.e. eligibility could be based on a minimum salary level, prescribed occupation or based on qualifications.

7.7.1 Proposed Entitlements Accruing from a Temporary Work Permit

(i) Length of Stay

In the case of the work permit system, the employer would still apply for the permit on behalf of the migrant. Consideration should be given, however, to awarding a permit for a two-year period, rather than the current one-year permit given the level of costs involved in sourcing foreign labour. This would also have the benefit of reducing administration costs on both sides and provide greater stability for migrant workers.

(ii) Changing Employer

For migrants who enter Ireland through the reformed work permit system immediate job mobility may not be practical. Nevertheless, the Irish skilled immigration system should offer the potential migrant the opportunity of changing employers, thus giving them the ability to maximise their earnings, once a certain time period has elapsed[87]. The duration of the period during which a migrant remains tied to their initial employer ought to take account of the time it would take an employer to recoup part of their investment in that migrant. While this will vary on a case-by-case basis, it seems reasonable that an initial period of one year should apply. The ability to change employer is an important element in combating the abuse of migrants, and in exceptional circumstances, the one year restriction may not apply.

(iii) Permanent Residency

As outlined in *Section 6.7* provisions are in place to grant non-EEA nationals long-term residency status in Ireland once they have been resident in the country for over eight years. In addition, provisions are also in place to gain Irish citizenship after five years residence in Ireland. It is not proposed that these conditions be changed. In effect this means that there is a progression mechanism from temporary work permits

87 The restriction on labour portability ensures that migrants do not misuse the fast-track system as a means to gain access to an open Irish labour market.

to permanent residency where migrants work permits have been continuously renewed due to continued shortages.

(iv) Family Reunification

At present, temporary migrants have limited family reunification rights. It is advised that no significant change should be made to the present system at this time. However, current policy should be clarified and applied uniformly. The government should adopt a wait and see approach and reconsider the issue of family reunification for work permit holders in 2008 when the effects of migration from EU accession countries are better known, and by which stage Bulgaria and Romania will have joined the EU.

7.7.2 Proposed Amendments to Current Procedures for Award of Work Permits

(i) Elimination of Ineligible Lists

The current work permits system publishes lists of categories that are ineligible to apply for permits. Consideration should be given under a reformed work permit system to removing this method of regulation. It is proposed that all categories of firms be eligible to apply for a work permit in the first instance A decision regarding the issuing of a permit would then be made using agreed criteria, such as salary level, occupation or qualifications.

(ii) Central Labour Market Assessment

Consideration should be given to an eligible list of occupations which do not require an individual labour market test to prove that there is need for certain occupational categories. Such a system would amount to a central labour market assessment. The mechanism for deciding on an eligible list has pro and cons as set out above in *Section 7.6.2.2*.

Not all high skilled migrants will choose to apply for a *Green Card*. It is likely that many high skill migrants may wish to work in Ireland only for a limited period, regardless of the possibility of acquiring permanent residency. In such cases, it is necessary to design a temporary system that facilitates the swift entry of such individuals into the labour force; after all, although they are temporary migrants, they remain vital to Ireland's economic development.

(iii) Individual Labour Market Test

The continued requirement for an individual labour market test is dependent on the procedure chosen to assess eligibility for a Work Permit. If continued, the individual labour market test should be strengthened to make it more relevant. Strengthening the test would include increasing the demands to demonstrate that adequate steps had been taken to endeavour to fill positions from within the EEA region. The point made above in *Section 7.4.3* in relation to the provision of appropriate labour market information is pertinent here also.

A work permits system should remain a temporary system in spirit. Consideration should be given to (i) renewals being required to repeat the labour market test, prior to approval or (ii) the Minister retaining powers to introduce such a measure a future point in time. It is important to manage expectations regarding the work permit. So long as the work permit is marketed from the outset as a temporary solution to labour market rigidities[88], and not as a quasi-permanent system, industrial relations difficulties should be avoided. It is not envisaged that migrants already in Ireland would be subject to this condition.

(iv) Safeguards

Similar safeguards as per the Green Card system should be required before an employer is granted a work permit. This would include a declaration similar to the *declaration on the admission of highly skilled migrants*.

88 E.g. similar to US H-1B visa.

7.7.3 Advantages of a Reformed Work Permits System

The combination of a demand led permits system, with a mechanism which rewards certain categories of migrants with permanent residence status, would allow Ireland to attract and retain high calibre individuals who would be of enormous benefit to the Irish economy and indeed, Irish society. The interaction of the revised work permits system and the permanent Green Card system is intended to facilitate required high skilled migration and the migration of individuals possessing unique or special skills, whilst encouraging employers to source low skills from within the EEA. This is achieved by offering skills migrants a fast-track entry into the Irish labour market and at the same time ensuring that the mechanism to bring in low skilled migrants is significantly tightened.

A significant advantage of such a system is that it would not require a radical overhaul of the existing system, nor would it greatly add to the State's administrative burden.

A centrally conducted labour market assessment for certain recognised occupations or skills could be carried out in an extremely inclusive way incorporating the analytical skills of the various State Agencies and utilising the knowledge of sectoral specialists and representative bodies where practical to inform opinions. This exercise would need to be carried out on at regular intervals and on a sector-by-sector basis.

From the State's perspective, such a system would require significantly less administrative duties, while from an employer perspective, the introduction of a central labour market assessment for certain occupations would negate the need to perform a time-consuming individual labour market test as is currently the case. Rather than advertising a job on a European wide basis, prior to seeking non-EEA labour, an employer would be immediately free to hire workers directly from third countries, once a *skills shortage* has been identified in a particular sector. Likewise, the inclusion of certain sectors on the eligible list would make the renewal of permits more transparent, removing the need to create a complex system of exemptions and exceptions to the rule.

