2005

The Competitiveness Challenge 2005

Forfás

National Competitiveness Council

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Annual Policy Statement
of the National Competitiveness Council

Forfás

National Competitiveness Council

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Foreword by An Taoiseach

In my foreword to the Annual Competitiveness Report, 2005 I commented that the continued strong performance of the Irish economy over the past year has been outstanding. We are still maintaining an enviable fiscal position, virtually full employment, rising real living standards and a highly competitive personal income tax regime. Ireland's international competitiveness has played a crucial role in building this success. Therefore, in order to build on the success and to ensure that living standards continue to rise, it is vital that we maintain and develop the competitiveness of the economy. Competitiveness will be enhanced by well-designed social policies and services, making Ireland an attractive place to live in and supporting higher participation in employment. Economic and social progress are inherently interlinked, and associated policies should complement and reinforce each other.

The pressures of globalisation are relentless, presenting particular challenges to our competitiveness. The rise of new industrial powers in China and India, in particular, as well as the dynamic created within the European Union through the membership of new, well-educated and dynamic States, makes us all subject to relentless competitive pressure. We need to protect our current strengths and develop new bases for competitive advantage.

In order to maintain and enhance competitiveness in the context of a higher cost economy, a greater focus on productivity across all sectors of the economy is essential. Only through maintaining and renewing repeatedly our strong enterprise base can we continue to enjoy high living standards. We need to continue managing our public finances responsibly, not only by balancing the books, but by prioritising investment in those areas which will sustain and increase our capacity for long-term growth. A growing economy and a dynamic population need infrastructure to match. We are addressing our infrastructure deficit through investment of 5% of our GNP in public infrastructure (among the highest level of investment in the EU and about twice the EU average). We are committed to an active public private partnership arrangement to deliver new infrastructure, whenever that makes sense. The recent announcement of the Transport 21 programme of investment is a major commitment in this area.

In the global knowledge-based economy, we increasingly recognise human talent and creativity as the key resource – and the only sustainable source of competitive advantage. How we unlock and further develop this talent and creativity in our workplaces has therefore become the crucial organisational issue of our time.

While accelerated technological change is a contemporary reality that we must all embrace, research shows us that the value of new technologies in the workplace cannot be unlocked by simply bolting them on to established ways of doing business. It is increasingly clear that most of the key issues underpinning successful technology-enabled change are in fact about embracing new ways of doing things – new work practices, new skills, new channels of communication, and new organisational structures.

As set out in our National Reform Programme under the Lisbon process, competitiveness is a key focus of Government policy. The aim is to enhance competitiveness by creating an environment where enterprise can flourish and consumers are protected. At the same time, policies seek to upskill the labour force, provide sustainable employment opportunities, improve workplace conditions and help to build an inclusive society.

The National Competitiveness Council provides valuable advice to the Government on issues related to competitiveness. I would like on my behalf and that of my colleagues in Government to thank the Council for its important work. I am pleased to introduce the Competitiveness Challenge 2005.

Mr Bertie Ahern, T.D.

Taoiseach

November 2005

Chairman's Preface

The Competitiveness Challenge is published annually by the National Competitiveness Council (NCC). This is the eighth publication in the series. The purpose of the Competitiveness Challenge is to highlight the main challenges facing the Irish business sector, and to identify the responses necessary to support and further improve Ireland's competitiveness position.

The Competitiveness Challenge 2005 draws on the analysis and benchmarking in the Annual Competitiveness Report (ACR), which we published last September.

Sustained economic growth is the ultimate measure of competitiveness. By this criterion, the Irish economy is the most competitive of the 15 economies benchmarked in the ACR. Our annual average GNP and GDP growth rates (at over 6 per cent) were the highest recorded for this group of countries over the last five years. The ACR ranks Ireland second out of 15 countries in terms of GDP per capita and sixth out of 15 countries under GNP per capita. Furthermore, real GNP is expected to grow by a further five per cent this year, compared with an OECD average of 2.6 per cent. The ACR 2005 also recorded that Ireland has performed remarkably well in terms of increasing employment. The level of employment in Ireland stands at over 1.9 million people.

The focus of the Council's attention in this report is on how our economic success and future competitiveness can be sustained in the medium-long-term. In looking forward we do so from a position of considerable achievement. The challenges we face are largely structural and require action over the medium and long term. A short term focus is also required – for example on ensuring that we do not fall behind competitor countries in terms of prices and costs competitiveness, and that the role of domestic demand in driving economic growth is sustainable into the medium and long term.

In the long run, in a small regional economy like Ireland, economic prosperity ultimately depends on our ability to sell goods and services abroad and therefore on the productivity of our economy. The NCC believes that the crucial challenge for Ireland is to put the policies in place now that will develop the conditions necessary to drive productivity growth in the coming decades. It is in many of these policy areas – such as the level of investment in R&D, competition policy, and the usage of ICT, and investment in education and training where the NCC believes the focus of government policy should now be put.

In Competitiveness Challenge 2005, the NCC calls for action in a number of areas.

- We highlight the need to achieve greater value for money in the delivery of physical infrastructure, and more generally, the need to improve the effectiveness and efficiency of the public sector. We recommend broadening the tax base and phasing out tax incentives for property investment. We also see a need for widening the revenue base of local authorities, subject to substantial and continuing reform.

- By delivering upon the National Spatial Strategy and by focusing on the development of the Greater Dublin Area, the next NDP presents a significant opportunity to enhance our business environment. In the context of implementing the ten year transport plan – Transport 21, the NCC views it as crucial to ensure that the multiple national and local authorities that operate within the Greater Dublin area work together.

- Ireland has the potential to develop an education system to be one of the best in the world. This requires reducing educational disadvantage throughout the school system, promoting life long learning, and building an internationally competitive higher education and research system at the highest levels of achievement. All parts of the educational system will require significant additional resources and we see an increased role for private finance in higher education.

- Finally, Government should sustain technological innovation by industry through increased support for knowledge and technology diffusion from academic research into the business sector, research and development in the business sector, the development of networks and clusters, and by developing effective frameworks to facilitate commercialisation. There is also a need to improve business process innovation through increased ICT literacy and management skills.

Many of the recommendations in Competitiveness Challenge 2005, as in past years, focus on public policy. Some of the policy directions recommended are controversial. The Council is proposing these directions for consideration because we consider that they are necessary to sustain and build on the remarkable economic progress that has already been achieved. In doing so we are conscious that Government, and the wider political system, are not the only actors involved. Many – if not most – of the actions needed to move Ireland to a more innovation-oriented stage of economic development are outside the direct remit of policy makers. Significant responsibilities also lie in the hands of, among others, the managers of individual firms, educationalists, industry associations and trade unions. We look forward to a broadly based, constructive and measured debate on these proposals.

Finally, I would like to thank all the Council members, and the senior advisers from Government departments who attend meetings of the Council, for their valuable contributions and assistance in producing this document. The preparation of the report would not have been possible without the essential contribution of the Forfás Executive who provide us with first class research and secretariat support. I would like to thank them on behalf of all members of the Council.

Dr Don Thornhill

Chairman, National Competitiveness Council

November 2005

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1 Introduction and Overview

1.1 The Competitiveness Challenge

Twenty years ago, the competitiveness challenge facing Ireland was clear – the need to reduce double-digit price and pay inflation, to lower government spending and debt, to resolve industrial unrest and to improve infrastructure – all with the aim of reducing unemployment and emigration and closing the gap between Irish and average EU living standards. A strategy of positioning Ireland as an export-driven high-tech production hub for the EU market was pursued by successive governments, centred around a number of key policy objectives:

- Wage predictability, fiscal rectitude, and industrial peace delivered through social partnership.
- The aggressive pursuit of inward foreign direct investment (FDI) through low rates of corporation tax and direct financial supports.
- A high degree of openness to international trade and investment, particularly through EU economic integration, WTO membership and our strong economic links with the USA.
- Reform of our education system to provide enterprise with adaptable and skilled people.
- Supportive exchange rate and monetary policies, culminating in Ireland's participation in European Economic and Monetary Union (EMU) in 1999.
- Tax reform to promote entrepreneurship and risk-taking, and a flexible regulatory and business environment.

Table 1.1: Ireland's Economic Transformation 1984-2004

	1984	1994	2004
Unemployment Rate (per cent)	15.4	14.7	4.3
Employment Rate (percentage of working age pop.)	53.2	52.2	66.7
Exports (€m)	12,405	32,916	123,519
Government Debt (as a percentage GDP)	112.8	89.7	30.5
Irish GNP per Capita (€, current prices)	5,367	11,224	30,726
Irish GNP per Capita (as a percentage of EU Average)	62	79.4	105.9
Private Sector Credit as a percentage of GNP	49	76	163

Source: CSO

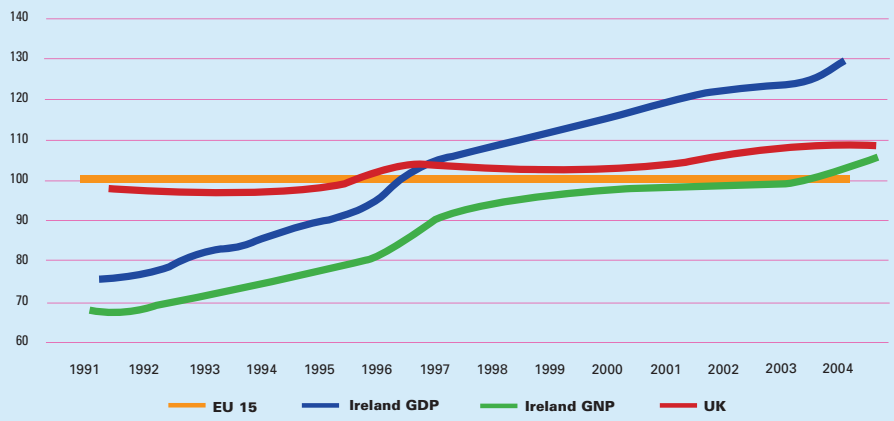
The success of this strategy merits repeating. In the ten years to 2004, Irish GNP growth averaged over seven per cent per annum in real terms, more than double that of the USA and close to triple that of the eurozone. Rapid growth has lifted income per capita in this country to among the highest in the world. In 2004, GNP per capita measured €30,726, ranking Ireland above the EU average. Real GNP is expected to grow by a further five per cent this year,[1] compared with an OECD average of 2.6 per cent.[2] The number in employment is close to two million, emigration has been replaced by immigration and the public finances are in a strong position. While income differentials have widened, a range of other social indicators – from poverty to education levels and life expectancy – have moved in the right direction over this period, as evidenced by Ireland's progression up the UN's Human Development Index. Life chances have also improved significantly over the period 1994-2001, a trend which is directly related to declining unemployment and reduced levels of dependence on social welfare.[3]

1 Monthly Economic Bulletin, Department of Finance, October 2005.

2 "Quarterly Bulletin No. 3", Central Bank, 2005.

3 Trends in Welfare for Vulnerable Groups, Ireland 1994-2001. ESRI Policy Research Series, No. 56, August 2005.

Figure 1.1 Growth in Ireland's GDP per Capita (100 = EU –15 GDP per Capita



Source: Eurostat

Success brings its own challenges, and the strategy applied over the last 15 years needs to be adapted to take account of far-reaching domestic and global economic changes. In many ways, the next competitiveness challenge – sustaining our economic success – is likely to be a more complex and subtle endeavour. In the view of the NCC, there are five inter-linked medium-term challenges:

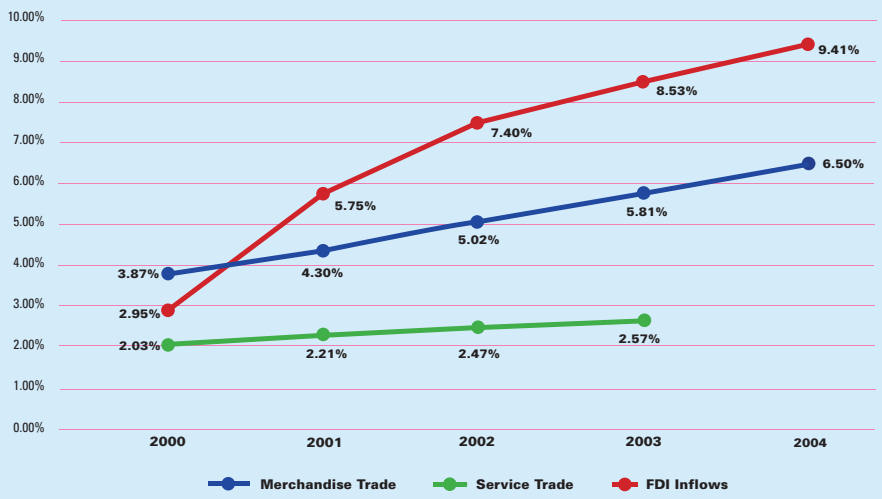
- Globalisation and Increased Competition
- Our Rising Cost Base
- A Shift from Manufacturing to Services
- The Increasing Role of Knowledge and Technological Change
- Quality of Life Issues and Demographic Changes

1.1.1 Globalisation and Increased Competition

Globalisation, the movement of capital, products, services, ideas and people across national borders is not a new phenomenon. What is unprecedented, however, is the accelerating pace and scale of the changes now taking place in the world economy as a result of global political reforms, the liberalisation of trade and greatly improved international transport and communications. For example, global merchandise trade grew by 11 per cent in 2004, against global growth of four per cent. These changes are re-shaping the international division of labour and the structures of developing and advanced economies alike, and present Irish companies with competitive challenges more comprehensive and unremitting than at any point in our history.

Many parts of China, India, South East Asia and Central Europe now compete for the types of high-tech manufacturing and services activities – electronics, software, financial services and pharmaceuticals – that drove Ireland's economic growth over the last 15 years. Many have also replicated Ireland's strategy of export-driven growth through favourable corporation tax regimes, direct incentives and availability of high level skills. There is now a growing track record of medium to high end manufacturing in these countries that were once regarded as being too underdeveloped for these activities. In 2005, the trade surplus of China alone is expected to reach €100 billion, with much of the export growth being accounted for by relatively high-tech products such as computers and other electronic equipment.

Figure 1.2 China's Share of Global Merchandise/Services Trade/FDI Inflows 2000-2004



Source: WTO (Services trade data is not yet available for 2004)

We are also witnessing what some call the third stage of globalisation – characterised by the movement of knowledge-intensive activities, such as research, to developing countries such as China and India, following the movements of goods and capital in earlier periods. There is now a well established trend of multinational companies setting up Research and Development (R&D) facilities outside developed countries that go beyond adaptation for local markets, contrasting with earlier views that R&D activities would remain the preserve of developed countries because of the need for high level skills, knowledge and support infrastructure. The number of foreign R&D units in China has increased from zero in 1993 to 700 today;[4] China's total spending on R&D climbed from $21 billion in 1996 to $84 billion in 2003 (1.3 per cent of GDP) and, in absolute terms, is now behind only that of the USA ($284 billion) and Japan ($111 billion). This trend is blurring the traditional differences between industrialised and developing countries, and there is now a 'race to the top' in the pursuit of high paid, knowledge-intensive economic activities.

These commercial, technological and demographic (Table 1.2) trends have profound implications for the world's economic geography. In the coming decades, Asia and the Pacific Rim will be a leading engine of global growth, not just in industrial production but also in terms of science and technological development. Opportunities will increase for Irish companies in the Asian market, which includes a growing urban population with growing disposable incomes. In contrast, Europe's relative industrial and technological prowess has been declining. Most EU countries are expected to record significant population declines in the next five decades. This will present challenges to Irish enterprise, which has grown during the last 15 years primarily through rapid export growth to the UK, European and North American markets.

4 "Trans-national Corporations and the Internationalisation of R&D", UNCTAD World Investment Report, 2005.

Table 1.2: The World's Population by Region, 2000-2050

Region (Population in Millions)	2000	2050	Projected Change in Millions
Europe	727	603	-124
North America	314	438	+124
Latin America (and Caribbean)	519	806	+287
Africa	794	2,000	+1,206
Asia	3,672	5,428	+1,756

Source: UN Population Statistics

1.1.2 Ireland's Rising Cost Base

The intensification of competition from low cost locations has coincided with, and exposed, a sharp rise in Ireland's cost base in recent years. According to the ACR 2005, the average cost of Irish goods and services (when measured in a common currency) increased by over a fifth relative to our trading partners in the period 2000-04. A rise in the external value of the euro over this period, particularly against the U.S. dollar, has been the biggest cause of the deterioration in Ireland's cost competitiveness, although faster growth in domestic prices and wages in Ireland compared with our trading partners has also played a significant role. In 2000-2003, consumer price inflation in Ireland averaged 4.5 per cent per annum, more than twice that in the eurozone. While inflation fell towards average EU and eurozone levels during 2004 and 2005, prices have stabilised at higher levels and Ireland is now the most expensive country in the eurozone for consumer goods and services, and the second most expensive country in the EU, behind Denmark.

The high rate of domestic price inflation in Ireland in recent years partly relates to convergence in average Irish and European pay levels due to faster economic growth in Ireland. Higher inflation due to this 'convergence effect' is not, in itself, a major concern, reflecting a natural rise in the cost of domestic services justified by higher incomes and living standards.[5] Factors contributing to the rise in costs that are of greater concern from a competitiveness perspective are:

- economic overheating in the 1999-2001 period caused by a combination of tax cuts, falling interest rates and fast growth in public spending.
- rapid credit growth and the boom in the construction industry.
- the circular impact of rapid house price inflation on wage growth.
- continuing regulatory and private restrictions to competition, and
- large increases in the cost of government administered services.

5 In an economy catching up with its richer neighbours, labour productivity tends to rise faster in sectors producing internationally tradable goods (particularly in capital-intensive manufacturing industry) than in those involved in the more labour-intensive and generally non-traded service sector. Increases in labour productivity growth in traded manufacturing industries are usually followed by wage growth throughout the economy (both manufacturing and services compete for employees in the same labour market). Thus, a combination of wage growth across both traded and non-traded sectors, but lower labour productivity gains in the services sector, leads to more rapid increases in the cost of services. In this way, services inflation is often higher in those regions of a monetary union enjoying the most rapid growth in productivity and incomes. This is known as the 'Balassa-Samuelson effect'.