7.8 Other Categories of Migrants

7.8.1 Non-EEA Students

There are currently over 28,000 registered non-EEA students in Ireland, enrolled at a variety of private, second level and third level educational institutions. Aside from the fact that these students contribute significantly to the earnings potential of the educational sector, there is an obvious benefit to facilitating non-EEA students who achieve a high level of educational attainment to remain in Ireland to seek employment upon completion of their studies. Not only would they add to the stock of human capital in the country, these individuals are also likely to find integration into Irish society somewhat easier having already been educated here, than someone who has no previous experience of living in Ireland.

The introduction of a system that encourages foreign students to stay in Ireland after their graduation would significantly improve the country's image abroad and would give potential students added incentive to study in Ireland. Currently, international experience indicates that on average, international students account for approximately 12-15 per cent of all third level enrolments. An *Interdepartmental Working Group* in the *Department of Education and Science* (DES) has indicated that this is an appropriate medium term target for Irish institutions. In order to achieve this target, educational institutions will have to increase their capacity and their attractiveness. The failure to develop a system that allows students to transfer into the labour market would adversely impact on Ireland's ability to meet this target and would represent a significant lost opportunity. A system that facilitates the entry of Irish-educated students from non-EEA countries is particularly relevant for researchers, who are known to be in short supply. Many foreign students are currently engaged in courses that offer the potential to graduate to doctoral level.

The existing system whereby non-EEA students must leave the country and then apply for a work visa is particularly inefficient and represents a significant disadvantage to the Irish enterprise sector. It is conceived that non-EEA students who having studied in Ireland have attained a sufficiently high level of educational attainment (e.g. a Primary Honour Degree or above) would be eligible to remain in Ireland for a defined period after graduation to look for employment. Once a student has received an offer of employment in an eligible sector as determined by the central labour market assessment, they would be free to apply for either a Green Card or temporary work permit. Such a facility would mirror the *Fresh Talent: Working in Scotland Scheme* currently employed in Scotland, which allows non-EEA students to remain in Scotland for up to two years after graduation[89].

In order to ensure that any such scheme delivers the appropriate skills set, it would be necessary to distinguish between the categories of qualifications that are deemed eligible. The *National Framework of Qualifications* could be used as an instrument to determine the appropriate level of qualification required.

7.8.2 Entrepreneurs and Business Permissions

It is envisaged that non-EEA entrepreneurs would continue to avail of the existing *business permit* system.

7.8.3 Intra-company Transfers

The EGFSN recognises the legitimate reasons for the suspension of the intra-company transfer scheme. The importance of this scheme to multinationals, however, has been repeatedly emphasised throughout the consultation process, particularly in relation to company-specific skills. It is recommended that the scheme be re-launched, albeit with a number of added safeguards to minimise fraudulent applications. In particular, applicants ought to submit similar declarations and documentation as is the case for companies applying for either *Green Cards* or work permits to the validating authority before such a transfer is authorised.

Employees entering Ireland under this scheme would be entitled to the same rights and benefits as those using entering Ireland through the *Green Card* scheme. The level at which intra-company transfer is available is important to enterprise. It would appear that in general it is high skilled people who require this facility. However, the intra-company transfer of individuals that wouldn't necessarily meet the *Green Card* eligibility level should be facilitated where it is for the purpose of staff rotation, staff training and development or where they possess company specific skills.

7.8.4 Researchers

The EU has agreed a directive to facilitate the admittance and mobility of third country nationals for the purpose of carrying out scientific research. In particular, it seeks to speed up the admissions process by providing authorised research organisations, who have been designated by a competent authority, with a role in the procedure for the issuing of residence permits. Specifically, these authorised research organisations will be responsible for certifying whether the research project is credible, including financially, and whether the person has the necessary skills. A hosting agreement will be signed between the research organisation and researcher which will offer guarantees concerning the conditions under which the research will be carried out and the researcher's ability to complete the project.

This proposal is due to be formally approved by the EU shortly and thereafter, will be transposed into Irish law. The existence of a separate scheme for researchers does not impinge on the temporary work permit system. Policymakers should, however,

89 In order to be eligible to apply for the *Fresh Talent Scheme* applicants must have graduated with a Higher National Diploma for a Scottish Further Education College or a first degree, Master's degree or PhD from a Scottish Higher Education Institution.

consider the implications that any arrangements made in relation to researchers might have on the high skilled *Green Card* scheme.

7.8.5 Absolute Numbers

One option which policymakers may wish to consider supplementing the above is the imposition of overall limits on the issuing of Work Permits and *Green Cards*. Such a policy would provide the State with an additional mechanism for control. Such a mechanism might be of particular value in the event of an economic downturn. The *Employment Permits Bill* already contains a provison to allow the Minister for Enterprise, Trade and Employment to set an annual limit on inward migration. In arriving at an appropriate level, a number of options might be considered. For instance, the level of third country migration prior to 2004 was bolstered by the ten EU accession states so by the end of 2005, the system should have reached its equilibrium for a full year in terms of non-EEA migration. Given that the policy aim is to realign the equilibrium within the work permit system from low or unskilled labour to high skilled labour, it would be reasonable to assume that the absolute numbers of Green Cards and Work Permits combined, issued in future years should not be greater the number issued in 2005 (using it as a base year). The current level of non-EEA migration i.e. 2005 might be considered as the upper limit of the level.

7.8.6 Fees for Green Cards and Work Permits

The intention of the *Green Card* scheme is to make Ireland as attractive as possible to potential high skilled migrants. Therefore, the cost of a *Green Card* application should be internationally competitive. Likewise, the cost of temporary work permits should not be overly prohibitive. Permit charging must not be seen as a means to raise revenue. Rather, where possible, charges should reflect the level and costs of the service provided. Charging substantial fees clearly can be used as a mechanism in itself to regulate migration flow.

7.9 Alternative Options

In undertaking the research to shape at the above policy and system, many alternatives were considered. As part of this study, discussions were held with the relevant representatives from Sweden, Denmark, the Netherlands, the UK, Australia, New Zealand and Canada. The purpose of these discussions was not to simply identify best practice per se. Rather, it provided an opportunity to learn lessons from the experience of others. Countries such as Australia and Canada have a long history of inward migration and, consequently, have a vast experience of dealing with the administrative challenges posed by immigration. Over the years, these countries have reformed their systems to meet ever-changing circumstances. On occasion, reforms were dictated by changes in global economic circumstances; other reforms were necessitated by shifting domestic labour markets. Nevertheless, the experience garnered by the immigration authorities elsewhere has proved invaluable in shaping the policy recommendations outlined above.

In the following section, a number of alternative systems considered are discussed and some advantages and disadvantages of each system are outlined.

7.9.1 Points System

One of the systems to regulate migration that has gained a lot of currency in many countries is that of a points system. A points system takes account of labour market conditions and/or individual characteristics, measuring both the qualifications and experience of the individual migrant and personal data (such as their age) which determine the likelihood that they will integrate successfully into the host economy *and* society. In principle, a points system can take on a variety of forms. Depending on which of the selection factors is given priority, a points system can refer to a *spectrum* of systems: at one extreme, *supply based* systems select migrants based on their individual characteristics only (as used in Australia); at the other end, *demand based* systems select migrants based on labour market needs of the host country only (for example, the H1-B programme in the United States). If Ireland intended to operate a

supply led system of migration instead of a demand led system based on employers needs, a points system may be the preferred option. To date, however, there has been no evidence that a pool of high skilled individuals wishing to enter Ireland in the absence of a job offer actually exists.

Advantages of a Points System

A points system offers a number of benefits over other systems and meets many of the criteria outlined in *Section 7.2*. Since a points system is based on an evaluation of clear and known criteria, it is entirely transparent. The weightings that are applied to each of these criteria in order to calculate an applicant's suitability can be adjusted accordingly to take account of changes in the domestic and international labour market, thus making it reactive to the needs of the enterprise sector. In New Zealand, for example, it is possible to adjust weightings approximately ever three months. A similar facility here would allow skills that are in short supply to be given a higher weighting as soon as they are identified. Most points tests are available online making them quite user-friendly and administratively expedient. Factors such as age and language proficiency are easily captured by a points based questionnaire, thus addressing integration concerns.

Disadvantages of a Points System

Despite the strengths of a points system outlined above, there are a number of downsides that must also be considered. The first concern is that the administration of a points system can create an undesired level of bureaucracy in order to process unsolicited applications. Points systems tend to create a level of expectation and a supply of applicants which often far outstrips demand. Given Ireland's required levels of migration, this is seen as a significant negative.

Second, once an individual passes the arbitrary test, they are automatically allowed into the country. The main problem occurs, therefore, if the incorrect weightings (or pass mark) are applied. In order for a skilled migration points system to operate effectively, the qualifying bar must be set relatively high. This ensures that only highly skilled individuals can enter the labour market through the points system and that all others must use the work permit system. This helps to prevent third country nationals working in relatively low skilled positions at the expense of perfectly capable locals, thus increasing the occupation gap[90]. If the points system becomes disconnected from labour market needs, it may no longer be an efficient system.

Third, throughout the series of consultations, there was little support amongst employers or research bodies for a supply-led system. It was felt that at the top level, the very highly skilled rarely migrate in anticipation of finding employment. Rather, they tend to migrate only when a firm offer of employment has already been made. For instance, senior researchers will only locate when guaranteed funding is in place. As such, it was felt that a points system was unnecessary to meet Ireland's skills needs.

Finally, as with other systems, difficulties also arise with the recognition of qualifications and assessment of language skills.

7.9.2 Work Permits System

A works permit system has been the primary mechanism for regulating the flow of migrants into Ireland for a number of years.

Advantages of the Work Permits System

In general, the work permit system as it currently exists has proved to be sufficiently adaptable to meet the needs of the majority of Irish industries. In part, this is due to

90 There is evidence from Canada that their points system has resulted in the immigration of a large number of highly skilled individuals without an adequate supply of high skilled employment to accommodate them. This has resulted in migrants competing with less qualified Canadians for employment, with knock-on effects on the unemployment rate.

its ad hoc nature: often in urgent cases, applications for permits can be fast-tracked through the system.

Furthermore, as a demand led migration policy, the work permits system should ensure that immigrants are unlikely to be unemployed since they arrive in the country with an existing job offer. Likewise, an employer-led system can, to a certain degree, privatise the integration regime; after all, it is in the interests of the employer that migrant workers integrate successfully.

Challenges of operating a Work Permit System
While the extremely flexible procedures outlined above have served many companies well, in some instances, particularly for some small and medium enterprises, the system has proved somewhat difficult to navigate and burdensome. The absence of clear guidelines and criteria for fast-track applications, the ad hoc nature of many of the procedures, and the lack of consistency in decision-making leaves the system vulnerable to potential abuses. Furthermore, such factors do not give the impression of transparent, non-discriminatory migration procedures.

Additionally, the requirement for a labour market test (which can take four to five weeks) imposes a significant constraint on companies, particularly when the vacancy in question is for specialised personnel.