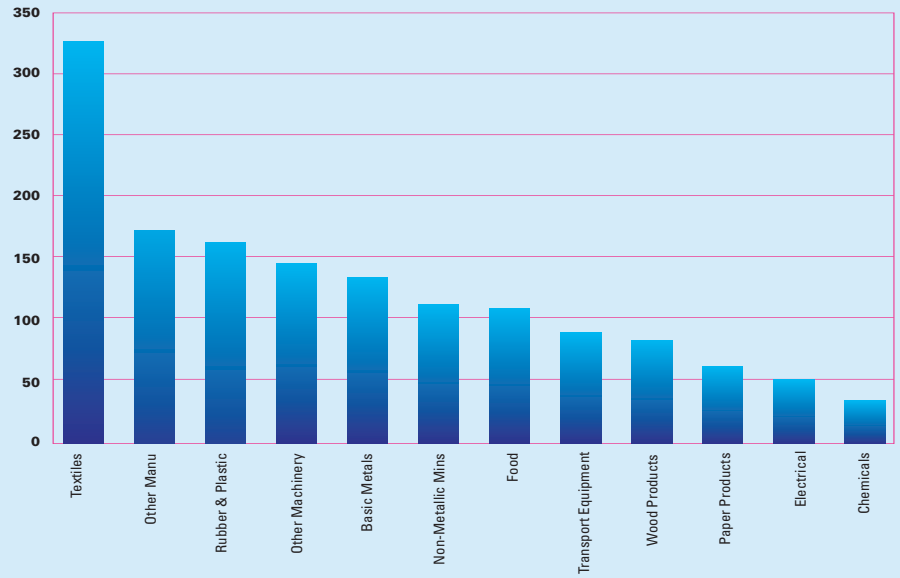
Figure 1.3 Trade Weighted Competitiveness Index, (TWCI) 1999-2005 (1999 Q1=100)

Source: Central Bank of Ireland

The ACR 2005 confirms that a range of non-pay costs for enterprise, including energy, waste, transport and office accommodation are now relatively high in Ireland. Pay costs have also been rising faster than in other EU countries, and are now higher than the EU-15 average. The impact of rising pay costs on business competitiveness has been offset by rising productivity only in a small number of capital-intensive sectors, mainly those dominated by multinational companies (e.g. chemicals, pharmaceuticals and electronics). While these sectors account for the bulk of manufacturing value added, they represent a much smaller share of employment. The more employment intensive manufacturing (e.g. transport equipment, leather, and textiles), construction, and traded services sectors have generally faced a significant rise in unit labour costs – pay costs adjusted by improvements in productivity – between 2000 and 2004.

This does not automatically mean that pay growth has been excessive, only that the expansion of high-productivity modern manufacturing sectors and the construction industry has increased the cost base across the entire economy at a rate that puts stress on enterprises in more labour intensive manufacturing sectors of the economy that have not managed to generate high rates of productivity growth.

Figure 1.4 Index of Unit Labour Costs by Manufacturing Sector, 2004 (1995=100)



Source: CSO/Forfás Calculations

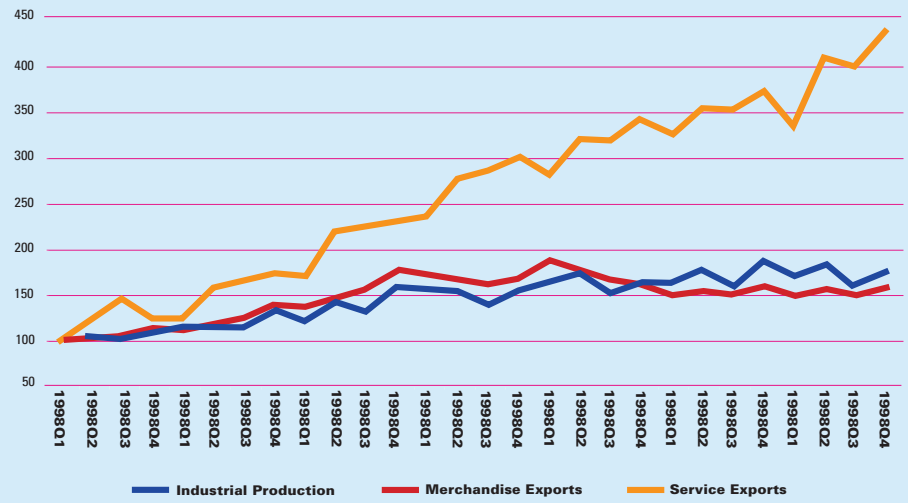
1.1.3 A Shift from Manufacturing to Services

The result is that a rising number of exporters in Ireland are finding themselves in direct competition with firms from newly industrialising countries with much lower costs and an increasing mastery of new technologies and business methods. This has contributed to a decline in the most cost sensitive parts of the industrial sector, as evidenced by the following:

- Employment in manufacturing and other production industries – the sectors of the economy most exposed to international competition – fell for the fourth successive year in 2004, with job losses concentrated in cost-sensitive manufacturing sectors such as ICT hardware, textiles, clothing and paper and printing. As of the first quarter of this year, employment in manufacturing was 13 per cent below its peak in the third quarter of 2001, equating to the loss of over 32,000 jobs.
- Manufacturing turnover has increased by less than one per cent from 2000 to August 2005.
- Merchandise exports have not grown substantially since 2002.
- The average price received by domestic producers of manufactured goods decreased by 10.1 per cent from 2000 to August 2005.[6] ICT hardware prices have fallen significantly.

6 Source: CSO, Industrial Price Index.

Figure 1.5 Performance of Irish Industry



Source: CSO

There is nothing new in shifting patterns of international comparative advantage; technological change and the integration of new centres of production into the global economy have long resulted in the decline and birth of industries in different countries. With the right policies in place, exporting sectors and individual companies in Ireland will have sufficient breathing space and support to adapt to the more competitive environment by repositioning themselves at a higher point in the value chain with the help of new technology and organisational change. The difficulties being faced by some manufacturing sectors in Ireland can, if well managed, be part of a benign process of structural change, with the capital and labour resources tied up in declining firms and industries being allocated to other 'higher value-added' activities more suited to the new, higher cost, Irish operating environment.

Figure 1.6 Ireland's Share of World Merchandise and Services Trade, 1993-2004

Source: CSO/World Trade Organisation

Already, employment and export growth in high-value added internationally traded services activities has offset some of the losses in manufacturing. Ireland's is now the 14th largest per capita exporter of services in the world. Our total share of world services trade has increased markedly from 0.38 per cent in 1993 to 2.2 per cent in 2004. Most of this growth in services exports has come from the communications, construction, financial (including insurance) tourism, and computer and information services sectors. Some services activities are less vulnerable to competition from lower cost developing countries because of the need for closer interaction between service providers and customers, the importance of tacit knowledge of individual customer preferences and the more important role of national regulatory systems in certifying the quality and reliability of service providers.

The role of services in Ireland's total employment, output and exports will likely increase further, reflecting two related trends. First, as people in Ireland grow richer, experience from abroad suggests that they tend to spend a rising proportion of their income on services (education, health and leisure related services such as restaurants, bars, retail, and second houses). This is, inevitably, reflected in an increase in the proportion of the workforce working in local services activities and construction.

Second, better and cheaper transport and communications technologies are increasing the cross-border tradability of services that were once entirely local or national in their orientation because of the close physical interaction required between providers and customers. This will expand international trade in a range of service industries from retailing, medical and legal services to education, entertainment and leisure, and financial services, opening up numerous export opportunities for Irish businesses. This will also present challenges to purely national approaches to regulation and the provision of key public services.

1.1.4 The Increasing Role of Knowledge and Technological Change

Closely linked with globalisation and increased competition is the fast pace of technological change, which is revolutionising business processes in agriculture, manufacturing and services and shortening product life cycles. Advances in technology are particularly evident in manufacturing. Automation, sophisticated global communications and advanced supply chain management techniques have revolutionised manufacturing activities, enabling firms to disaggregate their value chains and relentlessly lower costs. Opportunities provided by the convergence of technologies such as biotechnology, ICT, cognitive science and nanotechnology to develop new products and services and improve productivity and societal well being will continue to grow. The 'information society' may soon be joined by the 'bio-society', reflecting the opportunities presented by increasing knowledge of cell-level and molecular level processes for health care, food production and materials manipulation.

The ability of Irish companies to quickly develop and absorb new technologies into their products and processes in a way that is acceptable to consumers and wider society will be a decisive driver of future competitive advantage.

1.1.5 Quality of Life Issues and Demographic Changes

As the wealth of the country has grown, so has the importance placed on social progress. The environmental sustainability and 'quality' of economic growth – the implications of growth for waste, greenhouse gas emissions, congestion, housing and health – are taking centre stage in public policy in Ireland, as in other advanced countries. Our increased prosperity will lead to rising expectations about the quality of working life. The success of our economy will lead to greater focus on the health of our society and communities.

Demographic changes will also present new challenges. According to latest population estimates in April 2004, the population has risen to 4.04 million, its highest figure since 1871. Migration is currently accounting for about 50 per cent of the rise in population. CSO projections suggest a further population increase of at least 25 per cent to over five million by 2035. Increased fertility rates and life expectancy projections estimate that the old age dependency ratio (65 years + population / 15 – 64 year population) is set to increase from 16.4 per cent in 2005 to 22.7 per cent by 2020 and to more than double thereafter to 51.5 per cent in 2050.[7]

Population ageing presents important economic considerations, in addition to potential wider societal affects. Infrastructural and services planning will become extremely challenging. The number of school children is expected to rise significantly from around 450,000 currently to around 590,000 in 2021 before falling back significantly thereafter. This will place increased pressures on school infrastructure and the training of additional teachers. Much of this infrastructure could become available for other purposes thereafter. Those aged 65 years or older are expected to grow from 456,000 today to over 700,000 by 2020 and to treble to 1,496,000 by 2050. A significantly larger cohort of older people in years to come will place increased demands on Government resources from the provision of pensions, healthcare and other care services. Immigration will not prevent ageing pressures as the immigrant population will, in turn, age. More generally, population increases will also considerably increase demand for housing, services, infrastructure, and social welfare costs.

In the light of these five medium-term challenges, table 1.3 provides a summary assessment of Ireland's current strengths, weaknesses, opportunities and threats.

7 Assessing Age-Related Pressures on the Public Finances, 2005- 2050. Budget Perspectives 2005, ESRI.

Table 1.3 A Summary of Ireland's Current Competitive Position

Strengths

- Business friendly operating environment
- Adaptable labour force
- Membership of EMU and the EU and the only English speaking member of Eurozone
- Corporate tax regime
- Existing base of high performing businesses (esp. in ICT, financial services, food, medical devices, and pharmachem)
- An international reputation for flexibility and responsiveness

Weaknesses

- High non-pay costs, particularly for energy, waste disposal, housing and logistics
- Weak productivity in locally trading, mainly services sectors
- Congested transport infrastructure and under-developed ICT infrastructure
- Limited management experience in innovation and in international sales and marketing
- Small domestic market
- Young national scientific research system

Opportunities

- Acceleration of global services trade
- Increasing mobility of research and other knowledge activities
- Further dis-aggregation of the manufacturing and services value chain (allowing separation of skilled from unskilled activities) facilitated by logistics and ICT
- 'Clustering' of skilled service and manufacturing activities reflecting network economies and shared support services and labour pool
- Increasingly mobile global talent pool

Threats

- Vulnerability to global demand swings and exchange rate volatility
- Slow growth in EU export markets
- High dependency on energy imports
- 'Carbon constraints' to further growth
- Competition from lower tax countries
- Increased regulatory compliance burden
- Intensifying competition for trade and FDI from eastern Europe and Asia in manufacturing and services at all levels of the value chain, including research
- Growing EU restrictions on state aids
- Business and government complacency

1.2 A New Vision for Ireland's Economy and Society

Ireland's political leaders and social partners are responding to these challenges by developing a shared vision of a new 'innovation oriented' stage of development for our economy and society. The NCC envisions that this phase of our development will be characterised by:

A More Dynamic and Flexible Economy

Strong and sustainable economic growth will be underpinned by a highly competitive export base. Product differentiation and the ability to satisfy changing customer needs will be the key drivers of competitive advantage in the manufacturing sector. Ireland's strong industrial export and employment performance will be matched by knowledge-intensive, internationally traded services sectors, including a higher value-added and competitive tourism sector.

Market knowledge and innovation will allow small and medium sized Irish owned companies to scale up and increase their involvement in international markets. Ireland's attractive tax and regulatory regime, as well as its expertise in R&D, will increase the importance of Ireland as a location of choice for high value-added strategic operations of multinational companies (MNCs).

Collaboration on an all-island basis can also ensure the optimal utilisation of the island's resources, particularly knowledge resources. Vibrant all-island and cross-border innovation networks will link indigenous and foreign owned companies in Ireland with each other and with customers, suppliers, competitors and research and learning institutions, and will result in Ireland's emergence as a globally recognised 'innovation hotspot'; These will be supported by:

- novel and flexible forms of business organisation, such as franchising, joint ventures and outsourcing agreements.
- greater exploitation of information and communications technology (ICT) to increase productivity and deliver competitive advantage.
- a regulatory environment and business culture that supports risk-taking and encourages ambitious and creative individuals to build innovation-driven companies, and
- A single-minded national consensus on the enterprise agenda, driven from the highest level and across all of Government, together with governance systems which enable swift decision-making and execution.[8]

A Fairer and More Sustainable Society

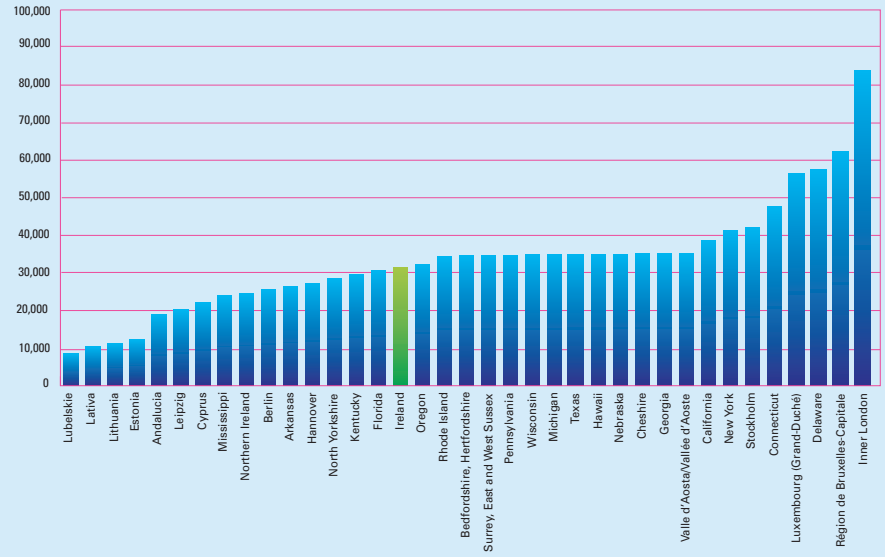
The growing inter-dependency between our country's economic dynamism and social development needs to be at the heart of our vision for Ireland's future development. The ongoing success of our economy will depend on the health of our society and communities.

Dynamic and inclusive communities, offering high quality of life and efficient public services, will become a magnet for mobile skilled people, capital and high-value enterprise activities. Fundamental to the delivery of a fairer and more sustainable economy and society will be:

- a workforce culture of continuous learning, adaptability and skills improvement, supported by a world-class education system.
- stronger regional economic growth to complement Dublin's position as Ireland's lynchpin for global trade and investment, and
- greater environmental awareness and better environmental protection.

8 "Ahead of the Curve – Ireland's Place in the Global Economy", Enterprise Strategy Group Report, 2004.

Figure 1.7: Income per Capita for Selected EU Regions and U.S. States, $US, 2002



Source: U.S. Bureau of Economic Analysis / U.S. Bureau of the Census

The prize for successfully executing this transition towards a more innovation-oriented economy and society will be large. While Ireland has a highly successful economy compared with most other nations, there are many smaller regions and states in Europe and the USA respectively with much higher per capita incomes than Ireland, reflecting higher levels of productivity through innovation.

1.3 The Strategic Imperatives

In the view of the NCC, this vision requires two complementary and cross-cutting strategic imperatives.

- Promoting a dynamic and competitive export base
- Raising productivity across the entire economy

Promoting a Dynamic and Competitive Export Base

Ireland's rapid economic growth from the early 1990s was set in motion by high levels of investment in Ireland, lead by multinational companies, which were attracted to Ireland by our membership of the European Union and pro-enterprise Government policies in areas such as taxation, education, international trade and industrial relations. Fast export growth from multinational companies and a growing cohort of successful indigenous exporters (including tourism), combined with rising national confidence and low interest rates, have had a knock-on effect on household and government spending that has driven economic growth ever since.

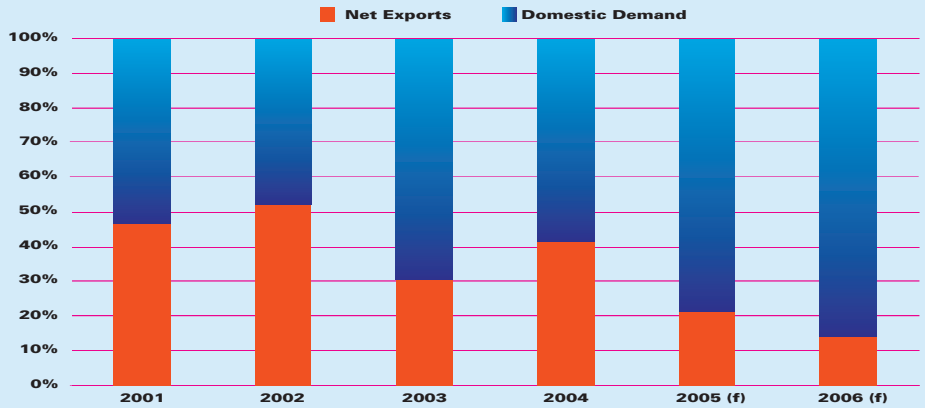
As people get richer, the experience of many countries is they spend a rising proportion of their income on locally produced services in areas such as healthcare, education and leisure. This, inevitably, is reflected in an increase in the proportion of the workforce working in non-traded activities relative to exporting activities. Does this imply that the export-led

development strategy pursued by Ireland since the 1960s is no longer appropriate for the period ahead? In the view of the NCC, a continuing special policy focus on the competitiveness of our exporting sectors will remain valid for a number of reasons.