The permit system as it currently stands makes little provision for the repatriation of migrants upon the expiration of their permits; most permits are renewed with little or no validation of continued economic need. This gives the impression that the work permit system which was designed to facilitate temporary migration only, can be used to acquire permanent status. Finally, the current system has no forward-looking capacity and makes no attempt to anticipate future trends.

Reforming the Work Permits System
As previously stated, the existing work permits system has largely fulfilled its purpose, albeit with a number of identified flaws. Having identified its strengths and weaknesses, it ought to be possible, therefore, to address the flaws without requiring a widespread and costly overhaul. The main area causing concern is the failure of the individual labour market test to properly regulate migration flows. Instead, a sector-based labour market assessment that identifies skills shortages at an industry level, and conducted centrally by competent bodies could be introduced.

Additionally, rather than providing for lists of employment categories which are *ineligible* for permits, a reformed permit system could provide lists of categories which are *eligible* for work permits. Such lists would be determined by the central labour market assessment. Additional safeguards relating to salary levels or educational attainment could also be introduced.

7.9.3 Bilateral Agreements
A bilateral system refers to an agreement between two countries in relation to labour mobility.

Advantages of a Bilateral Agreement
A bilateral agreement offers a number of advantages to the receiving country. Once an agreement has been reached with a particular country, arrangements and procedures can be put in place to overcome obstacles to migration, such as language barriers etc.

By dealing with migrants from a limited pool of countries, officials can gain a valuable level of expertise when dealing with issues that arise during the application process. Additionally, bilateral agreements encourage the development of networks that may make it easier to attract migrants in the future, while negating the costs associated with handling a diverse immigrant population sourced from multiple countries.

Finally, bilateral agreements can be used in instances where a particular country has a recognised surplus of particular, desired skills sets (e.g. Polish doctors), or to address identified seasonal shortages.

Disadvantages of a Bilateral Agreement
The main objection to a system of bilateral agreements is that this could result in a continuous cycle of negotiations, as developing countries and countries with high unemployment lobby on behalf of their citizens for access to Ireland's labour market. Furthermore, a system that limits entry to selected nationalities may lose out on the positive effects of diversity, such as the development of trade networks and innovative capacity.

7.9.4 Concentration on key countries and sectors

One of the outputs of this report is the identification of countries which offer the best opportunities in relation to the employment of labour at different levels and by sector. In the absence of specific bilateral agreements, Government Authorities, representative bodies and enterprises are free to target those countries within the EEA which present the best opportunities for recruitment and outside the EEA for occupations deemed to be in short supply.

7.9.5 Quota System

A quota refers to a numerical limit on the number of people allowed to enter a country for the purpose of work within a given time period. Quotas can be set for specific sectors or for the economy as a whole. Furthermore, quotas are often combined with other policy tools such as a points system, as is the case in New Zealand. An immigration target is similar to a quota; the main difference being that rather than set a maximum level of immigration, targets set a minimum level of desired immigration.

Advantages of a Quota System
A quota system gives the impression that government is in total control of immigrant numbers, thus allaying public concerns about excessive flows of migrants. A sector specific quota can allow key labour shortages to be filled, without opening up other sectors of the economy. Once a quota has been agreed for a particular sector, it can eliminate the need for individual employers to complete a time-consuming labour market test for each migrant worker they wish to hire.

Disadvantages of a Quota System
While quotas do give the government a large degree of control over who enters a country, they can prove extremely rigid and inefficient; in order to determine the appropriate level of a quota, an accurate forecast of labour shortages is required and to date, this have proved very difficult to achieve.

The case for considering absolute numbers set out in 7.8.5 in tandem with the policy and system suggested amount to the imposition of an overall quota in relation to migration into Ireland.

Conclusion
This chapter has outlined the policy objectives; the key tenets which should underpin an economic migration policy and possible procedures which might be employed to implement such a policy. It has also discussed the advantages and disadvantages of various systems. More importantly it has set out the key findings of this report and the proposed under pinning principles of an Irish economic migration system. It is hoped that the discussion in this report will further add to the understanding of the impact of migration on skills in an Irish context.

Bibliography

Barrett, Alan, Bergin, Adele & Duffy, David (2005); The Labour Market Characteristics & Labour Market Impacts of Immigrants in Ireland, ESRI

Bauer, Thomas & Zimmerman, Klaus F. (1999); Assessment of Possible Migration Pressure and its Labour Market Impact Following EU Enlargement to Central and Eastern Europe; IZA Research Report 3

Bergin, A., Cullen, J., Duffy, D., Fitzgerald, J., Kearney, I., McCoy, D (2003); Medium Term Review 2003-2010; ESRI

Bergin, A., Cullen, J., Duffy, D., Garrett, S., McCarthy, Y., McCoy, D (2005); Quarterly Economic Commentary; ESRI

Borjas, George J. (1999); The Economic Analysis of Immigration; The Handbook of Labour EconomicsVvolume 3A, North Holland; Pages 69-133

Borjas, George J. (2002); The Labour Market Demand Curve is Downward Sloping:Re-examining the Impact of Immigration on the Labour Market; Quarterly Journal of Economics

Casey, B., Finn, C., Hughes, G., Morgenroth, E., Sexton, J.J. (2004), Occupational Employment Forecasts by Region for 2010, Report No. 11; FÁS/ESRI

Chamber of Commerce of Ireland (2004); Labour Force 2004

Christian, Bryan Paul (2000); Facilitating High-skilled Migration to Advanced Industrial Countries: Comparative Policies; Institute for the Study of International Migration Working Paper, Georgetown University

Clinch, Peter et al (2000); After the Celtic Tiger

Department of Justice, Equality & Law Reform (2005); Planning for Diversity: The National Action Plan Against Racism 2005-2008

Department of Justice, Equality & Law Reform (2005); Immigration and Residence in Ireland: Outline policy proposals for an Immigration and Residence Bill: A Discussion Document

Department of Trade & Industry & Home Office (2002), UK; Knowledge Migrants: The Motivations & Experiences of Professionals in the UK on Work Permits

Drinkwater, Stephen et al (2002); The Economic Impact of Migration: A Survey

Enterprise Strategy Group (2004); Ahead of the Curve: Ireland's Place in the Global Economy

Equality Authority (2005); Annual Report 2004

Fitzgerald, John (2004); Ireland – An Ageing Multicultural Economy, ESRI

Foner, Nancy (2000); Immigration Research for a New Century; Russell Sage Foundation

Glover, Stephen et al; Migration: An Economic & Social Analysis (2001); RDS Occasional Paper No. 67; Home Office

Griswold, Daniel T. (2002); Willing Workers – Fixing the Problem of Illegal Mexican Migration to the United States; Centre for Trade Policy Studies

Home Office (2005); Controlling Our Borders: Making Migration Work for Britain; A Five Year Strategy for Asylum and Immigration.

Hughes, Gerard (2005); Annual Report on Statistics on Migration, Asylum and Return: Ireland 2002; European Migration Network

Hughes, Gerard & Quinn, Emma (2004); The Impact of Immigration on Europe's Societies: Ireland; European Migration Network

Hughes, Gerard & Quinn, Emma (2005); Policy Analysis Report on Asylum and Migration: Ireland 2003 to Mid-2004; European Migration Network

Immigrant Council of Ireland (2003); Labour Migration into Ireland: Study and Recommendations on Employment Permits, Working Conditions, Family Reunification and the Integration of Migrant Workers in Ireland

Immigrant Council of Ireland (2005); European Commission Green Paper on an EU Approach to Managing Economic Migration: Submission on Behalf of the Immigrant Council of Ireland

Immigrant Council of Ireland (2005); Summary Analysis and Initial Response to the Government's Proposals for an Immigration and Residence Bill

International Organization for Migration (2004); Valuing Migration: Costs, Benefits Opportunities and Challenges.

International Organisation for Migration (2005); World Migration 2005: Costs and Benefits of International Migration

Irish Business and Employers Confederation (2001); IBEC Submission to The Department of Justice, Equality and Law Reform on National Immigration Policy; October 2001

Irish Business and Employers Confederation (2005); IBEC News; July 2005

Irish Congress of Trade Unions (2004); Submission on Immigration Bill 2004; February 2004

Kempton, Jeremy (2002); Migrants in the UK: Their Characteristics & Labour Market Outcomes & Impacts; RDS Occasional Paper No. 82; Home Office

Jan Kunz and Mari Leinonen (2004); Europe Without Borders – Rhetoric, Reality, or Utopia?; Draft Article of the Migration Without Borders Series, UNESCO

Labour Relations Commission (2005); Migrant Workers and Access to Industrial Relations Services: A Study of the Position of Migrant Workers in Ireland and their Access to, and Use of the State's Dispute Resolution Agencies

Lazear, Edward .P. (2000);"Culture and Language" in Essays in Honor of Gary S. Becker, Journal of Political Economy 107 (6): S95-126. Part 2

Lilley, Peter (2005); Too Much of a Good Thing; Centre for Policy Studies

Mahroum, Sami (1999); Highly Skilled Globetrotters: The International Migration of Human Capital; Institute for Prospective Technological Studies, Joint Research Centre of the European Commission; Seville

Minns, Chris (2005); Immigration Policy & the Skills of Irish immigrants: Evidence & Implications; IIIS Discussion Paper No 68; Department of Economics & IIIS, Trinity College Dublin

OECD (2003); Trends in International Migration; Paris

O'Rourke, Kevin H. (2004); The Era of Free Migration: Lessons for Today; IIIS Discussion Paper No. 18; Department of Economics & IIIS, Trinity College Dublin

Pécoud, Antoine & de Guchteneire, Paul (2005); Migration Without Borders: An Investigation in to the Free Movement of People; Global Migration Perspectives No. 27; Global Commission on International Migration

Ruhs, Martin (2005); The Potential of Temporary Migration Programmes in Future International Migration Policy; Global Commission on International Migration

Ruhs, Martin (2005); Managing the Immigration and Employment of Non-EU Nationals in Ireland, Studies in Public Policy No. 19, Trinity College Dublin

Ruhs, Martin (2003); Emerging Trends & Patterns in the Immigration & Employment of Non-EU Nationals in Ireland; The Policy Institute, Trinity College Dublin

Scottish Executive (2004); New Scots: Attracting Fresh Talent to Meet the Challenge of Growth; Edinburgh; February 2004

Scottish Executive (2005); Success: A Strategy for the Financial Services Industry in Scotland; Edinburgh

Shah, Chandra & Burke, Gerald (2003); Skill Shortages: Concept Measurement and Implications; Centre for the Economics of Education & Training; Working Paper No. 52

Shields, Michael & Wheatley Price, Stephen (2002); The Labour Market Outcomes and Psychological Well-being of Ethnic Minority Migrants in Britain; University of Leicester

Small Firms Association (2005); Eleventh National Employment Survey 2005: Executive Summary and Survey Results

Tansey, Webster Stewart & Company (2002); Recent Trends in Migration 1999-2001 & Estimates of Future Migration Flows into the Irish Labour Market

Trendle, Bernard (2005); Perspectives on Skills Shortages; Labour Market Research Unit, Department of Employment & Training, Queensland Government; Working Paper No. 33