First, increasing productivity through greater economic specialisation remains the key to rising living standards in Ireland. Achieving specialisation in small countries like Ireland requires exporting to a much greater degree than it does in larger countries. However, currency costs, tariff and non-tariff barriers to trade and differing national approaches to regulation means that achieving greater specialisation through exporting is more difficult than achieving specialisation through internal trade within a country (as is possible for large countries). For this reason, it is right that Irish exporters continue to receive particular policy attention and support.

Second, while it is in the nature of large national economies that as some exporting sectors decline due to competition from other locations (e.g. the auto industry in Detroit), others will emerge to replace them (the software industry in San Jose), the experience of smaller regional economies like Ireland's has often been different. When key exporting sectors in regional economies go into decline, there is no guarantee that they will be replaced by other economic activities that offer opportunities for productivity growth and wealth creation. Instead, the resources previously tied up in declining industries may be re-assembled in less productive activities in the same region, or dissipated across the globe at the cost of long-term regional economic decline. Examples include the UK's East Midlands (auto manufacturing and car-making), North Eastern England (ship-building), Northern Ireland (textiles and shipbuilding), the Ruhr (steel-making), and Detroit (auto manufacturing). This is why it is important for small regional economies to pay particular attention to the health of their exporting sectors.

Figure 1.8: Share of GDP Growth by Domestic Spending and Net Exports



Source: ESRI/Forfás Derived

Fast growth and low unemployment in the Irish economy is currently being sustained primarily by fast growth in domestic spending by households and Government on personal services and housing, rather than through success in export markets. The resulting sense of economic buoyancy creates a risk of political and business complacency to the challenges being faced by many of our exporters. Debt-financed growth in consumption and construction cannot support an expansion in employment and incomes indefinitely. In the long run, a dynamic and competitive export sector will be the platform on which the rest of our economy is built.

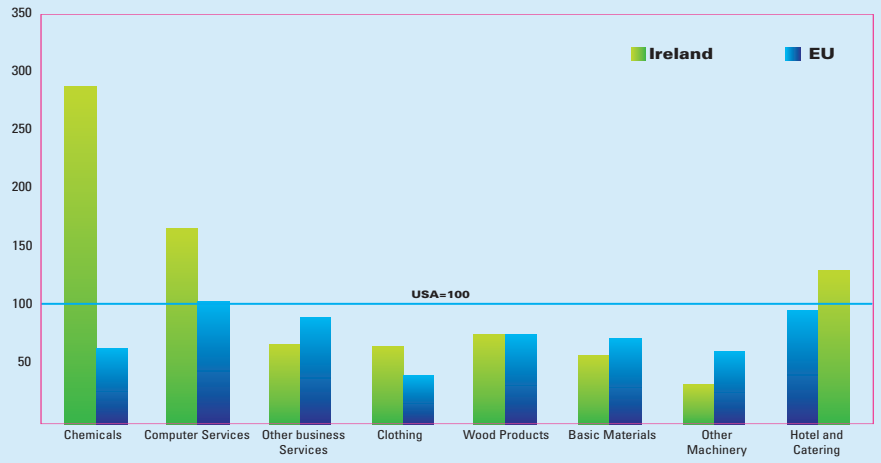
Growing Productivity across the Entire Economy

Productivity, often defined as the value of output per hour worked, is a measure of the efficiency with which goods and services are produced. It is the key long-term determinant of a nation's living standards and competitiveness. Productivity is not about working harder, but about working smarter through better management practices and organisational design, through better use of ICT and other technologies and through better levels of education and skills. In many advanced economies, particularly in Europe, strong productivity growth has led to reduced average working hours. By making wage growth consistent with enterprise competitiveness and profitability, productivity growth allows growing returns to all sections of society.

The improvement in Ireland's living standards in recent years relative to other countries was mostly driven by our employment performance – the greatly increased percentage of Ireland's population at work. With employment rates in Ireland now above the EU average, Ireland's ability to catch up with the living standards of the world's richest regions will, relatively speaking, depend less on increasing employment, and more on increasing the productivity of those already at work.

This year's ACR shows that Ireland has enjoyed high rates of labour productivity growth in the 1990s, and that Ireland's average productivity levels are now above the EU average. The analysis also suggests, however, that growth has been concentrated in a small number of capital-intensive industries dominated by multinational companies, such as chemicals, pharmaceuticals and electronics. There is some evidence of weaker productivity growth and levels in more traditional manufacturing sectors, and in those sectors of the Irish economy less exposed to international competition, such as utilities (electricity, gas and water supply), construction and retailing.

Figure 1.9: Productivity Performance: Ireland, the EU and the USA, 2002 (USA = 100)



Source: European Commission/Forfás Calculations

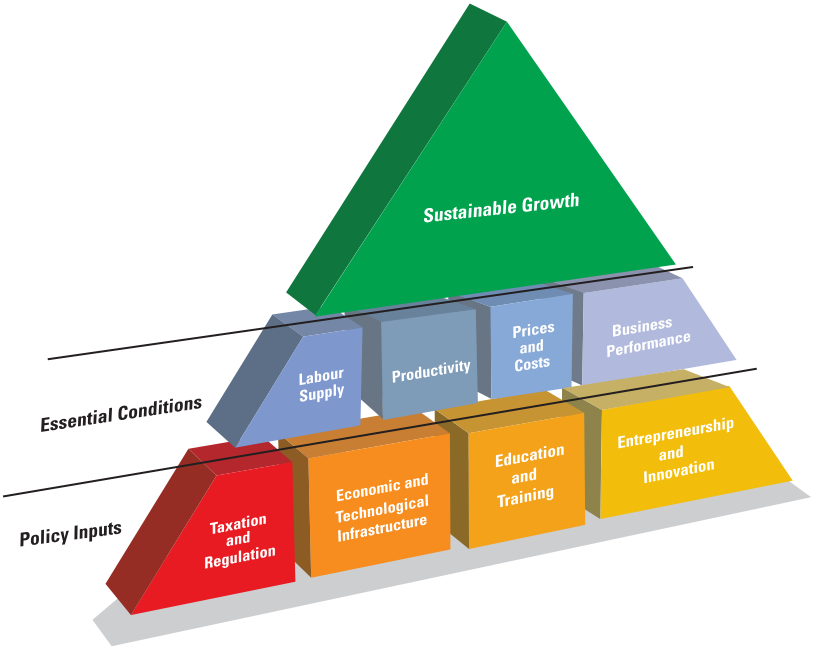
If Ireland had the same levels of overall U.S. productivity, Irish per capita income in 2004 would have increased by over €3,500. Figure 1.9 indicates that the USA has higher productivity than Ireland across a spectrum of industries which account for a large proportion of aggregate employment. Ireland's high productivity in manufacturing is in contrast to its relatively low productivity in many services, particularly non-tradable services.

Most of the opportunities for improving average Irish productivity and living standards are, therefore, in locally trading and public services. There will also be a growing inter-dependence between our wealth-creating exporting sectors and other sectors of the economy, including the public sector. Improvements in quality of life through better public services and increased efficiency and quality of 'non-traded' services sectors will be needed to support the survival of many exporting companies.

1.4 The Policy Directions

The remaining four chapters of this report present the NCC's views on the public policy directions that will be needed to give effect to these strategic imperatives, and thereby connect the present with our vision for our economy and society. Discussions on these policy directions are grouped under the four 'policy input' headings of the NCC's competitiveness framework (see Annual Competitiveness Report 2005 for further detail), as follows:

Figure 1.10: The NCC Competitiveness Framework



1.4.1 Taxation and Regulation

This section covers the impact of government policies on taxation, business and labour market regulation, competition, and international trade and investment. The challenge for Irish policy makers is to strike the right balance between competitive tax rates and the adequate provision of public goods, and to develop a well-designed and efficiently enforced regulatory system that can improve the functioning of markets and achieve environmental and social policy goals without imposing a significant compliance costs on firms. Key policy directions recommended by the NCC include:

Taxation:

- It is essential to strike the right balance between competitive taxes and the adequate provision of public goods. The NCC believes that three broad principles should continue to inform the development of Ireland's tax system into the medium-term; (1) containing the overall level of taxation by maximising 'value for money' and efficiency in public spending; (2) maintaining competitive direct tax rates; and (3) broadening the tax base.

Business Regulation:

- The efficiency and quality of regulation and the institutions that enforce it affect the functioning of markets. The NCC recommends that the Government's programme of better regulation should be complemented by a transparent and external system of assessing the quality of regulatory impact assessments, and regular publication of indicators that measure the cumulative administrative and compliance costs for firms from regulation. In addition, there is a need to promote the development of competitive markets by enhancing the powers of the Competition Authority, and by supporting the proposed EU services directive.

Labour Market Regulation:

- Well functioning labour markets are essential for structural change and economic growth. To support competitive and flexible labour markets, the NCC believes that there is a need to consider more innovative ways to make the centralised pay deals more sensitive to changing economic circumstances, to address the pensions and savings challenge, and to deliver a 'green card' immigration system to attract high-skilled migrants from outside of the EU.

1.4.2 Economic and Technological Infrastructure

Economic infrastructure refers to all forms of physical infrastructure that are required for the efficient functioning of an advanced economy. Since the late 1990s, much progress has been made in closing the infrastructure gap. Key policy directions recommended by the NCC going forward include:

Investment and Transparency

- The Government should commit to sustained investment in infrastructure in the next National Development Plan (NDP).
- There is a need to improve the analysis and transparency underpinning capital spending in order to prioritise projects that yield the highest economic and social returns.

Regional Balance and Spatial Planning

- The attractiveness of large urban centres has a determining influence on the competitiveness of regional economies as a whole. The next NDP is a unique opportunity to make a reality of the National Spatial Strategy (NSS) as the platform for regional and infrastructural development in Ireland.
- It is also crucial to ensure that the multiple national and local authorities that operate within the Dublin region work together at both a strategic and operational level. As outlined in the Programme for Government, this may require an overarching body to coordinate the city's development.

Increasing the Responsiveness of the Planning System

- The responsiveness of the planning system should be increased by ensuring that adequate zoned and serviced land is available to promote a competitive market for development land, and that the local authorities have the flexibility and incentives to meet the needs of their region.
- There is also a need to address deficiencies in seaport and airports, energy, communications and waste infrastructure and to accelerate the delivery of infrastructure projects more generally.

1.4.3 Education and Training

While recognising that education and learning fulfil a number of social and individual goals unrelated to economic development, Ireland's education system has been a fundamental enabler of its economic transformation. As knowledge becomes the basis for competition, education will be increasingly important to economic performance. It is possible for Ireland to achieve a 'best in the world' status for education and training. The NCC has identified a number of key policy challenges.

The School System

- It is imperative to increase the number of our citizens that can participate fully in the knowledge economy through reducing educational disadvantage. The NCC encourages the development of a long-term government programme to support early childhood development, targeted at disadvantaged children, in addition to enhanced measures to target educational disadvantage throughout the school system.

The Higher Education and Research System

- A substantial increase in resources is required if Ireland is to achieve a high ranking among OECD countries for the quality of our higher education system. The role of private funding should be considered. There needs to be closer co-ordination between enterprise, academia and government in the development of the national research system.

Upskilling through Training

- The NCC believes that FÁS should continue to reorient training funds towards those already in employment, targeted at those with lower levels of education. Greater use of industry networks should be used to support lifelong learning. There is also a need to significantly enhance the availability and flexibility of third level education to mature and part-time students.

1.4.4 Entrepreneurship and Innovation

Entrepreneurs and high-growth firms are the key to exploiting new ideas and innovations in technology and business processes, and are the main drivers of long run productivity growth in advanced societies. The challenge for Irish policy makers is to provide an environment that supports the creation and development of more high-growth indigenous firms involved in international markets through development of innovative new products, services, processes and technologies. This suggests three related and mutually reinforcing priorities for enterprise policy:

Supporting Technological Innovation by Industry

- Ireland still does not have enough companies – foreign or indigenous – engaged in significant levels of scientific or engineering R&D. Support for individual firm R&D through direct grants and tax credits should be complemented with greater supports for clusters and networks and industry-academic research and technological collaboration.

Improving Business Process Innovation

- Business process innovation is a key source of greater efficiency. In this context, there should be greater emphasis in the development of ICT literacy within the workforce in addition to greater promotion of the potential benefits for SMEs of investment in ICT. Furthermore, there needs to be increased quality, efficiency and innovation in the delivery of management skills training and development.

Improving the Financing Environment for High-potential Growth Firms

- A number of measures are required to improve the financial environment for enterprise. More competition in the banking industry is needed, particularly in the provision of financial services to SMEs. There is also a need to expand the venture capital market in Ireland. State support should be considered through mechanisms such as direct equity supports, enhanced tax incentives and the promotion of seed investment by 'angel' investors.

The discussion and recommendations in these chapters are focused on the role of Government. Of course, many – if not most – of the actions needed to move Ireland to a more innovation-oriented stage of economic development are outside the direct remit of policy makers. Significant responsibilities lie in the hands of, among others, the managers of individual firms, educationalists, industry associations and trade unions. Strong enterprise-led networks are needed to facilitate knowledge transfer, disseminate market knowledge, foster innovation, and to inform the research agenda and identify infrastructure needs specific to their sector. Irish managers need to build company capabilities in international sales and marketing, innovation and highly efficient provision of higher value goods and services. This will require increased business investments in R&D, skills, modern production and logistics technology and IT to develop and support more sustainable competitive advantages.

2 Taxation and Regulation

Summary

This chapter covers the impact of government policies on taxation, business and labour market regulation, competition, and international trade and investment, and their influence on business productivity, cost competitiveness and innovation. The challenge for Irish policy makers is to strike the right balance between competitive tax rates and the adequate provision of public goods, and to develop a well-designed and efficiently enforced regulatory system that can improve the functioning of markets and achieve environmental and social policy goals without imposing significant compliance costs on firms. The ACR 2005 revealed some notable characteristics of the Irish tax and regulatory systems relative to the other benchmarked countries:

- Irish corporation tax rates (1st/16) and personal taxes (1st/15) are low relative to other countries benchmarked, but a relatively high proportion of total taxation is raised through direct taxes (40 per cent versus an EU average of 32 per cent).
- Ireland collects a relatively high share of tax revenue from indirect taxes (2nd/8) and a relatively low share from property sources (6th lowest from 15).
- The level of regulation in Ireland is perceived as being low (4th/16), but increasing.
- The intensity of local competition (11th/16) and the efficiency of competition legislation (8th/16) are perceived as being relatively low.
- Labour market regulations in Ireland are not perceived to have a significant impact on business activity (7th/16).

Key policy directions recommended by the NCC include:

Taxation

- The tax system should continue to facilitate economic growth and employment. The NCC believes that three broad principles should continue to inform the development of Ireland's tax system into the medium-term; (1) containing the overall level of taxation by maximising 'value for money' and efficiency in public spending; (2) maintaining competitive direct tax rates; and (3) broadening the tax base.

Business Regulation

- The quality of regulation and the institutions that enforce it affect the functioning of markets. The NCC recommends that the programme of better regulation should be complemented by a transparent and external system of assessing the quality of regulatory impact assessments, and regular publication of indicators that measure the cumulative administrative and compliance costs for firms from regulation. In addition, there is a need to promote the development of competitive markets by enhancing the powers available to enable the Competition Authority to impose 'administrative fines' for competition law breaches, and to support the implementation of the proposed EU services directive.

Labour Market Regulation

- Well functioning labour markets are essential for structural change and economic growth. To better support flexible labour markets, the NCC believes there is a need to consider more innovative ways to make the centralised pay deals more sensitive to changing economic circumstances, to address the pension issue, and to deliver the 'green card' immigration system to attract high-skilled migrants from outside of the EU.

2.1 Introduction

The taxation and regulation section covers the impact of government policies in taxation, macro-economic management, business and labour market regulation, competition, international trade and investment, and their impact on business productivity, cost competitiveness and innovation. The chapter is organised under three headings:

- Taxation
- Business Regulation
- Labour Market Regulation

2.2 Taxation

The overall level of government taxation and spending, together with the structure of a country's taxation system, is an important determinant of a country's international competitiveness. Tax systems should be economically efficient, administratively simple, flexible, transparent and fair. All other things being equal, employees and businesses prefer lower taxes, as taxation above certain levels can adversely affect a country's competitiveness by creating disincentives to work and enterprise and by reducing a country's attractiveness to mobile foreign direct investment. However, there are limits to the extent to which a low-tax low-spend strategy is good for the overall welfare of citizens, and for the competitiveness of the business sector. In addition to broader social goals, taxation is required to finance government expenditure in areas such as infrastructure, education, and research, which are essential to competitiveness. Striking the right balance between low taxes and the adequate provision of public goods is a central task in sustaining long-run competitiveness.

The ACR 2005 revealed some notable characteristics of the Irish tax system relative to the other benchmarked countries (data relate to 2003):

- A low overall level of taxation when measured as a percentage of GDP (30 per cent), but an average overall level of taxation when measured as a percentage of GNP (36 per cent).
- Low direct rates of corporation tax and personal income tax, but a relatively high proportion of total taxation raised through direct taxes (40 per cent versus an EU average of 32 per cent).
- A high rate of consumption tax (VAT 21 per cent), and a high proportion of total tax revenue raised through consumption and other indirect taxes (41 per cent versus an EU average of 33 per cent)
- Low rates of social security tax (PRSI, etc.) and a very low proportion of total taxes raised through social security taxation (19 per cent versus an EU average of 34 per cent)
- Low taxes on property (1.5 per cent of GDP versus 3.3 per cent in France and 4.3 per cent in the UK)

Ireland's success in attracting foreign direct investment and encouraging entrepreneurship over the past decade has been assisted by the tax policies of successive governments. Ireland's low corporation tax rate has been a significant factor, but Ireland's competitive advantage in this regard is under pressure, as the global trend is towards lower corporation tax rates. The average corporate tax rate in the OECD fell from 33.6 per cent in 2000 to 29.8 per cent in 2004, while the average top personal income tax rate fell from 47.1 per cent to 44.0 per cent.[9] Given the increasing mobility of capital, labour and intellectual property, many governments are grappling with the challenge of balancing the taxation of property, capital, labour and consumption in such a way as to ensure that taxation is raised not only in an equitable manner, but also in a way that supports growth and competitiveness.