UNICE (2005) Response to the Commission Green Paper on an EU approach to managing economic migration; May 2005

Weiss, Yoram (2000); High Skill Immigration: Some Lessons from Israel; Swedish Economic Policy Review 7

Appendix 1
Membership of Steering Group

Aileen O'Donoghue	IBEC, Chairperson of Steering Group

David Hedigan	Enterprise Ireland
Peter Lillis	IDA Ireland (Alternates: Pat Howlin and Garret Sheehy)
Brian McCormick	FÁS
Sean Murray	Department of Enterprise, Trade & Employment
Manus O'Riordan	Services, Industrial, Professional and Technical Union (SIPTU)
Frances Ruane	Trinity College, Dublin

Secretariat

Martin Shanahan	Forfás
Conor Hand	Forfás

Appendix 2
List of Consultations

Domestic

Bord Bia
Conference of Heads of Irish Universities
Construction Industry Federation
Department of Agriculture and Food
Department of Enterprise, Trade and Employment, Office of Science and Technology
Department of Health and Children
Department of Justice, Equality and Law Reform
Dr. Frank McCabe, Former Vice President, Intel Corporation
Enterprise Ireland
Fáilte Ireland
FÁS
IDA Ireland
Irish Business and Employers Confederation
IFSC Clearing House Group
Immigrant Council of Ireland
Irish Hotels Federation
Irish Small & Medium Enterprises Association
Labour Relations Commission
Lotus Automation
National Economic and Social Council
Office of the Chief Science Adviser
Restaurants Association of Ireland
SIPTU
Small Firms Association
Smurfit Business School
State Street International (Ireland) Limited
Teagasc
Tyndall National Institute
University College Cork

International

Australian High Commission
Bruce Morrison, Chairman, Morrison Public Affairs Group
Canadian High Commission
Centre on Migration Policy and Society, University of Oxford
Citigroup (UK)
Confederation of British Industry
Confederation of Netherlands Industry and Employers (VNO-NCW)
Danish Immigration Service
Danish Ministry for Integration
Embassy of the Czech Republic (UK)
Embassy of the Republic of the Republic of Hungary
Embassy of the Republic of the Republic of Poland
German Ministry of Economics and Labour
Home Office, UK
London Development Agency
Netherlands Ministry of Foreign Affairs
Netherlands Ministry of Justice, Office of Immigration and Naturalisation
Netherlands Ministry of Social Affairs and Employment
New Zealand Department of Labour

New Zealand High Commission
Scottish Executive
Scottish Financial Enterprise
Swedish Employers Confederation
Swedish Ministry of Industry, Employment and Communications
Swedish Ministry for Foreign Affairs

Appendix 3
Membership of the Expert Group on Future Skills Needs

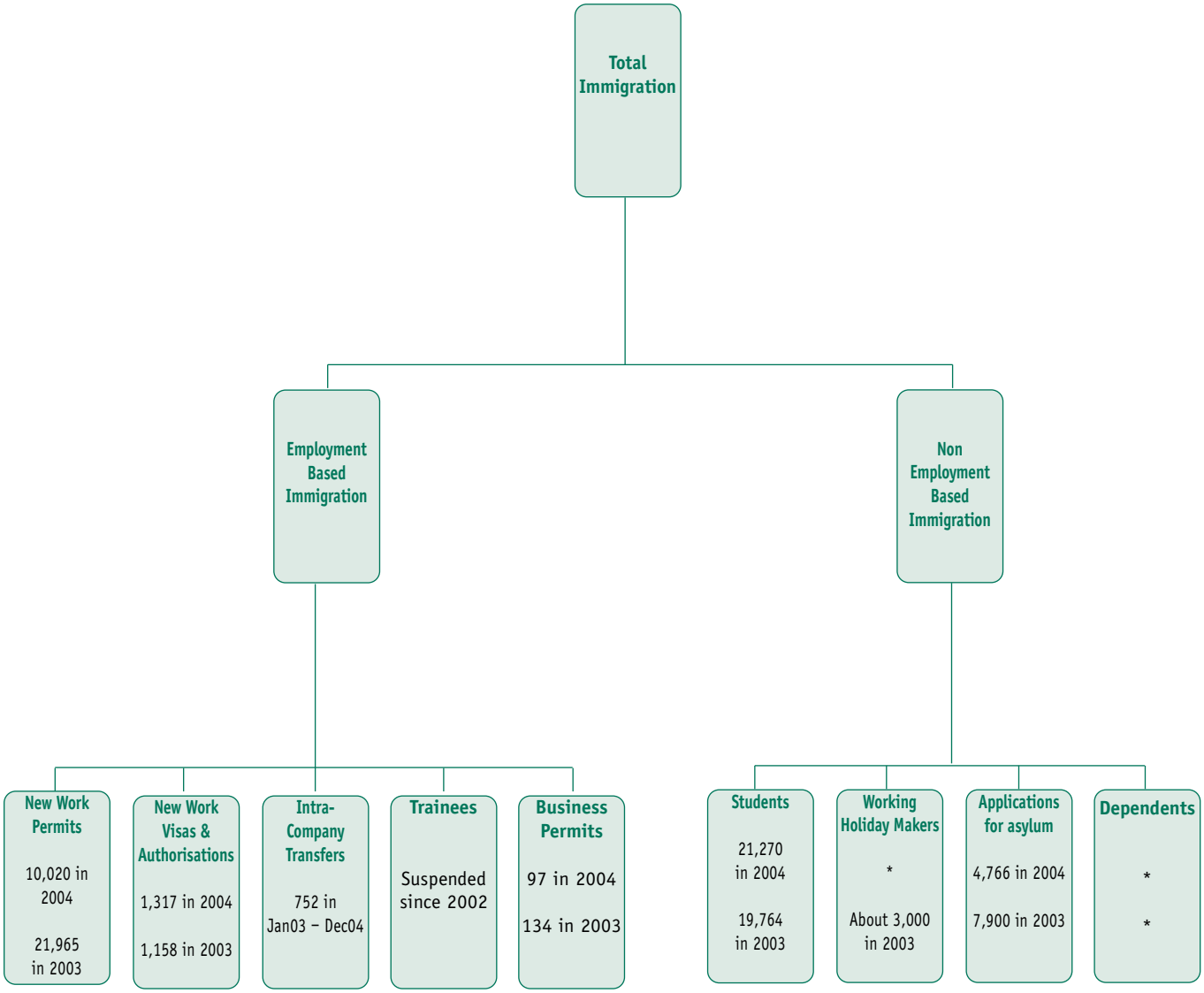
Anne Heraty	CPL Resources PLC	*Chairperson*
Senan Cooke	Waterford Crystal Ltd.	*Member*
Jack Golden	Cement Roadstone Holdings PLC/IEI	*Member*
Una Halligan	Hewlett Packard	*Member*
Joe McCarthy	Arkaon Ltd.	*Member*
Dr. Sean McDonagh	*Former* Director of Dundalk IT	*Member*
Dr. Brendan Murphy	Cork Institute of Technology	*Member*
Aileen O'Donoghue	IBEC	*Member*
Peter Rigney	ICTU	*Member*
Linda Tanham	Mandate	*Member*
Ruth Carmody	Dept. of Education & Science	*Advisor*
Fergal Costello	Higher Education Authority	*Advisor*
Roger Fox	FÁS	*Advisor*
Pat Hayden	Dept. of Enterprise, Trade & Employment	*Advisor*
Andrew McDowell	Forfás	*Advisor*
Anne Nolan	Dept. of Finance	*Advisor*
Martin Shanahan	Forfás	*Head of Secretariat*

Appendix 4
Publications by the Expert Group on Future Skills Needs

Report	Date of Publication
The Demand & Supply of Foreign Language Skills in the Enterprise Sector	May 2005
Skills Requirements of the Digital Content Industry in Ireland Phase I	February 2005
Innovate Market Sell	November 2004
The Supply and Demand for Researchers and Research Personnel	September 2004
Literature Review on Aspects of Training of those at Work in Ireland	June 2004
Financial Skills Monitoring Report	November 2003
Responding to Ireland's Growing Skills Needs - The Fourth Report of the Expert Group on Future Skills Needs	October 2003
The Demand and Supply of Skills in the Biotechnology Sector	September 2003
Skills Monitoring Report – Construction Industry 2003/10	July 2003
Benchmarking Education and Training for Economic Development in Ireland	July 2003
The Demand and Supply of Engineers and Engineering Technicians	June 2003
The Demand and Supply of Skills in the Food Processing Sector	April 2003
National Survey of Vacancies in the Private Non-Agricultural Sector 2001/2002	March 2003
National Survey of Vacancies in the Public Sector 2001/2002	March 2003
The Irish Labour Market: Prospects for 2002 and Beyond	January 2002
Labour Participation Rates of the over 55s in Ireland	December 2001
The Third Report of the Expert Group on Future Skills Needs – Responding to Ireland's Growing Skills Needs	August 2001
Benchmarking Mechanisms and Strategies to Attract Researchers to Ireland	July 2001
Report on E-Business Skills	August 2000
Report on In-Company Training	August 2000
The Second Report of the Expert Group on Future Skills Needs – Responding to Ireland's Growing Skills Needs	March 2000

Report	Date of Publication
Business Education and Training Partnership 2nd Forum, Dublin	March 2000
Business Education and Training Partnership Report on the Inaugural Forum, Royal Hospital Kilmainham	March 1999
The First Report of the Expert Group on Future Skills Needs – Responding to Ireland's Growing Skills Needs	December 1998

Appendix 5
Major Channels of Legal Immigration into Ireland



* Data not available.

Appendix 6
Data Requirements

In order to adequately monitor the level and impact of inward migration, it is vital to have access to a complete and comprehensive set of data. Currently, the responsibility for the collection of data on migration is dispersed between the CSO, the Work Permits Units in DETE, the Department of Social and Family Affairs and the Department of Justice, Equality and Law Reform.

In many instances, data produced by one body is not directly comparable with data produced elsewhere. This makes worthwhile analysis of migration trends and flows significantly more cumbersome.

In other countries with significant inward migration, evidence based policymaking is prioritised and locations such as New Zealand are already performing longitudinal studies to monitor various aspects of immigration, including integration and social effects. Such studies would be extremely difficult to conduct in Ireland, given the multitude of incompatible data sources, and the lack of availability of certain types of data.

For Irish authorities to be able to perform similar analysis here, the nature and depth of the data that is collected needs to be improved. This involves making better use of data which in already collected (but is inaccessible or difficult to use), collecting new types of data (including aspects of migration which are not currently captured), and ensuring improved coordination between the agencies responsible for data collection. Finally, policymakers should be aware that even where migration related data does exist, it will often significantly lag the reality of the situation on the ground.