9. Revenue Statistics 1965-2004 – 2005, OECD.

The tax system should continue to facilitate economic growth and employment. Drawing from the experience of Ireland and other countries, the NCC believes that three broad principles should continue to inform the development of Ireland's tax system into the medium-term; (1) containing the overall level of taxation by maximising 'value for money' and efficiency in public spending; (2) maintaining competitive direct tax rates; and (3) broadening the tax base.

Value for Money in Public Spending

First, for any desired level of public services, it is important to contain the overall level of taxation by maximising 'value for money' and efficiency in public spending. It is of concern, therefore, that the rapid rise in current and capital public spending in recent years, at both national and local level, has sometimes reflected not an increase in the quality or quantity of public services, but instead inflation of pay and non-pay costs.[10] A recent study estimated that Ireland performs relatively poorly in terms of public sector efficiency based on indicators that assess the quality of administration, education, health and infrastructure.[11] Public sector inefficiencies are passed onto consumers and businesses in the form of increases in taxes and charges (e.g. waste, energy, etc.), which weaken the competitiveness of those sectors of the economy exposed to international competition. While the absence of competition and the existence of multiple objectives can often make efficiency improvements and spending control difficult in the public sector, the following policy directions should be considered:

- A vigorous expenditure review process. The government commissioned the Expenditure Review Initiative (ERI), under the responsibility of the Department of Finance, to assess value for money and effectiveness of key spending areas across the public sector. Following a 2002 critique of the initiative by the Comptroller and Auditor General regarding the limited coverage and mixed quality of the reviews, the ERI has been reformed to provide for better focusing of the expenditure review process.[12] Under this new system, a small number of reviews are to be undertaken annually to cover major policy issues or significant levels of expenditure.[13] While the NCC welcomes these modifications to the ERI process, the extent to which these reviews have led to visible improvements in value for money remains unclear. In this regard, international benchmarks would be a very useful way of reviewing the performance of public sector organisations and programmes. Action is also required to find new ways of providing the public sector with incentives to exploit opportunities for efficiency savings, and so release resources for front line public service delivery,[14] and to learn from the experiences of other countries. These reviews should also cover local authorities, which to date have not been subject to the ERI process.

10 For example, it is estimated that only 30 per cent of the increase in the public service gross pay and pension's bill, between 2000 and 2004, went on additional human resources. The remaining 70 per cent was spent on existing staff and pensioners. (Forfás estimate based on Department of Finance data).

11 "Public Sector Efficiency: An International Comparison", A. Afonso, L. Schuknecht and V. Tanzi, Public Choice, 2005.

12 "Report on Value for Money Examination; The Expenditure Review Initiative", Comptroller and Auditor General, January 2002.

13 A panel of independent evaluation experts has been established to assess the quality of the review reports, and an expenditure review network has been put in place to provide central training support for those engaged in carrying out reviews. Altogether, 107 reviews have been completed to date.

14 These actions could build upon the Expenditure Review Central Steering Committee Report, which stated 'that savings generated during the course of a year as a result of specific policy measures taken by a Minister to curtail or eliminate a scheme/programme, or on foot of specific efficiency measures in relation to such a scheme/programme, could be retained and applied to another higher priority programme'.

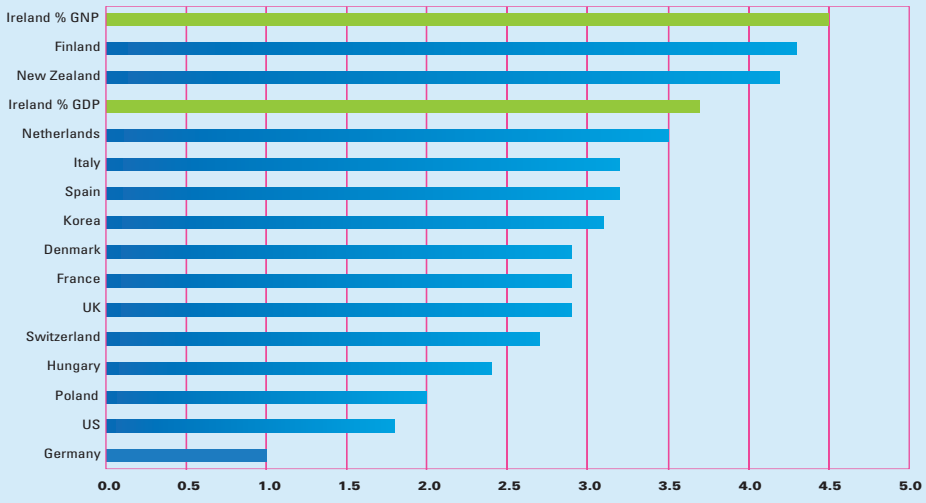
- Greater use of ICT and eGovernment. Technology has been successfully used to improve the delivery of a number of important public services, such as motor tax, passport applications and social welfare. Further progress in this regard will require flexibility in the recruitment and development of the people with the necessary expertise and experience, particularly with respect to IT project management skills.
- Modern accounting systems. The public sector needs better accounting information which allows managers to make decisions on the basis of clearer benefits and costs, including the introduction of full accrual accounting and a system of capital charges that accounts for the value of assets held by public sector bodies.

Maintaining Competitive Direct Tax Rates

Economic theory suggests that high direct taxes on profits and labour undermine incentives for work and investment, and therefore impede productivity growth. For any given level of taxation, OECD research suggests that higher direct (income tax, corporation profits tax, capital gains tax) as opposed to indirect taxes (VAT, excise taxes etc.) weaken economic growth and competitiveness.[15] This is partly because in an era of globalisation, individuals and capital are increasingly free to re-locate to low direct tax jurisdictions.

The Irish strategy of setting a relatively low corporation tax rate attracted significant investment to Ireland. The low rate of corporation tax has resulted in a dramatic increase in tax revenues raised. As highlighted in Figure 2.1, Ireland raised more corporate taxes as a percentage of GNP than any of the other 15 countries benchmarked in the ACR. This has allowed Ireland to finance necessary public services, and to invest in education, research and infrastructure – factors crucial to building and sustaining Ireland's long term competitiveness. However, other countries that compete with Ireland for trade and investment have adopted similar strategies. For example, Singapore offers 'pioneer industries' a preferential corporation rate of between zero and five per cent.

Figure 2.1: Taxes on Corporate Income as Per Cent GDP (2002)



Source: Revenue Statistics, OECD 2004

15 "The Sources of Economic Growth in OECD Countries", OECD, 2003.

The general reduction in the labour tax burden in Ireland over the last decade has also supported growth and competitiveness by securing wage predictability through social partnership and by encouraging labour force participation and entrepreneurship. After 15 years of reform of income and social security taxes, the low labour 'tax wedge' in Ireland (especially compared to the major Continental European countries) now represents a competitive advantage for Ireland. The NCC recommends that these policies be reinforced by ensuring that the target of having a maximum of 20 per cent of earners pay tax at the higher rate, as set out in the Programme for Government, is progressed.[16]

Broadening the Tax Base

The NCC believes that there is a need to broaden the tax revenue base that finances public spending through the measured introduction of new taxes and the elimination of tax incentives. The NCC acknowledges the political difficulty of broadening the tax base. The case for this should not be misunderstood as an argument for increasing the overall tax burden; rather it reflects a view for a modest rebalancing of tax receipts away from income tax towards other forms of taxation. Broadening the tax base, particularly in the direction of recurring taxes on property, will re-enforce over time the long-term sustainability of competitive direct tax rates on labour, profits and capital gains, help to finance necessary improvements in public services and infrastructure, and deliver a more equitable distribution of the tax burden. A broader tax base would also provide a more diversified and stable source of revenue for Government.

Significant strides towards rebalancing and broadening the tax base have been made since the first report by the Commission on Taxation in 1982. Additional progress would be made by:

- A widening of the revenue base for local authorities, subject to adequate and continuing reforms that improve productivity and value for money. Local authorities have been forced to rely too heavily on large increases in waste charges, development levies and commercial rates to finance local services. The incidence of these taxes and charges is viewed as somewhat arbitrary. These increases can penalise economic activity and bear little relation to the economic cost of the services delivered to businesses. The choice of funding instruments is based on historical accident, not rational planning, and needs to be re-considered as part of ongoing review of local authority financing being undertaken by the Department of Environment, Heritage and Local Government.
- The phasing out of tax incentives for property investment and the extension of property taxation. The NCC believe that the need for property tax-breaks, such as the urban and rural renewal schemes, to stimulate re-generation has passed and they should not be extended beyond their existing termination dates, 2006 in many cases. Property taxation should also, over time, shift from the taxation of property transactions (stamp duty) to the recurring taxation of the property stocks. The ACR 2005 suggests that Ireland offers one of the lowest property tax regimes amongst the 15 countries benchmarked. There are, clearly, significant logistical costs and challenges in re-introducing a property tax regime. The NCC considers, however, that these would be more than outweighed by the economic stimulus from shifting taxation towards immovable assets, such as land and residential property, and away from mobile capital, labour and productive economic activity;

16 Based on Revenue Commissioner data, it is estimated that the proportion of people paying tax at the higher level has grown by almost 3 per cent to 32.85 per cent since 2001.

- More transparent costings of all tax incentives and exemptions and their elimination where these costs exceed their estimated economic benefits.
- Taxes to reduce transport congestion and other forms of environmental pollution; and
- Ongoing reviews of the powers needed by the Revenue Commissioners to combat tax evasion.

2.3 Business Regulation

The effectiveness and quality of regulation and the institutions that enforce it are a major determinant of a country's prosperity. Well-designed and efficiently enforced business regulation improves the functioning of markets (by facilitating market entry and exit) and achieves environmental and social policy goals without imposing significant compliance costs on firms or weakening the ability of businesses to adapt to changing economic conditions, technologies and consumer preferences. Regulations that create high compliance costs or restrict competition, by inhibiting the entry of new players or the actions of existing players, damage consumer choice, increase costs and reduce technological diffusion and firm level innovation.

One of the strengths of the Irish business environment over the last decade has been the light administrative and regulatory requirements faced by firms, particularly compared with other EU countries. Many of our most successful internationally trading sectors (e.g. pharmaceuticals and chemicals, financial services, medical devices, etc.) were attracted to Ireland, in part due to the reputation and high quality of our regulatory system. This is largely confirmed by data reported in the ACR 2005, which suggests that:

- Ireland is one of the most open economies in the world to international trade and investment.
- The level of regulation on Irish industry is perceived to be light relative to many of the other countries benchmarked.
- Regulations are not found to significantly inhibit product market competition in Ireland.

Yet we must avoid complacency. The ACR 2005 also reveals perceptions of rising regulatory compliance requirements, weak competition in the domestic market and ineffective competition legislation. In the view of the NCC, the deterioration in Ireland's ranking reflects growing concerns about the impact on firm level competitiveness of EU and domestic regulatory compliance requirements, and concerns about the impact of recent corporate governance legislation in particular.

Better regulation is increasingly being used across the world in the race for investment and jobs. Indeed, OECD research suggests that it is other small countries like the Netherlands and New Zealand that are leading in this effort.[17] Raising the quality of Ireland's performance to the standards of these countries will require further progress on:

- Checking the Growth of Red-Tape and the Regulatory Compliance Burden, and
- Promoting Competitive Markets.

Checking the Growth of Red-tape and the Regulatory Compliance Burden

At a general level, the NCC believes that there needs to be a greater recognition in our political culture of the costs of regulation, and their impact on competitiveness. Achieving environmental or social goals through regulation may seem politically and administratively easier and less expensive (for government) than other forms of intervention (e.g. taxation or

17 "Guiding Principles for Regulatory Quality and Performance", OECD, 2005.

expenditure), but it may have higher costs for society at large. The government's White Paper on Regulation, published in January 2004, notes that a small firm in Ireland employing eight people can devote up to half of one person's time to filling out forms.[18] Much of the administrative burden is unnecessary, consisting of duplicated information requests from different state bodies; any company wholly engaged in business within Ireland can have as many as 80 core forms to complete, many requiring submission a number of times a year.[19]

In addition to red tape, many of the costs of regulation are less visible. Regulation can result in higher prices and costs, a reduction in consumer choice, and a reduction in flexibility and innovation. In the USA, the total gross cost of federal regulation has been estimated at almost eight per cent of U.S. GDP.[20]

For this reason, the NCC views as crucially important that the Government's programme of better regulation, as laid out in the Regulating Better White Paper (2004), be implemented. The White Paper sets out a template for examining the benefits and costs of regulation – known as Regulatory Impact Assessment (RIA) – and for assessing whether regulations are needed at all. An assessment of the implications of the proposed regulation on national competitiveness is a key criteria. The subsequent report on the Introduction of Regulatory Impact Analysis (RIA) outlines the steps necessary for developing full regulatory impact assessments while the recently announced Business Forum on Regulation will provide a mechanism for increased dialogue on regulation between policy makers and business. The Government has promised significant resources will be devoted by all departments to the RIA system, and that these reviews where necessary, will include quantified cost-benefit analysis.

In this context, the NCC recommends a number of additional policy directions that would bring Ireland to the level of best international practice in terms of better regulation:

- The development of a transparent and independent system of assessing the quality of regulatory impact assessments prepared by government departments.
- The development and frequent publication of regulatory indicators to better measure the cumulative administrative and compliance cost on firms from regulation.
- Increased consolidation of information requests to industry from government departments and agencies through the use of technology, and
- A move towards a 'risk-based' approach to regulatory enforcement to replace general requests for information from industry with more targeted enforcements (see box).[21]

Qualification to Taxation and Regulation Sections of Chapter Two

Mr McCloone and Mr Sweeney (President, ICTU and Economic Adviser, ICTU) agree with the need to broaden the tax base and to eliminate property based tax incentives. They profoundly disagree, however, with any interpretation of the section on taxation which might be viewed as favouring low taxation and consequently low public spending. The leading position of all the Nordic countries, with high public spending funded by high taxes, in the World Competitiveness Forum of 117 countries, demonstrates that high taxes and competitiveness are not incompatible. Neither do they see the regulation of business and of the labour market largely as "burdens." They hold that there is a case for stronger labour legislation and its enforcement because of their concerns about the displacement of Irish workers and anti-trade union activity by some Irish employers. They strongly disagree with the EU Services Directive as it is presently written [and reject the statement in the Chapter Two which supports it enthusiastically]. This Directive, in their view, as presently drafted would have a severe impact on many Irish workers.

18 "Regulating Better; Government White Paper on Regulation", Department of An Taoiseach, 2004.

19 "Survey on Factors Affecting the Growth Potential of Small Business", Small Firms Association, 2002.

20 "Regulation in a Regional Economy", Michael J. Sullivan, 15 September 2005.

21 The Revenue Commissioners proposed new risk analysis system is a good example of how state resources can be targeted more effectively to reduce the risks of non-compliance with tax law.

Risk Based Approach to Regulatory Enforcement in the UK

The UK Hampton Report has identified risk assessment as a method of reducing administrative burdens for business.[22] A risk based approach argues that scarce resources should not be used to inspect, request or assess data from companies that are low risk or that are operating within inherently safe regulatory regimes. Such a system would involve the removal of general requests for information from industry and replace them with more targeted enforcement mechanisms. The UK's risk-based approach is expected to reduce the number of forms regulators send out by 25 per cent and the need for inspections by up to a third.

The Hampton Report suggests that risk assessment should be applied across the regulatory system. The risk based approach has already been implemented by several regulatory agencies in the UK. The Financial Services Authority (FSA) uses a risk based approach process called 'Arrow'.[23] The FSA system incorporates firm specific and industry wide risk assessments. This process determines both the impact and probability of a company posing a threat from not fulfilling its statutory obligations. Based on this process, firms with trusted systems and controls are required to provide less detailed information.[24] In order for a risk based approach to work effectively, adequate sanctions for non-compliance based on an appropriate standard for proof is essential.

More specifically, the NCC looks forward to the outcome of the review by the Company Law Review Group (CLRG) of the impact of the Companies (Auditing and Accounting) Act 2003 on enterprise competitiveness. As discussed in the Competitiveness Challenge 2004, the NCC recognises the importance of good standards of corporate governance, but believes that both the Company Law Enforcement Act (2001) and the Companies (Auditing and Accounting) Act 2003 have created difficulties for start-up and expanding companies in attracting skilled and experienced non-executive directors. The Company Law Enforcement Act (2001) requires the liquidator of an insolvent company to apply to the High Court for a 'restriction order' in respect of each company director unless the Director of Corporate Enforcement waives the obligation. This uncertainty surrounding the future ability of the individual to act as a director without restriction poses a deterrent to experienced directors taking up positions on the boards of start-up companies. The Companies (Auditing and Accounting) Act 2003 greatly adds to the regulatory requirement of directors and is causing directors' attention to be monopolised by the exercise of good corporate governance, at the expense of issues relating to company profitability and development.[25]

Promoting Competitive Markets

Facilitating markets to operate efficiently by ensuring vigorous competition is vital to containing the cost of doing business in Ireland, as well as reducing the cost of living more generally. Market entry by new firms and a high degree of rivalry between existing firms promotes price competition and lower costs, improves quality and service, and encourages the creation of new products and processes.[26] Irish companies are also more likely to upgrade their production technology and working practices in sectors where competition is strong.[27] In this way, intense competition is a powerful stimulus to the creation and persistence of both international competitive advantage of firms and the improvement of living standards across

22 "Hampton Review of Regulatory Inspection and Enforcement", HM treasury, 2004.