Making Better Use of Existing Data

- CSO surveys on employment (particularly the *Quarterly National Household Survey*) currently include questions on nationality in their surveys. The published reports, however, do not make detailed micro level data available. Rather than categorising nationality in five broad grouping, more detailed, country specific data is required, particularly for the new EU member states. Such data should be published as part of the regular publication.
- The relatively small sample size of the QNHS makes it likely that it does not fully capture the characteristics of the migrant population.
- Work permit application and renewal forms should collect more detailed information on aspects of interest to policymakers, particularly in relation to educational attainment. Mechanisms should also be devised to capture data on a migrants' previous work experience. This data then needs to be made accessible to policy makers.
- The data collected by the Department of Justice, Equality and Law Reform on visas should be made available.
- Personal Public Service applications should be correlated with other administrative systems. For instance, any non-EEA national applying for a PPS number should be required to demonstrate the purpose of their residency in Ireland (whether through the work permits system, working visa arrangements or some other scheme).
- All relevant data on immigration should be published in comprehensive form on the appropriate website.

Collecting New Data

- There is an urgent need to track the progress of migrants upon entry into Ireland in order to monitor aspects such as integration etc. The various data collection systems should ensure that all aspects of a migrant's life are traceable, including employment changes etc. in order to produce longitudinal studies of comparable standard to countries currently engaged in best practice.
- In relation to the possibility of introducing exit controls to monitor flows of people leaving the country, it is recognised that the introduction of such procedures would increase the administrative burden attached to border control. Furthermore, the introduction of exit controls would have implications for the operation of the *Common Travel Area* with the UK. There are also far-reaching societal issues which need to be considered prior to the implementation of a stricter exit regime. Nevertheless, on the positive side, an exit control regime which facilitated the gathering on migration data would be useful to policymakers. Currently, it is difficult to track EEA citizens who enter Ireland legally and register for a Personal Public Service (PPS) number with the Department of Social and Family Affairs; while it is possible to identify how many EEA citizens actually register, at present it is virtually impossible to tell how many actually remain in Ireland. Exit data would provide a clearer picture on the number of migrants who do not require permits or visas to work in Ireland and this could be useful when determining migration policy.
- Likewise, exit data on work permit holders would be a useful tool in estimating the number of work permit/work visa holders who remain on illegally in Ireland upon the expiration of their permission to remain. Currently, it appears there is no way of telling whether a migrant leaves the country at the end of the period of their permit/visa or whether they enter the informal economy.
- Enhancing the ongoing coordination between the Revenue Commissioners and the Department of Justice, Equality and Law Reform would allow for improved monitoring of non-nationals participating in the labour force.
- Of particular importance is the need to acquire earnings data for migrants. Likewise, data on language proficiency would be extremely valuable.
- The number of people entering Ireland who are not active in the labour market (i.e. dependants) needs to be examined.

Appendix 7
Summary of Key Data

Table 1: Total Work Permits Issued 1 Jan 1999 - 31 August 2005

	New	Renewals	Group	Total
1999	4,328	1653	269	6250
2000	15,434	2,271	301	18,006
2001	29,594	6,485	357	36,436
2002	23,326	16,562	433	40,321
2003	21,965	25,039	547	47,551
2004	10020	23246	801	34067
2005	4937	12611	560	18108

Source: DETE

Table 2: Total Work Visas/Authorisations Issued 1 Jan 2000 - 31 Mar 2005

	WA	WV	Total
2000	392	991	1383
2001	1082	2667	3749
2002	857	1753	2610
2003	367	791	1158
2004	314	1003	1317
2005	95	461	556
Total	3107	7666	10773

Source: DETE

Table 3: Work Permits Issued to EU10, 2002 - 2004

	2002	2003	2004
Poland	3142	4808	1915
Lithuania	3816	4551	1238
Latvia	3958	4160	1201
Slovakia	459	533	119
Czech Rep	1138	1111	265
Hungary	379	398	72
Estonia	820	1012	293
Malta	24	15	2
Slovenia	13	16	5
Cyprus	3	2	0
Total	**13752**	**16606**	**5110**

Source: Dept. of Social & Family Affairs

Table 4: PPS Numbers Issued to EU10, 1 Jan 2002 - 31 August 2005

	2002	2003	2004	2005
Poland	2664	3760	27295	42844
Lithuania	2787	2225	12817	13556
Latvia	1527	1150	6266	6677
Slovakia	245	244	5,187	5,747
Czech Rep	1149	827	3298	3096
Hungary	260	181	1839	1995
Estonia	461	542	1788	1604
Malta	208	192	205	119
Slovenia	2	7	64	56
Cyprus	9	6	27	21
Total EU10	**9303**	**9134**	**58786**	**75715**

Source: Dept. of Social & Family Affairs

Appendix 8
List of Acronyms

CSO:	Central Statistics Office
DES:	Department of Education and Science
DETE:	Department of Enterprise, Trade and Employment
DFA:	Department of Foreign Affairs
DJELR:	Department of Justice, Equality and Law Reform
EEA:	European Economic Area
EFTA:	European Free Trade Association
EGFSN:	Expert Group on Future Skills Needs
ESG:	Enterprise Strategy Group
EU:	European Union
ESRI:	Economic and Social Research Institute
GDP:	Gross Domestic Product
GNP:	Gross National Product
HRST:	Human Resources Science Technology
ICI	Immigrant Council of Ireland
ICT:	Information and Communications Technology
IFSC	International Financial Services Centre
IOM:	International Organisation for Migration
IoT:	Institute of Technology
LRC:	Labour Relations Commission
NCC:	National Competitiveness Council
NCCRI	National Consultative Committee on Racism and Interculturalism
NESC:	National Economic and Social Council
NPAR:	National Action Plan Against Racism
NQAI:	National Qualifications Authority of Ireland
OECD:	Organisation for Economic Cooperation and Development
PPP:	Purchasing Power Parity
PPS number:	Personal Public Service number
SLMRU:	Skills and Labour Market Research Unit