23 "Annual Report", The Financial Services Practitioner Panel, 2003.

24 "The Firm Risk Assessment Framework", Financial Services Authority, 2003.

25 Corporate governance refers to the systems by which companies are directed and controlled.

26 "The Sources of Economic Growth in OECD Countries", OECD, 2003. The interaction between competition and innovation is discussed in greater detail in chapter five.

27 "The Changing Workplace: A Survey of Employers' Views and Experiences", J. Williams, S. Blackwell, S. Gorby, P.J. O'Connell, H. Russell, NCPP, May 2004.

the whole population. A recent OECD report estimated that improvements in competition policy and enforcement in Australia, a country that already had a well developed competition framework, have added two and a half percentage points to GDP, which would equate in Ireland to gains in the order of €3.5 billion.

According to the ACR 2005, however, Ireland ranks 13th out of 16 countries with regard to the perceived intensity of domestic competition. The Competition Authority notes that a leading firm has a market share of above 50 per cent in newspapers, beer, whisky and other spirits, ice cream, cement, liquid milk, liquid petroleum gas, industrial cleaning, and industrial gases.[28] Other markets that are highly concentrated include supermarkets, distribution of food to grocers, newsprint distribution, banking, soft drinks, insurance, and outdoor advertising. Likewise competition in professional services (e.g. engineers, architects, solicitors, barristers, veterinarians, dentists, optometrists, and doctors) in Ireland could be stronger. Evidence regarding the impact of weak competitive forces on costs and competitiveness is strong. Ireland is the most expensive country in the eurozone for food, non-alcoholic beverages, tobacco and housing rents, and is the second most expensive country in the EU overall.[29]

Domestic policy makers have considerable influence in this area. The domestic competition performances of Finland, the Netherlands, Denmark and New Zealand – other small countries with equally young competition regimes – indicates that there are not scale barriers to developing competitive domestic markets. In this regard, the NCC welcomes a number of recent government initiatives to stimulate competition through stronger competition policy and other measures, including:

- the request to the OECD to carry out a peer review of the Irish competition policy regime (as recommended by the NCC in 2003);
- the enactment of the Competition Act 2002, which was a significant step forward in enhancing Irish competition law and the powers of the Competition Authority;
- the deregulation of the Dublin taxi market;
- the revision of the retail planning guidelines to facilitate greater access by a large-format retailers, and the review of the impact of the Groceries' Order on the competition in the grocery retail sector;
- the ongoing consideration of measures to promote more competition in pharmacy retailing and the licensed trades; and
- the commitment to establish a National Consumer Agency.

To bring Ireland's performance up to the levels of leading countries, the NCC recommends consideration of a number of additional policy directions.

First, the new National Consumer Agency should focus considerable effort on giving a more powerful voice to consumers in national policy discussions, as well as examining the relationship between the consumer and the state sector. More confident and better informed consumers and more competition in domestic consumer markets is good for business competitiveness for a number of reasons: it can help to reduce wage pressures by lowering price inflation and the cost of living; it can reduce costs for key inputs like energy and communications; and it can drive Irish business to improve quality and service in a way that supports international competitive advantage.

28 "Annual Report", The Competition Authority, 2004.

29 "Consumer Price Index Data Update 2004", a report for Forfás by PWC, August 2004.

Second, the Government should pro-actively address regulations that restrict competition. In a range of industries, including transport, retail, waste management and professional services, the state has put in place, or allowed, restrictions on the number of suppliers that could service a market, and on how these suppliers could behave. The Competition Authority has published a range of studies, in areas such as banking, insurance and the professions, which present Government with a realistic and actionable agenda for improving competition in a range of key industries.

Third, there should be further improvements in the powers available to the Competition Authority to discourage anti-competitive behaviour. In the view of the NCC, improvements in competition enforcement have already yielded significant benefits to Irish consumers and businesses. However, breaches of Irish competition law are rarely punished with fines. Currently, the imposition of fines in the Courts requires proof of a criminal conspiracy to the standard of 'beyond reasonable doubt'. The Courts are unable to impose fines where the Authority brings a civil case. Criminal cases are laborious and resource intensive, and force the Competition Authority to focus all of its resources on only a small number of cases. This has the potential to undermine corporate compliance with competition law.

Other countries, including the UK, Germany, and France, have made their competition authorities decision-making bodies, with the right to impose 'administrative fines' for competition law breaches. The NCC raised this issue in its 2003 and 2004 reports, and understands that the feasibility of this proposal is currently being reviewed by the Department of Enterprise, Trade and Employment, in the light of constitutional issues. The NCC continues to support the principle of administrative fines, and urges that a way be found to implement this recommendation.

Fourth, Government should consider the advantages of combining sectoral regulators into larger regulators, in areas such as utility regulation and transport, particularly where new regulatory bodies are being considered (e.g. buses, ports, etc). As recommended by the Hampton review, the UK is proposing to reduce the number of regulators from 31 to seven. A smaller number of large cross-sectoral regulators would have a number of pro-competition advantages over a large number of smaller sector-specific regulators:

- Larger cross-sectoral regulators lessen the dangers of regulatory capture by incumbent monopolists.
- There may be greater flexibility in re-allocating resources as circumstances change.
- Regulation is a highly complex, difficult process; there are clear synergies in the legal and economic expertise used in the regulation of different sectors.
- There would be administrative efficiencies and lower costs for regulated companies.

In addition to combining regulators where feasible, the NCC recommends that a regulatory commission (or a board structure) be established, where all regulators would operate within similar structures and use the same appeals mechanism.

Finally, the government can help to contain the growth in Irish prices and costs by supporting the efforts of the European Commission to open up Irish and other EU markets to more competition from abroad. The NCC urges the government to continue to attach a high priority to the draft EU Directive on Services which could help to eliminate, through administrative simplification, the obstacles to setting up a services company in other EU countries. The draft Directive would also encourage greater cross-border delivery of services by making service providers only subject to the law of the country in which they are established. This would boost competition and thus increase choice, improve quality and

bring down prices for Irish businesses across a range of service areas. With regard to agriculture, the WTO's Doha Development round presents an opportunity to agree a more efficient system of agricultural support that better meets the needs of Irish consumers and farmers, as well as those of developing countries.[30]

Promoting Competitive Markets - Insurance Reform and its Impact in Recent Years

The improving situation in relation to insurance costs is a good example of how we can make progress through the sustained implementation of good policies. A comparison of the average insurance price index in Ireland shows that since 1995 insurance costs have risen by over 60 per cent in Ireland. However, the Irish rate of growth has slowed down substantially in recent years. Between 2000 and 2002, insurance costs in Ireland increased by almost 32 per cent, whereas between 2003 and 2005, costs increased by just 1.5 per cent. CSO data shows a reduction of 22.3 per cent in the cost of motor insurance from April 2003 to February 2005.

The establishment of the Personal Injuries Assessment Board (PIAB) in 2003 was one of a number of key initiatives by Government to encourage reform within the insurance industry. The PIAB is a statutory body which provides independent assessments of personal injury compensation for victims of workplace, motor and public liability accidents. By eliminating the need for litigation costs where legal issues are not in dispute, the PIAB can significantly reduce the cost of delivering compensation. The PIAB made its first awards in May 2005, offering a substantial reduction in fees and the time required to finalise a compensation claim.

Furthermore, the Motor Insurance Advisory Board (MIAB) was established to review issues affecting the cost of motor insurance. In the 'Report of the Motor Insurance Advisory Board' (2002) the board outlined sixty seven recommendations. Substantial progress has been made with 45 of the 67 MIAB recommendations now fully implemented. According to the Motor Insurance Advisory Board report 2004, the litigation costs associated with compensation accounted for an average increase of 46 per cent on top of the award.

2.4 Labour Market Regulation

Labour market regulation refers to the legislation and administrative practices governing the recruitment of employees and the rules governing conditions of employment thereafter. Well-functioning labour markets are essential for structural change and economic growth and for ensuring that the benefits of growth are equitably shared. In a period of rapid technological change, labour markets are faced with the dual challenge of ensuring an effective re-allocation of resources from declining sectors to emerging ones, while minimising the potential hardship that these changes create.

Evidence reported in the Annual Competitiveness Report 2005 indicates that:

- Labour market regulations in Ireland are perceived to be relatively flexible, and are not believed to have a significant impact on industry job creation or innovation.
- The rigidity of employment index – a composite indicator prepared by the World Bank measuring the flexibility of labour regulations – suggests that Ireland has the fifth least rigid labour laws among the 16 countries benchmarked in the ACR (behind the USA, New Zealand, Denmark, Switzerland and the UK).

30 EU agricultural protectionism cost the average European family of four an estimated $1,500 per year in 1997 in higher food prices, "10 benefits of the WTO trading system", World Trade Organisation, 2003.

- The adaptability and flexibility of the Irish labour force has long been cited by multinational companies as one of attractions of Ireland's business environment.[31]
- Ireland has attracted high numbers of foreign workers. According to 2003 statistics reported in ACR 2005, the percentage of the workforce accounted for by foreign workers was already higher in Ireland (6.5 per cent) than in France (5.2 per cent) and the UK (5.1 per cent), though still well behind that of Switzerland (21.9 per cent), the USA (14.8 per cent) and Germany (9.0 per cent).

In this context, the NCC suggests a number of directions for labour market policy:

- Preserving labour market flexibility through social partnership
- Reforming pensions and savings
- Adopting a strategic approach to economic immigration

Preserving Labour Market Flexibility through Social Partnership

Now that Ireland is part of European Economic and Monetary Union (EMU), a key challenge facing the Government and the social partners is to ensure that pay costs are flexible enough to safeguard competitiveness and employment levels from the effects of exchange rate volatility and other potential economic shocks (such as a sharp rise in energy prices). At national level, Ireland's social partnership framework for wage-setting already provides for a considerable degree of pay flexibility. In contrast to some other models of collectivised pay agreements (Scandinavia), companies here are free to pay workers more than the national pay agreements or to utilise the 'inability to pay' clauses in the event of economic distress. The NCC believes that the social partnership framework continues to offer substantial potential advantages over an uncoordinated 'free for all' wage-setting system.

The next set of social partnership pay talks are due in late 2005, and will take place in an environment of rising domestic costs, a strong euro, continued signs of weakness in manufacturing, and significant weaknesses in the productivity performance of many sectors of the economy. In this context, there is a danger that economy-wide fixed nominal wage increases over a long period of time may not facilitate the adjustments to sudden shifts in the external environment, particularly in the public sector and other 'non-traded' sectors of the economy.

The NCC recommends that the social partners use the upcoming pay discussions as an opportunity to consider more innovative ways to make the centralised pay deals more sensitive to changing economic circumstances and the pressures of international competitiveness. Practical suggestions for modernising Ireland's system of centralised wage bargaining to simultaneously enable the equitable sharing of economic growth, and maintain and enhance competitiveness have already been put forward.[32] The NCC also recommends that the next agreement make specific reference to wage developments in Ireland's main trading partners and to the competitiveness of Ireland's manufacturing sector. The need to improve flexibility and acceptance of change should be a key consideration across the public and private sector. By providing for sustainable wage growth, the NCC believes that a flexible social partnership wage framework can safeguard employment and growth.

At the level of the individual firm, there is also a need to promote voluntary employee financial participation initiatives, in the form of share options and profit and gain-sharing.[33] Financial participation can provide employees with access to rewards in excess of the typical

31 "Survey of MNCs", IMI, 2005.

32 "A Mechanism for Sharing the Fruits of Growth", D. de Buitleir and D. Thornhill, ESRI Quarterly Economic Commentary, Second Quarter 2001.

33 Profit sharing involves employees receiving a proportion of their income that is related to profits. It is generally used for situations in which all or at least the majority of employees are involved in the scheme. Gainsharing is a group incentive scheme in which employees receive a bonus related to the performance of the group. This may be based on cost savings or productivity improvements or some other measure. (NESC).

returns from employment in return for efficiency improvements, and raises individual and organisational productivity and performance.[34] By making the cost base of firms more flexible and responsive to external competitive conditions, it also makes industry more resilient to external shocks, such as exchange rate volatility. Only 14 per cent of Irish firms have, however, adopted employee financial participation schemes, a proportion far behind EU leaders.[35] Irish-owned SMEs, often the companies most exposed to exchange rate fluctuations, are also the companies least likely to have adopted any form of scheme. This reflects the administrative overheads associated with the introduction of such schemes for smaller companies, liquidity and governance issues, and also the absence of favourable tax treatment for various forms of financial involvement, unlike other schemes suited to larger firms.[36]

In 1999, the then Minister of Finance stated that he would be prepared to consider options to support increased employee financial participation, as long as they do not become a form of tax relief on basic pay. Forfás is currently engaged in a study on possible options. Once completed, this should be used to intensify discussions between Government and the social partners to advance specific proposals to increase employee financial involvement in small and large businesses alike.

Pensions and Savings

Pensions policy is complex, and if not addressed adequately could be potential long term threat to Ireland's competitiveness. On the one-hand, there is an evident need for Irish residents to have an adequate income after retirement, while on the other, pension liabilities are increasingly putting a large strain on enterprise and the state. The cost of providing pensions is increasing dramatically, most notably due to increased wage costs, lower investment returns, longer life expectancy, and more conservative accounting standards. These costs are already impacting on competitiveness.

The Irish pensions system is primarily based on two forms of flat-rate pension.[37] Among OECD countries, only Australia, Ireland, Mexico and New Zealand lack what is typically called a second-tier state pension that links pension payments to an individual's earnings history. Tax inducements serve as the primary public policy tool for ensuring adequate income replacement. Tax deferment mechanisms are available for employer and employee contributions to occupational pensions, and also individual voluntary contributions to personal pensions. OECD data indicates that workers on average earnings in OECD countries can expect their post-tax pension to be worth just under 70 per cent of their earnings after tax. The countries with the lowest net replacement rate are Ireland and New Zealand, which have just basic pension schemes and net replacement rates of less than 40 per cent.[38] The actions taken by Government so far, such as the establishment of the National Pensions Reserve Fund and the creation of Personal Retirement Savings Accounts (PRSAs) are to be welcomed, though the success of the PRSA scheme appears limited.

Our current favourable demographics and strong economic growth offer an opportunity to plan for an ageing society. The number of those aged 65 years and over in Ireland is expected to grow from 456,000 today to over 700,000 by 2020 and to treble to 1,496,000 by 2050.[39]

34 "Employee Share Ownership and Profit-Sharing in the European Union", European Foundation for the Improvement of Living and Working Conditions, 2001.

35 "The Changing Workplace: A Survey of Employers' Views and Experiences", National Centre for Partnership and Performance, April 2004.

36 Gain-sharing provides a structured mechanism for involving employees in generating operational efficiencies. In Ireland there are no tax advantages linked to gain-sharing. Favourable tax treatment is available for other forms of employee financial participation, such as share options and profit sharing, but these are more suitable to large companies.

37 Social assistance pensions are non-contributory, means-tested and payable to those aged 66 years and over. Social insurance pensions are contributory, non-means-tested and payable at age 65 years.

38 "Pensions at a Glance; Public Policies across OECD Countries", OECD, 2005.

39 Assessing Age-Related Pressures on the Public Finances 2005 – 2005, ESRI.

In devising a more effective overall system, a key question is whether to continue with the voluntary, but strongly tax-supported, approach to earnings replacement or to adopt an alternative approach. A National Pensions Review is being completed by the Pensions Board. It is important that a comprehensive pension policy is developed which covers the position of all categories of future pensioners – particularly those with no or inadequate pension cover. From a competitiveness perspective, the NCC believes that the development of Ireland's pension policy should be informed by the need to:

- Increase the take-up of pensions;
- Recognise the significant cost pressures facing the enterprise sector;
- Promote flexible solutions that facilitate rather than inhibit employee mobility;
- Ensure the sustainability of the public finances.

Finally, the NCC believes that a unique window of opportunity exists to increase pension's coverage and adequacy as special savings incentive accounts start to mature in 2006.

Immigration

Ireland has undergone a significant transformation from being a country of net emigration to a country of substantial net immigration, and has adopted a relatively open system of economic migration compared with other EU countries. According to 2003 statistics reported in ACR 2005, the percentage of the workforce accounted for by foreign workers was already higher in Ireland (6.5 per cent) than in France (5.2 per cent) and the UK (5.1 per cent), though still well behind that of Switzerland (21.9 per cent), the USA (14.8 per cent) and Germany (9.0 per cent). Since 2003, immigration has continued to grow strongly. The total immigration flow into Ireland in the twelve months to April 2005 is estimated at 70,000 – the highest figure on record since the CSO initiated the present series of annual migration estimates in 1987. The estimated number of emigrants in the same period was 16,600, resulting in a net migration figure of 53,400, compared with 31,600 in the twelve months to April 2004.[40]

These changes are to be welcomed, reflecting as they do the upturn in Ireland's economic fortunes. Immigration has made a large contribution to overall levels of Irish economic growth in recent years, as well as a more modest contribution to growth in average living standards. Immigrants have also contributed to Ireland's cultural and social development. In considering a new immigration regime for Ireland, the NCC believes that there are a number of issues that need to be considered by Government in developing policy in this area.

- Economic research suggests that immigration of people with the following skills is of greatest benefit to the living standards of the existing population:[41]
    - Those with advanced science and engineering skills that are expensive to develop (e.g. post-doctoral researchers)
    - People with a track record of entrepreneurial success
    - Company specific skills linked with inward direct investment
    - Those with country-specific knowledge, skills and languages required by Irish exporters
- With regard to more specific skills shortages (e.g. health professionals, trades people etc.), migration should only form part of a long term solution to meet demand. The priority policy response should be to create access to education and training in these

40 Population and Migration Estimates, April 2005. CSO - 15 September 2005.

41 "Assessment of possible migration pressure and its labour market impact following EU enlargement to Central and Eastern Europe; IZA Research Report 3", Bauer, Thomas & Zimmerman, Klaus F., 1999.

areas and to upskill the existing workforce through re-training to meet demand. Reliance on migration alone to address skills shortages can perpetuate the reasons for those shortages.

- Ireland is now part of a large, single European labour market, encompassing over 208 million people, all of whom are free to enter the Irish labour market without any restrictions. While most skills needs can be provided through the free movement of people within the European Economic Area (EEA), particularly since the accession of ten new member states in 2004, some will require immigration from third countries outside the EEA.
- In this regard, Ireland will have to compete with other countries to attract people with these skills. The government's economic migration policy and Employment Permits Bill 2005 proposes a green card system designed to address skills and labour shortages in the economy, and facilitates permanent residence and employment in Ireland for skilled immigrants and their families. This vacancy-driven approach will develop Ireland as a more competitive location for attracting skilled workers and provides an opportunity to address the economy's skills and labour needs in a more responsive and efficient manner. It is essential that such schemes are responsive to the needs of both migrants and enterprise. There should be swift progress in delivering the green card system.
- More generalised immigration from outside the EEA is not a solution to labour shortages, as high levels of immigration stimulate demand pressures as much as they increase supply. Low-skilled immigration should not be used to postpone the decline of uncompetitive industries. By suppressing wage growth, immigration reduces the incentives for industry to increase labour productivity through up-skilling and technological and organisational innovation.

3 Economic and Technological Infrastructure

Summary

Economic infrastructure refers to all forms of physical infrastructure that are required for the efficient functioning of an advanced economy. Despite significant investment, since the mid-1990's Ireland's economic infrastructure has come under increasing strain. This is supported by evidence from the ACR 2005:

- Ireland ranks 11th out of the 12 countries for which data are available in terms of the total level of infrastructure stock relative to national income.
- Ireland ranks poorly for investor perceptions of overall infrastructure quality (14th out of 16), as well as for the efficiency of distribution infrastructure (14th out of 16), the quality of air transportation (14th out of 16) and the quality of our seaport infrastructure (13th out of 16).
- Ireland also ranks poorly for investor perceptions of the adequacy of energy infrastructure (14th out of 16).
- Broadband accessibility and take-up, though increasing, remains well behind the levels of other advanced economies.
- The housing stock, though increasing rapidly, remains well behind the levels of other advanced economies (on a per capita basis), and house price growth has been higher than every other benchmarked country.

Key policy directions recommended by the NCC include:

Investment and Transparency

- The evidence on Ireland's infrastructural deficit highlights the need for a continued expansion of public capital stock. The Government should commit to sustained investment in infrastructure in the next NDP.
- It is important to improve the analysis and transparency underpinning capital spending to ensure prioritisation of those projects that yield high economic returns.

Regional Balance and Spatial Planning

- The attractiveness of large urban centres has a determining influence on the competitiveness of regional economies as a whole. The next NDP is a unique opportunity to make a reality of the National Spatial Strategy (NSS) as a platform for regional and infrastructural development in Ireland.
- The NCC also views it as crucial to ensure that the multiple national and local authorities that operate within the Dublin region work together at both a strategic and operational level. This may require an overarching body to coordinate the city's development.

Economic Support Infrastructure for Industry

- Businesses rely on adequate and efficient infrastructure to produce their goods and services and to trade internationally. There are still significant deficiencies in Ireland's seaport and airports, energy, communications and waste infrastructure that need to be addressed under the next NDP.

Increasing the Responsiveness of the Planning System

- The NCC believes the responsiveness of the planning system should be increased by ensuring that adequate zoned and serviced land is available to promote a competitive market for development land, and that the local authorities have the flexibility and incentives to meet the needs of their region.

3.1 Introduction

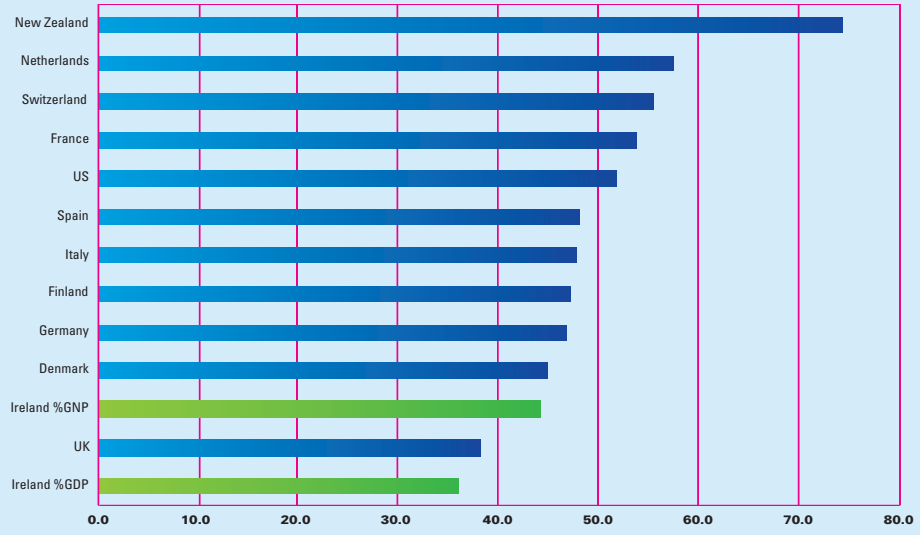
Economic infrastructure refers to all forms of physical infrastructure that are required for the efficient functioning of an advanced economy. A good transportation system is necessary for the efficient and cost-effective movement of goods and people and a well-developed energy infrastructure delivers a reliable, secure and competitively priced supply of energy. All economies depend on the provision of essential infrastructure such as water supply and waste management. As knowledge and innovation become the basis for competitiveness, technological infrastructure that supports research activities and the roll-out of information and communications technology (ICT) will become increasingly important. The government plays a key role in planning most forms of infrastructure, whether directly through public provision or indirectly through regulation of private delivery.

Since the economy accelerated in the mid 1990s, Ireland's economic infrastructure has come under increasing strain. This is supported by evidence in the ACR 2005:

- Ireland ranks 11th out of the 12 countries for which data are available in terms of the total level of infrastructure stock relative to national income.
- Ireland ranks poorly for investor perceptions of overall infrastructure quality (14th out of 16), as well as for the efficiency of distribution infrastructure (14th out of 16), the quality of air transportation (14th out of 16) and the quality of our seaport infrastructure (13th out of 16).
- Ireland also ranks poorly for investor perceptions of the adequacy of energy infrastructure (14th out of 16); this is supported by various electricity generation scenarios from Eirgrid which all show that significant additional electricity generating capacity will be required in the next few years.
- Broadband accessibility and take-up, though increasing, remains well behind the levels of other advanced economies.
- The housing stock, though increasing rapidly, remains well behind the levels of other advanced economies (on a per capita basis), and house price growth has been higher than every other benchmarked country.

It is important to place past under-investment in Ireland's physical infrastructure in an historical context. Unlike in Spain, Portugal and Greece, EU structural and cohesion funding for Ireland was prioritised for investment in education and human capital development, as opposed to physical infrastructure. The comparative economic performance of these countries since then suggests that this was the better choice. Past under-investment in infrastructure also partly relates to the fiscal stabilisation of the late 1980s, which was a key factor in the subsequent economic recovery of the 1990s. Without the cuts in public investment and current spending at that time, Ireland's economic recovery may have been significantly delayed.

Figure 3.1: Infrastructural Stock (Public Capital Stock/GDP), 2002



Source: KAMPS (2004) / OECD / Forfás

Since the late 1990s, much progress has been made in closing the infrastructure gap. The 2000-06 National Development Plan (NDP) provided for an investment of €51.5 billion of exchequer, EU and private funds in health services, social housing, roads, education, public transport, rural development, industry, water and waste services. This has resulted in higher levels of investment in fixed capital formation as a percentage of GNP in Ireland (4.7 per cent in 2003) than in all other countries benchmarked in the ACR 2005, with the exception of Hungary (4.9 per cent) (for example, the UK invested 1.5 per cent of GDP). The increasingly visible signs of improvements in many areas of infrastructure, as a result of the high levels of public investment in recent years, are welcome and are already having a positive impact on competitiveness.

Preparations for another NDP for the period 2007-13 have already begun. The process of preparing the next NDP presents a significant opportunity for Ireland to re-shape our economic infrastructure, and to ensure that capital spending priorities going forward are consistent with the needs of the envisioned 'innovation-driven' stage of economic and social development. The NCC recommends that a number of key policy challenges must be addressed through this process:

- Ensuring adequate levels of infrastructure investment.
- Increasing the analysis and transparency of capital spending prioritisation.
- Supporting better regional economic development and spatial planning.
- Increasing the responsiveness of the planning system.
- Addressing deficiencies in seaports and airports, energy, communications and waste infrastructure.
- Accelerating the delivery of infrastructure projects.

3.2 Levels of Investment

The evidence on Ireland's infrastructural deficit strongly makes the case for a continued expansion of the public capital stock. The ACR 2005 notes that as a result of the low levels of public capital investment in the past and Ireland's high rates of GDP growth, that Ireland's stock of infrastructure ranked 11th out of the 12 countries. This is amplified by the results of the ESRI's Mid-Term Evaluation of the National Development Plan which found that the macroeconomic returns from investment under the Community Support Framework /National Development Plan are significantly higher than previously estimated, at approximately 14 per cent per annum.

In the context of developing a new national development plan, the NCC recommends that the government commits to sustained investment in public infrastructure. The NCC welcomes the commitment from Government to spend five per cent of GNP on capital projects each year into the medium-term. However, the NCC is concerned that actual spending levels have fallen below this commitment in recent years. As outlined in chapter two, further efforts are required to ensure that the state achieves value for money in terms of the delivery of infrastructure. The NCC also welcomes the commitment to provide a ten year capital envelope for transport and looks forward to the early publication of that investment framework.

The high levels of public investment in recent years are increasingly producing visible signs of improvement in Ireland's physical infrastructure. However, with a lack of clear market signals on the future demand for infrastructure, given the limited use of congestion charging in Ireland, there exists a risk of overprovision and over investment in physical infrastructure. A better system of assessing the social benefits and investments costs of transport would ensure that additional investment would be meeting genuine needs, and enable a better analysis when choosing between different investment priorities (e.g. car, bus or rail).[42] Finally, as the country moves towards a knowledge-based economy, the relative importance of different types of infrastructure is changing. It will be important that 'softer' infrastructures (e.g. factors that support education, training and research, quality of life, and image/reputation), which can be harder to identify and deliver, are also reflected in future investment decisions.

3.3 Analysis and Transparency of Capital Spending Prioritisation

Given the huge financial resources that a new national development plan will require, it is crucial that the process through which spending is allocated leads to the selection of projects that yield the highest return; even a marginal improvement in the allocation of public capital spending will yield sizeable economic benefits. Under the NDP 2000-06, the main components of public capital spending on economic and social infrastructure were housing, national roads, public transportation, environmental infrastructure and health facilities. The NCC believes that the broad thrust of this allocation was appropriate. Notwithstanding the positive outcomes to date, it is not clear that the decision processes used to allocate public investment are adequate to address the challenges of the future, particularly as future investment choices may be more difficult once obvious projects, such as the inter-urban motorways, are completed. There are two key areas in the current system where the NCC believes that opportunities for improvement exist:

First, the analysis underpinning the allocation of finance for public investment needs to be expanded.[43] Good economic analysis is necessary to accurately compare the potential benefits and costs from different infrastructure projects, ensuring the projects that offer the

42 Evaluating Large Urban Transport Projects. Colm McCarthy, DKM Economic Consultants, October 2005.

43 With regard to the allocation of funding across different departments and infrastructure categories, the only studies that attempt to address this issue in a comprehensive way under the current NDP are the ESRI's National Investment Priorities report (1999) and it's NDP Mid-Term Review (2003). Noting that the 1999 study was to inform €52 billion of investment, it strikes the NCC that a once-off study costing in the region of €320,000 may not be appropriately resourced.

greatest social and economic returns are prioritised. More emphasis is required to ensure that the full social costs are incorporated, that capital and operating costs are not underestimated and that large projects are disaggregated and assessed at an appropriate level. It should be made clear that economic analysis need not result in this prioritisation favouring narrow economic returns over broader social benefits; rather, it should constitute the use of best practice evaluation techniques to assess the degree to which particular projects and types of infrastructure contribute to economic, social, regional and broader political objectives.

Better economic analysis is needed for both allocations within individual government departments when prioritising specific projects, e.g. which road to invest in, as well for the allocation of funding across Government departments with responsibility for different infrastructure areas, e.g. whether to invest in roads or research infrastructure. Additional expertise may be required within government to undertake this work.

Second, greater transparency is required. Even where quality analysis is already carried out, it is not always clear how this analysis translates into actual allocations for infrastructure investment. These evaluations and appraisals by individual government departments and their agencies should have a common methodology across departments, to the greatest extent possible, and they should be published so that it is possible to assess their standard on an on-going basis. Transparency adds accountability to the process and provides incentives for the production of good quality analysis. It goes without saying that in any democratic society, value judgements on the right balance between different political, social and economic objectives from investment in infrastructure is the prerogative of elected politicians. At the same time, much of the current system for allocating public capital expenditure is characterised by negotiation and lobbying. This creates a non-transparent zone where the potential exists for considerations other than stated and agreed economic and political objectives to determine allocations.

3.4 Regional Balance and Spatial Planning

Major city-regions will play a central role in a modern knowledge based economy. A recent UK study found that the knowledge-intensive sectors, which are expected to drive the growth of advanced economies, are heavily concentrated in or near the centres of major cities. The attractiveness of major cities has a significant influence on the competitiveness of regional economies as a whole.[45] While evidence in the ACR 2005 suggests that regional income disparities are lower in Ireland than in most EU countries, we have yet to make real progress in developing the National Spatial Strategy (NSS) gateway centres to their full potential.

Ireland has experienced an unprecedented phase of growth and development in recent years, which has brought significant opportunities and problems in relation to how we plan our spatial environment. With the population of Ireland projected to increase to over five million by 2021, the next NDP represents a real opportunity to shape our spatial environment in a sustainable fashion.[46] In this section, the NCC draws attention to policy priorities relating to regional development policy and the development of the Greater Dublin Area.

Regional Development Policy and the National Spatial Strategy (NSS)

The performance of regional centres is determined by the extent to which they prove an attractive location for investment from highly productive industries.[47] However, improving the infrastructural links to an under-developed region in isolation of other policies to stimulate regional growth can actually have a negative impact.[48, 49] This was the key insight behind the NSS, which was in effect a planning framework supporting the co-ordination of

44 These two levels are linked as evaluation of individual project appraisals, performed by the relevant spending departments, requires prior knowledge on behalf of the Department of Finance of the returns to investing in different functional areas: the trans-departmental issue.
45 "Our Cities are Back", Office of the Deputy Prime Minister, November 2004.
46 "Regional Population Projections 2006-2021", Central Statistics Office, May 2005.
47 "Transport Connectivity and Place Competitiveness", Core Cities Working Group (UK), Substantive Report, 2004.
48 "Transport and the Economy", Standing Advisory Committee on Trunk Road Assessment – SACTRA, The Stationery Office, London, 1999.
49 "Productivity in the UK: The Regional Dimension", HM Treasury, 2001.

investment to underpin the future development of the new spatial structure. Likewise, the Atlantic Gateways Corridor and North-South initiatives have the potential to pool the strengths of a number of centres in order to develop an internationally competitive region.

The NCC believes that the next NDP is a unique opportunity to make a reality of the NSS as the platform for regional and infrastructural development in Ireland. If the NDP is framed in the context of the NSS, more balanced distribution of economic growth and greater regional inter-connectivity can be achieved. In this context, the development of a special NDP fund that is specifically focused on gateway development should be considered. Funding could then be allocated on a competitive and transparent basis to infrastructural projects that would create a step-change in the potential of that centre. Given the number of local and national bodies involved in the development of gateways, greater coordination is also required.

Developing the Greater Dublin Area

The success of Dublin will remain critical for the performance of the entire economy. Already, the Greater Dublin Area (GDA) has played a significant role in Ireland's recent development.[50] The GDA has been the focus for FDI in Ireland and has developed into a significant centre for trade and tourism. In a globalising economy, Dublin competes primarily against other internationally competitive regions for trade and investment; not against other regions of Ireland. The principle guiding regional development should be about maximising the inherent growth potential of each of region, not re-directing economic growth away from Dublin.

Dublin is a relatively small city on the margins on north-west Europe, and its continued health should not be taken for granted. The considerable growth in terms of population and economic activity in recent years has placed enormous strains on the region's infrastructure. According to the European Cities Monitor, Dublin was positioned in 23rd position regarding the important Access to Markets indicator, performing poorly on external and internal transport facilities.[51]

The NCC welcomes Transport 21, the now ten year transport investment plan. In the context of implementing this plan, the NCC views it as crucial to ensure that the multiple national and local authorities that operate within the GDA region work together at both a strategic and operational level. As outlined in the Programme for Government, this may require an overarching body to coordinate the city's development; a body with the authority, financial resources, and responsibility to ensure that the GDA develops integrated land use and transport policies.

Specifically, in the context of transport infrastructure, the NCC suggests that:

- Public transport needs to incorporate elements such as integrated fares and tickets, real time travel information, an integrated mesh of radial and orbital bus services, and the provision of interchange stations between the various transport modes. The NCC is concerned at the inordinate delay in producing integrated fares, ticketing and smart cards for public transport in the GDA.
- As car use will continue to have a central role in Dublin's transport network and is a significant component of a business friendly city, the selective and strategic building of additional road capacity needs to be considered as a contribution to a sustainable transport system.[52] It also needs to be accompanied by the application of best practise traffic management. Furthermore, careful consideration should be given to the provision of viable alternatives before existing road capacity is closed to cars.

50 GDA comprises the Dublin and Mid East region.
51 European Cities Monitor, Cushman & Wakefield Healey & Baker.
52 In order to be sustainable, new road infrastructure should not increase car traffic at peak times.

- Measures to modernise and improve public transport are necessary, in particular reforms necessary to establish more competitive bus services in the interests of both consumers and taxpayers.

3.5 Increasing the Responsiveness of the Planning System

The responsiveness of the planning system can have a significant impact on house price inflation, and the degree to which the location and type of housing supplied meets market demands.[53] High house price inflation has a number of implications for competitiveness:

- It can have a direct effect on general inflation, wage demands and consumer spending.[54]
- It can reduce labour mobility both within and from outside the economy.[55]
- It can lead to greater volatility in house prices, which can have a strong effect on wealth levels and the security of Ireland's high household debt levels.
- Housing policy also impacts significantly upon quality of life. A lack of affordable housing close to employment centres can lead to increased commuting times, and to higher congestion and environmental costs.

Evidence reported in the Annual Competitiveness Report 2005 indicates that:

- In 2004, there were nearly seventy seven thousand new house completions in Ireland. Household completion rates are now four times the European average. At the same time, over one hundred thousand units were granted planning permission in 2004. Despite the high rate of housing completions, the stock of housing in Ireland, at 400 dwellings per 1,000 of population, remains below the EU15 average of 475.
- Between 1996 and 2004 the average house price in Dublin city increased from €92,342 to €334,822, an increase of 287 per cent (154 per cent in the UK, 73 percent in the USA). Average house prices in all other regions increased by 225 per cent for the same time period. In 2005, Irish house prices continue to rise, albeit at a slower rate than experienced in previous years. Research suggests that equilibrium has been reached outside the GDA.[56]

The NCC believes that greater responsiveness in the planning system is required to overcome the affordability and settlement problems that Ireland encountered during the last ten years. Estimates show that when changes in economic and demographic factors are taken into account, Ireland will need to build between forty five to fifty thousand homes per annum in the next five years to accommodate household formation rates.[57] The NCC believes that key issues remain unresolved in the areas of planning, infrastructural investment, and the ability of local authorities to be responsive to local needs.

In addition to high demand for housing, the NCC believes that house prices were exacerbated by the lack of availability of zoned and serviced land. There is a need to ensure that a significant supply of zoned and serviced land is available to promote a competitive market for development land. To increase the supply of zoned and serviced land and reduce uncertainty, it is recommended that county development plans should be developed based on ambitious development targets, and that they should be regularly reassessed and integrated into longer term local and regional development plans.

Once zoned, land cannot be developed until basic infrastructure is put in place. Evidence suggests that many basic infrastructural problems remain with land that the authorities have defined as serviced land, such as a lack of adequate transport links. Much of this infrastructure is currently developed by the state. Where the provision of state-funded public

53 "Unaffordable Housing - Fables and Myths", Alan W. Evans & Oliver Marc Hartwich, June 2005.
54 See "Housing, Wages and UK Labour Markets", Bover et al. 1989, "Wages and House Prices – Cross Section Evidence", Blanchflower & Oswald, 1989.
55 There is also a related literature which focuses on labour mobility and housing tenure.
56 Review of the Construction Industry 2004 and Outlook 2005–2007, DKM September 2005.
57 Fitzgerald, J., McCarthy, C., Morgenroth, E. and O'Connell, P. (Eds) (2003), The Mid-Tem Evaluation of the National Development Plan and Community Support Framework for Ireland, 2000 to 2006, Economic and Social Research Institute, Dublin.

infrastructure enhances the value of development land, the use of transparent development levies to help fund the capital cost of supporting infrastructure is justified. Finally, planning and transport authorities also need to consider if the use of established transport infrastructure is being maximised, and if it is not, whether there is a need to increase housing density in particular areas (e.g. in Dublin city and along key exit transport corridors) to maximise the use of these scarce transport resources.

Responsiveness in the planning system is essential to enable the market to meet the needs of consumers. Local authorities should have the flexibility to meet the needs of their region. However, this needs to be combined with adequate incentives. For example, in other countries where local budgets depend on factors such as population figures, local authorities have an incentive to develop their region as attractive places to live by enabling the provision of the types of housing that people want.

3.6 Economic Support Infrastructure for Industry

Businesses rely on adequate and efficient infrastructure to produce their goods and services and to trade internationally. The next NDP provides an important opportunity to consider the ways of addressing Ireland's infrastructure needs. As both north and south of the island of Ireland share many of the same natural resources and face similar economic challenges, particularly in the border region, opportunities to optimise investment in infrastructure development on all island basis should be assessed. The NCC wish to draw particular attention to seaports and airports, energy, communications and waste infrastructure.

Sea and Air Ports

Competitive and open economies rely on transport connectivity to reach suppliers and customers. For an island nation, Ireland's seaport and airports are of key importance to ensure access by people and goods to international markets.

There is growing concern regarding the capacity of Irish ports, particularly Dublin port. The Department of Communications, Marine and Natural Resources predicts a capacity shortfall of 12.2m tonnes over the next ten years, 35 per cent of which will be experienced in Dublin port. This has significant implications for both exporters and importers, given that 99 per cent of the volume of internationally traded goods is handled by the island's ports.[58] A Ports Policy Statement was published in 2004 to define the future role and prospects of port infrastructure. The NCC believes that, if necessary, further public investment should be considered as part of the strategy to develop state owned port infrastructure. Ports also need to be considered as part of the wider integrated transport system, in particular to ensure the ease of access to these facilities, and to promote all island competition. In this context, consideration needs to be given to placing the commercial state ports under the remit of the Department of Transport.

For businesses operating internationally, proximity to an airport (in terms of time to access) coupled with cost effective, timely international connections are an important factor in location decisions. Ireland is well served by a significant number of airports, but it is important to ensure that key airports have adequate capacity to serve a wide range of destinations with sufficient degree of frequency. This can best be achieved by concentrating investment in Dublin, Cork and Shannon airports in line with an integrated spatial strategy.

Finally, government should continue to support the finalisation of the protracted EU / USA negotiations on how European / US airspace is managed, more commonly known as 'open skies policy'. Enhanced air connectivity to and from Ireland offers significant trade and tourism opportunities. Should open skies fail to materialise in the near future, Ireland should consider adopting a bilateral approach. More competitive airports will allow Ireland to maximise the potential advantages of open skies.

58 "Ports Policy Statement", Department of Communications, Marine and Natural Resources, 2004.

Information and Communication Technology

Ireland's geographic location and industrial make-up makes it essential that Ireland has access to a highly efficient and reliable communications system. Ireland's continued low standing as regards the availability, speed, and cost of broadband communications runs the risk of impeding enterprise efficiency and regional development.

The government has launched a number of initiatives to extend broadband coverage nationwide, including the metropolitan area networks, county and group broadband schemes and the schools broadband programme.[59] Coupled with government pressure to reduce prices and increased investment from a number of telecommunications firms, this investment has resulted in an improvement in access figures. Despite these developments, Ireland is still close to the bottom of the EU broadband league in terms of overall take-up of broadband services. The ACR 2005 records that Ireland has a ranking of 11th out of the 12 countries.

A strong inconsistency remains between our image as a 'high technology' economy and our underlying use of technology.

The NCC suggests that further actions are required to support the efficient roll-out of local loop unbundling in a fashion that minimises the disruption to customers who wish to switch telecommunications or broadband provider, and to maximise the usage of the state's investments in telecommunications infrastructure. This is essential to promoting sustainable competition and innovative companies and services. The government also has scope to stimulate demand for broadband services, by:

- Offering an increasing number of services online, the public service can create incentives for both business and the public to use the Internet.
- Expanding the schools broadband programme. ICT should not be viewed as something to supplement conventional classroom approaches; it needs to be an integral part of it.

Energy Infrastructure

Energy is an integral part of all business, be it as a direct or indirect input into the production, distribution or supply of goods. The rapid increases in industrial electricity tariffs are adversely affecting all firms operating in Ireland. This is particularly the case for the more energy intensive sectors such as chemicals and pharmaceuticals, food, beverage and tobacco and the electronics sector – sectors of great significance to the Irish economy.[60] New emerging industries, such as internet data centres, are also very energy intensive.

It is of concern, therefore, that under the energy regulatory regime adopted since 2000, there does not yet appear to have been sufficient new entry into the power generation sector or increased competition in the supply of electricity or gas. As reported in the ACR 2005, various electricity generation scenarios from Eirgrid all show that significant additional electricity generating capacity will be required in the next few years. Electricity prices for Irish firms have escalated by 42 per cent between July 2000 and January 2005. As of January 2005, the cost of electricity for a typical Irish industrial consumer was 51 per cent above that for a UK firm and 26 per cent higher than EU-25 average.[61] A further round of price increases scheduled for January 2006 will exacerbate these price differentials further.

In the mid-1990s, Irish electricity prices for industrial customers were amongst the lowest in Europe. However, they have increased to such an extent since 2000, that prices in Ireland are now third highest in the EU, behind Italy and Cyprus and significantly above the EU average. This is partly a result of increases in international fuel costs, which are a major input into Irish prices. However, the high and rising relative cost of energy in Ireland also reflects, in the view of the NCC, a number of domestic factors:

59 Details on these projects can be found at HYPERLINK "http://www.dcmnr.gov.ie/Communications/" http://www.dcmnr.gov.ie/Communications/.
60 In 2002, these industries spent a cumulative €440 million on energy (fuel and electricity).
61 Eurostat.

- Suppression of electricity prices below the economic levels sufficient to stimulate new investment during the 1990s.
- The need to finance new electricity generation and transmission infrastructure due to historical deficits and to support Ireland's recent economic growth.
- The small size of the market and weak interconnection links to Northern Ireland, the UK and European networks.
- Efforts by the energy regulator to attract new investment in generation capacity, and
- Reluctance by utility companies to enter the Irish market.

More generally, there are growing concerns at global and national level about the security of energy supply (physical interruption in oil supply), increasing global demand and the risk of the current oil price shock deteriorating further. Some commentators believe that the level of oil supplies have peaked in 2003; others believe that it will not happen until 2030 (depending on definition used). Environmental pressures are also increasing. The energy sector is now subject to carbon emissions trading with the introduction of the emissions trading directive, which will add to energy costs as installations invest in abatement technologies or purchase carbon allowances. As carbon constraints are programmed to increase, costs will also increase.

The NCC looks forward to the completion of a comprehensive energy policy from the Department of Communications, Marine and Natural Resources. A comprehensive policy will create greater certainty in the market, thus encouraging additional investment by new entrants in generation supply.

The main objectives of energy policy in Ireland over the next five to ten years should be to improve security of supply while ensuring that costs are competitive and to minimise the impact of energy provision and consumption on the environment. The NCC recommends that the Department consider the following policy directions in this review.

- Expedite the creation of an all-island energy market through regulatory convergence and additional investment in physical inter-connections with Northern Ireland.[62]
- Explore the long run potential for the integration of the Irish system into a wider EU energy market.
- Request the regulator to assess whether the costs to end users required to fund the infrastructural investments are being spread out fully over the lifetime of the assets. By 2005, €1.67 billion will have been spent on the distribution network, while €0.5 billion will have been spent on the transmission network, which is imposing a heavy cost on current users.
- Consider the separation of the ESB generation, transmission and distribution components into a small number of separately owned, managed and operated entities, in order to promote greater competition, cost efficiencies and additional private investment.
- Support the development of additional sources of Irish gas.
- Facilitate the integration of renewable energy sources into Ireland's energy markets in order to diversify Ireland's energy supply sources, reduce our dependence on imported carbon fuels, and meet our environmental targets.
- Continue to promote investment in energy efficient technologies and general awareness of the need for energy efficiency, particularly by households and the transport sector.

62 On June 21, 2004, the Minister for Communications, Marine and Natural Resources, Dermot Ahern T.D., and his UK counterpart jointly announced the publication of a draft Development Framework for an all-island energy market, for the purpose of initiating a consultation process with industry on the nature of such a market.

Waste Infrastructure

Waste management and the associated costs continue to be a key issue for enterprise in Ireland. The total cost of waste disposal for business in Ireland has risen from €32 million in 1995 to over €800 million in 2004. The high and rising cost of waste disposal in Ireland reflects, in the view of the NCC, a number of factors.

- While many existing waste disposal facilities are reaching the end of their useful life, Ireland has made limited progress under the current NDP, which envisioned significant public and private sector investment in expanding waste recovery, recycling and disposal capacity and providing an integrated approach to waste management.
- The difficulty in getting planning permission to open or extend waste facilities.
- Given rising costs and limited revenue raising opportunities, local authorities are increasingly turning to waste charges as a means of balancing their budgets. There has been a noticeable increase in the waste charges levied by some county councils, resulting in large disparities within Ireland.
- The role of local authorities as planners, regulators and competing providers is not conducive to the attraction of private sector investment.
- Ireland's regional approach to waste management does not co-ordinate the building of waste infrastructure, minimise the number of facilities or level of investment required, and it fails to promote competition among various public and private sector providers. In addition, no implementation mechanism exists for the current regional plans.

The NCC understands that the Department for the Environment, Heritage and Local Government is reviewing the issue of waste regulation and will be bringing proposals to Government. In this regard, the NCC advocate that while businesses should pay for the actual cost of recovering, recycling and disposing of waste based on the polluter pays principle, this should not extend to paying large sums in excess of this to local authorities. The NCC believes that waste infrastructure should be identified as a priority for private investment in the upcoming NDP – new facilities will have to be built to cater for hazardous and non-hazardous waste. In order to promote the development of a competitive market in waste disposal, clarification is required on the multiple roles of local authorities with respect to waste management. Finally while regional waste management plans have been adopted, a national approach should be considered.

3.7 Accelerating the Delivery of Infrastructure Projects

The NCC welcome the proposals to create a new strategic infrastructure division within An Bord Pleanála, which will handle decisions on all major infrastructure projects, with the objective of reducing the amount of time major projects take to get through the planning process. The fast tracking of major infrastructural projects will accelerate the delivery of infrastructure projects and should enhance cost effectiveness. To expedite the process further, further action is required to assess how planning appeals can be heard more speedily in the High Court. The time taken for judicial reviews of planning cases has been identified as one of the main factors leading to delays in the planning process.

The NCC also welcomes the progress that has been made regarding the proposed introduction of fixed price contracts which shift the responsibility for managing and controlling identified risks from the public sector to contractors, the introduction of multi-annual capital envelopes which make it easier for government departments/agencies to plan and deliver long-term projects, and the performance of the National Roads Authority in completing some projects ahead of schedule.

The NCC has previously highlighted the need for adequate infrastructure project management skills in government departments and agencies. This is necessary in light of the growing complexity of planning and project management in recent years. The scale of many infrastructure projects, especially in civil engineering, is significantly greater than projects traditionally commissioned by the public sector, and involves a higher number of stakeholders. In the context of the new NDP, consideration should also be given to assessing how private funds can be used more effectively to support the development of infrastructure.

4 Education and Training

Summary

As knowledge becomes the basis for competition, education will be increasingly important to economic performance. More and different skills will be required to generate innovative new ideas and exploit technological change. High performing economies and societies will increasingly rely on a culture of continuous learning and adaptation. It is possible for Ireland to achieve a 'best in the world' status for education and training. From a competitiveness perspective, the challenge for policy makers is to modernise the education and training system to better prepare our people for the economy and society of the future.

There are some highly positive characteristics of the Irish education system. According to the ACR 2005, Ireland has made significant progress over time and relative to other countries in terms of increasing secondary school participation rates. In terms of reading, scientific and mathematical literacy, Irish 15 year olds rank 4th, 7th and 8th respectively from the 14 countries benchmarked, and a high proportion of the Irish population in the 25-34 age group has a third level education (6th/15).

However, there are also some points of concern. Levels of spending and participation in pre-primary education are low relative to most advanced economies. Investment in primary and secondary levels remains below the OECD average, despite significant recent increases. Higher education expenditure is still a long way off the targets set by Government. Finally, Ireland is ranked 12th in the EU-25 for participation in life-long learning at 7.2 per cent. In the context of current educational performance, the NCC has identified a number of key policy challenges.

The School System

- It is imperative to increase the numbers of citizens that can participate fully in the knowledge economy through reducing educational disadvantage. The NCC encourages the swift development and implementation of a significant long-term government programme to support early childhood development, targeted at disadvantaged children, in addition to more enhanced measures to target educational disadvantage throughout the school system. Improved aptitude among Irish students in the fields of science, mathematics, ICT, entrepreneurship and modern languages will also be particularly important to meet the challenges posed by an ever changing and dynamic world economy.

The Higher Education and Research System

- The higher education and research systems should become a leading brand internationally. A substantial increase in resources is required if Ireland is to achieve a high ranking position with the top performing OECD countries. An increased role for private funding should be encouraged. In addition, enhanced competitive innovation funds linking academia with wider society should be developed. There needs to be closer co-ordination between industry, academia and government in the development of the national innovation system. The NCC is also concerned that both the quantity and quality of researchers at present is not sufficient to meet the aspirations of a knowledge-driven economy.

Upskilling through Training

- Considering the correlation between low education levels and higher unemployment rates, the NCC recommends that training initiatives primarily target those with lower levels of educational attainment. FÁS should continue to reorient training funds towards those already in employment. Furthermore, greater use of industry networks should be used to support lifelong learning. There is also a need to significantly enhance the availability and flexibility of third level education to mature and part-time students.

4.1 Introduction

Human capital – the skills of a country's labour force – has become increasingly important to economic performance. All other things being equal, higher workforce skill levels boost labour productivity and economic growth. Education levels have been found to have statistically significant effects on labour productivity.[63] Education is also found to yield additional indirect benefits to economic growth through technological development.[64] There is considerable evidence that the returns to individuals from education and schooling (in terms of later income levels) are also significant.[65] More broadly, education has a positive influence on individuals' lives, well-being and health. While education has an importance which transcends economics, the development of education policy and investment in education should have regard to its critical importance for economic and social development.

While the performance of any country's education system is difficult to measure, the ACR 2005 revealed some notable characteristics of the Irish education and training systems relative to the other benchmarked countries:

- Despite significant increases in recent years, Irish spending levels on tertiary education remains (7th out of 13) significantly behind the leading countries. Ireland spends less on primary (11th/14) and secondary level (11th/14) than the OECD average.
- There are low levels of spending, and low participation rates, in pre-primary education and early childhood development in Ireland compared with other advanced economies.
- Performance levels at secondary level, as measured by attainment and participation, appear to be average by the standards of other advanced economies. In terms of reading, scientific and mathematical literacy, Irish 15 year-olds rank 4th, 7th and 8th respectively out of the 14 countries benchmarked.
- The proportion of 20-24 year olds that have completed the Leaving Certificate or equivalent has grown from 20 per cent in 1967 to 85 per cent in 2004, but remains some way off leading countries such as Norway, the Czech Republic and Slovakia, which achieve over 90 per cent retention and completion rates.
- Ireland was ranked 12th out of the EU-25 for participation in life-long learning in 2004.[66]

Ireland's education system – primary, secondary and tertiary – played a fundamental role in the country's economic transformation over the last three decades. The educational system has been instrumental in equipping the Irish workforce with the technical and business qualifications that supported Ireland's manufacturing and traded services boom in the 1990s. Significantly, these strong educational outcomes have been produced with limited public financial resources. However, due to a range of socio-economic changes, limited financial resources are unlikely to continue to produce above average results.

As knowledge becomes the basis for competition, education will be increasingly important to economic performance. More and different skills will be required to generate innovative new ideas and exploit technological change. High performing economies and societies will increasingly rely on a culture of continuous learning and adaptation. It is possible for Ireland to achieve a 'best in the world' status for education and training. For all these reasons, a process of continuing structural change and renewal is needed in Ireland's education and training systems to better prepare our people for the society and economy of the future. We need to develop a widely shared ambition to make Ireland's education and training systems the best in the world. The NCC discusses government policy on education and training under three broad areas:

63 "Human Capital and Growth in Cross-Country Regressions", R.J. Barro, Swedish Economic Review, 1999.
64 "The Returns to Education: a review of the empirical macro-economic literature", B. Sianesi and J. Van Reenen, IFS Working Paper W02/05, Institute for Fiscal Studies, 2002.
65 "Education at a Glance 2005", OECD, 2005.
66 "Progress Towards the Lisbon Objectives in Education and Training", European Commission, 2005.

- The school system.
- Higher education.
- Up-skilling through training.

4.2 The School System

While recognising that education and learning fulfil a number of social and individual goals unrelated to economic development, Ireland's school system has also been a fundamental enabler of its economic transformation. The introduction of free post primary education for all in 1967, while later than other countries, was a seminal moment in Ireland's socio-economic history. The quality of Ireland's school system will continue to be central in supporting the development of the knowledge economy. The NCC is concerned with two policy areas in Ireland's schooling system:

- Reducing educational disadvantage, and
- Updating school curricula

Reducing Educational Disadvantage

Educational disadvantage has important social, equality and competitiveness implications. The 15 per cent of persons aged 20-24 who have not attained at least a leaving certificate or equivalent represent an underutilised resource for the economy.[67] A recent report from the Department of Education and Science shows that one in 12 of the country's 720 secondary schools have drop out rates of 50 per cent or more before the Leaving Certificate.[68] It is imperative that we increase the numbers of our citizens that can participate fully in the knowledge economy. One study has found that returns to UK 15 year-olds for staying in school for an additional year was around 15 per cent.[69]

Tackling education disadvantage is a complex issue, as it comprises a range of intertwining social, cultural and economic factors. The NCC believe that tackling educational disadvantage requires long term interventions at pre-primary level and more immediate targeted measures to tackle literacy and numeracy abilities throughout the school system.

Pre-primary development is a key determinant of performance at all levels of education: primary, secondary and tertiary.[70] There is strong evidence that pre-primary interventions could help to address educational disadvantage in Ireland, and in particular help to lower the subsequent drop-out rate from secondary level. Research led by Nobel Laureate Professor James Heckman shows that investment at this stage is comparatively more successful at addressing educational disadvantage than later interventions in the primary or secondary level cycles. As Heckman states, "the evidence points to a high return to early interventions and a low return to remedial or compensatory interventions later in the lifecycle".[71] According to some research, early interventions can make returns of up to 700 per cent.[73] Common characteristics of successful pre-primary programmes include: the promotion of speaking and listening skills, the cultivation of the foundations of numeracy, and interaction with other children and adults over day long time periods.

The NCC encourages the swift extension and implementation of a significant government programme to support early childhood development, targeted at disadvantaged children. In 2003, less than half of Irish four year olds were registered in either pre-primary or primary, compared with 100 per cent in Spain and 95 per cent in the UK. The Early Start pilot project

67 This does not take account of educational pathways outside this system such as youthreach and apprenticeship training.
68 "Retention Rates of Pupils in Second Level Schools – 1996 Cohort", Department of Education and Science, 2005.
69 "The Returns to Education: A Review of Evidence, Issues and Deficiencies in the Literature", Journal of Economic Surveys, C. Harmon and H. Walker, 2002.
70 "Human Capital and Growth in Cross-Country Regressions", R.J. Barro, Swedish Economic Review, 1999.
71 "Human Capital Policy", P. Carneiro & J. Heckman, National Bureau of Economic Research, 2003.
72 "See previous footnote. This has also been noted in the "OECD Thematic Review of Early Childhood Education and Care Policy in Ireland", Department of Education and Science, July 2004.

is the most significant preschool intervention scheme that presently exists in Ireland. It currently caters for approximately 1,700 pupils in 40 schools by offering half day programmes. Greater investment now in pre-primary interventions will, over time, result in savings in other programmes designed to address educational disadvantage and participation in later years.

Enhanced measures are also needed to tackle educational disadvantage throughout primary and secondary school systems. Around 27-30 per cent of children from disadvantaged primary schools have serious reading difficulties and even lower numeracy achievement.[73,74] At secondary level, large literacy and numeracy gaps between those at upper and lower ends of the socioeconomic index are also evident. A range of programmes are in place to reduce educational disadvantage.[75] The Department of Education and Science is currently reviewing these programmes and will shortly publish a new framework for tackling disadvantage in education. The NCC strongly supports the introduction of an ambitious integrated plan.

Updating School Curricula

Education and learning fulfil a number of important social and individual goals which transcend economic development. However, the education system is important for the competitiveness of the enterprise sector. It is essential that the school curriculum produces students who can meet the personal and intellectual challenges posed by an ever changing and dynamic world economy. The current broad holistic nature of the Irish school system is conducive to fostering flexibility, adaptability and a general openness to change among young people.[76] However, improved aptitude among Irish students in the fields of science, mathematics, ICT, entrepreneurship and modern languages will be particularly important.

- **Generic/Soft Skills.** The greater prominence of high-tech manufacturing, internationally traded services and R&D activities in Ireland's economy means that young people need high standards of generic skills, to complement their academic or vocational ones. These generic skills include communication and influencing skills, team working, critical thinking as well as self-management and self-directed learning.
- **Science, Engineering and Technology Skills:** The success of Ireland's strategy to reposition industry towards knowledge-intensive high-technology sectors will depend critically on the supply of people with science, engineering and technology skills. Attainments levels of 15 years olds for mathematical and scientific literacy are, however, average; Ireland is ranked 17th and 13th respectively of 29 OECD countries.[77] Established in 2003, the Discover Science and Engineering programme, as part of its activities, is supporting the new national science curriculum at primary school level. There is potential to expand that project to all national primary schools and to develop similar support interventions for the new Junior Certificate curriculum.

73 311 primary schools (and 203 post-primary schools) have been designated as disadvantaged. This means that they get a greater level of support in terms of pupil-teacher ratios, special grants and extra support for pupils.
74 "A Teacher's Guide to the Reading Literacy Achievements of Irish 15 Year Olds", Educational Research Centre, 2003.
75 Details of these programmes can be found at: HYPERLINK "http://www.oasis.gov.ie/education/primary_education/measures_to_address_educational_disadvantage.html" http://www.oasis.gov.ie/education/primary_education/measures_to_address_educational_disadvantage.html.
76 These findings have been supported by a recent PUII (Programme for University Industry Interface, funded by the Department of Enterprise, Trade and Employment under the NDP) study which identified the core competencies that will be required among workers of the future: "The Competencies for Next Generation Employability", PUII, University Limerick, 2004.
77 "PISA: Programme for International Student Assessment", OECD, 2003.

- **ICT Literacy:** Ireland's ability to maximise the benefits of ICT is related to the level of ICT literacy in the country. In this regard, the NCC welcomes the joint industry and government initiative to provide broadband to every primary and secondary school in the country.[78] A range of supporting measures on issues such as PC penetration, teacher training and curriculum reform will also be necessary.
- **Entrepreneurial Skills:** The schooling system can help to foster a culture of innovation and entrepreneurship by instilling a positive attitude to entrepreneurship among young people, via the promotion of positive role models and presenting failure as a prerequisite for success.
- **Foreign Languages:** The ability of Irish-based enterprises to communicate effectively with other nationalities will have a huge bearing on how successful we are and how we interact with other cultures in a globalising world. Foreign language skills will play a crucial role. The NCC welcomes the Modern Languages in Primary Schools initiative. Foreign language skills should be developed throughout the education system and should be more aligned with key trading partners.

4.3 The Higher Education and Research System

Innovative societies are underpinned by knowledge and its utilisation. Their labour forces contain significant proportions of so called 'knowledge workers' (i.e. those with high level skills and theoretical knowledge relevant to their areas of work), including those working at the knowledge frontier (i.e. research workers engaged in creating new knowledge and others involved in the economic and social application of new knowledge). The importance of the higher education and research system for competitiveness is that it is an agent which through teaching, learning and research, creates and renews the base of human capital, knowledge capital and innovation potential.[79] A well-functioning higher education and research system can enable a country to succeed in the face of intensifying global competition through higher value-added goods and services, and thus increase prosperity and living standards.

For this reason, the NCC believes that Ireland should set itself a target of developing a higher education and research system that is recognised as being among the best in the world. We have, however, a long way to go; Ireland ranks below the OECD average in terms of expenditure on higher education as a percentage of GDP, expenditure per student, scientific publications and number of researchers per 1000 population.[80] In 2004, only one Irish university was ranked among the top 200 in the world, using a composite indicator that draws from peer reviews, academic citations, academic staff publications record and other indicators.[81] In the view of the NCC, achieving this ambitious objective will require greater policy attention in two key areas:

- Designing a financing framework to create a world class higher education system
- Developing the 'fourth level' education and research system to support the knowledge economy

78 The telecommunications sector and Government have jointly committed ?18 million towards the roll-out of broadband to all primary and secondary schools.
79 "Creativity, innovation and role of higher education in economic development – Financing of tertiary education", Don Thornhill, Second World Bank ECA Education Conference, Dubrovnik, Croatia, October 2-4, 2005.
80 "Review of Higher Education in Ireland", OECD, 2004.
81 "World University Rankings", The Times Higher Education Supplement, 2004.

Designing a Financing Framework to Create a World Class Higher Education System

There is a need for a substantial increase in resources for Ireland's higher education and research system, reflecting the continuing rise in enrolments and participation levels, and the increase in resources required in order to improve the quality and labour market relevance of higher education in Ireland.[82] The Royal Irish Academy estimates that spending will need to increase by around 30 per cent (an additional €450 million per year) in order to reach a top quartile position among OECD countries in terms of education and research, and would need to almost double to reach U.S. expenditure levels.[83]

As recommended by the OECD in their review of higher education policy in Ireland, private, as well as public sources will need to be considered to finance the additional spending required.[84] The argument for private contributions (i.e. tuition fees) reflects two considerations. The first is the public finance argument. It is unlikely that the state will be able to fund the expanding tertiary education sector to the required level of internationally competitive quality from tax payers' funds alone because of tax revenue constraints and competition from other demands and the financing needs of other sectors. While the international competitiveness of the higher education and research system is the primary concern of the NCC, given its remit, equity arguments are also important in regard to the issue of students' contributions to the costs of their education. The very considerable private rates of return enjoyed by graduates of the higher education system, and the substantial income gaps in many countries between graduates and those who have lower level qualifications (or none), suggest that students should make a substantial contribution to the costs of their education. This argument is strengthened by data which show that students attending the higher education system tend to be from the better off groups in society.

The NCC recognises the political and social difficulties of reintroducing fees. One possible way forward is introduce low levels of fees for students in the early years of tertiary education, followed up by higher fees as students enter postgraduate, professional or other advanced courses. This might ensure that fees do not present a disincentive to students from less well off backgrounds and their families that deter them from entering higher education. A necessary pre-condition for the reintroduction of fees would be the development of an attractive student loans system to ensure that students can continue to participate in the educational system, and repay the costs when they are benefiting from the significant private returns that third level education offers. It would be also be important under such a scenario to ensure continued adequate public funding for the early years of undergraduate education to ensure that outcome standards at this level meet the highest international standards.

Fee income should be additional to current and proposed public investment and should not be substituted for existing Exchequer expenditures. All advanced societies have recognised that the funding of higher education cannot be left to the private sector alone. But the framework for public funding of higher education in Ireland also needs to evolve to introduce greater accountability and incentives for efficiency, creativity and higher quality in our higher education sector, while at the same time preserving the sector's academic freedom and institutional autonomy.

Already, the system of competitive funding for research developed under the Programme for Research in Third Level Institutions (PRTLI) and Science Foundation Ireland has helped to stimulate higher quality and to catalyse university reform. The NCC welcomes the intention of the Department of Education and Science, following a proposal from the Higher Education Authority, to broaden this approach by introducing a competitive strategic

82 The percentage of school leavers that transfer to higher education has grown from 35 in 1990 to over 55 per cent in 2003. Department of Education Statistics, 2003.
83 "Report of the Working Group on Higher Education", Royal Irish Academy, 2005.
84 "Review of Higher Education Policy in Ireland", OECD & "Education at a Glance", OECD, 2005.
85 84 per cent of the children of higher professionals enter higher education compared with 22 per cent of the children of unskilled workers. "Report of the Working Group on Higher Education", Royal Irish Academy, 2005.

innovation fund to finance other initiatives that link universities to wider society, including industry.[86] Further steps should be taken to introduce more 'market–like' mechanisms into public financing of higher education.

With sufficient resources and incentives, the higher education system could become one of Ireland's leading brands internationally. While the primary role of the education system should be to meet the needs of Irish residents, higher levels of participation in Ireland's higher education system by foreign students is consistent with Ireland's open and export oriented economy, and could become a benchmark of the quality of the Irish higher education system. There are currently over 22,400 international students within the higher education system, of which 62 per cent are from non-EU countries. The total has more than doubled since 2002, though some of this growth may reflect more accurate data returns by the colleges. Income from tuition fees reported by the colleges is €140 million for the current academic year and other living expenses have been estimated to generate approximately €150 million.[87]

Developing the 'Fourth Level' Education and Research System to Support the Knowledge Economy

Over the coming years, fourth level students (masters and doctoral researchers) will be the backbone of the research and innovation environment. Ireland's universities and other higher level institutions will be expected to combine their traditional emphasis on teaching large numbers of undergraduate students at low cost with an increased focus on educating the researchers and innovators who will work in companies at the knowledge frontier, as well to become more pro-active economic agents of research-driven innovation in their own right. What challenges does this present to policy makers and educators?

First, there needs to be a big increase in the numbers of people engaged in advanced scientific and engineering research in our universities. The ACR 2005 reports that while Ireland was ranked 8th out of the EU-25 for mathematics, science and technology PhDs awarded per thousand of the population (aged 25-34 years), Switzerland and Finland have almost double Ireland's per capita output of PhD researchers. Research suggests a cumulative shortage of 609 PhDs for the period 2004-2010 if Ireland is to attain the target of increasing R&D to 2.5 per cent of GNP by 2010 as set out in the Government's R&D Action Plan.[88] An insufficient supply of doctoral students could hinder Ireland's aim to create a research intensive university system. It could also limit growth in enterprise R&D in Ireland, by hindering growth in inward research investment, the creation of research-intensive start-ups and research by existing companies.

Second, building up the numbers of PhD research students will require a sustained increase in state-funded current and capital spending in Ireland's fourth level education system. Notwithstanding the five-fold increase in state investment in R&D to €2.5 billion in the National Development Plan 2000-2006, the ACR 2005 shows that Ireland still ranks only 7th out of 11 countries for gross domestic expenditure on R&D at 1.46 per cent of GNP, a long way off the Lisbon target of 3 per cent, and 13th out of 15 countries for public sector expenditure on R&D. The NCC believes that there needs to be another quantum level increase in public investment in research as part of the next NDP (2007-13).[89]

86 "Address by Mary Hanafin T.D, Minister for Education and Science, on the occasion of the launch of the European University Association 'Review of Quality Assurance in Irish Universities' Sectoral Report", 25 April 2005.
87 http://www.educationireland.ie/.
88 "A Model to Predict the Supply and Demand of Researchers and Research Personnel in Line with Ireland's Strategy for Contributing to the European Research Area 3 per cent Initiative", Expert Group on Future Skills Needs, 2004.

Third, the experience of other countries suggests that the state's investment in research will earn the highest return for the state if closely aligned to the needs of our enterprise base.[90] This does not imply that 'discovery-driven' basic research is unimportant; such research has been the source of the major scientific and technological breakthroughs. Researchers and managers, who have experience of discovery-driven basic research, have an excellent foundation to go on to lead innovation in companies. As a small country, we do not have sufficient resources to invest in a critical mass of internationally competitive research capacity in all the major fields of research. The strategically informed approach underlying the investment strategies being pursued in the funding programmes of the HEA/PRTLI and SFI is the appropriate way forward. Building up a critical mass of internationally competitive expertise in economically strategic fields of research, such as ICT and life sciences, where companies located in Ireland are already well established is an important and appropriate strategy.

It is also important to develop and retain critical capacities across 'enabling' knowledge areas such as chemistry, physics, mathematics, engineering and biology and medicine and in the social sciences and humanities, so that the Irish innovation system can respond flexibly and rapidly to developments in new knowledge and research.

The research funding agencies should also encourage strong interfaces between higher education institutions and enterprises in order to achieve collaborative research projects, licensing of intellectual property, exchange of researchers and spin-outs. Enterprises and their representative bodies also need to be proactive in working with the higher education system in defining and communicating their research needs (see further discussion in Chapter Four). The role of the state is to provide clear and certain regulatory and funding frameworks that facilitate and encourage such collaboration.

Encouraging mobility of researchers between higher education and industry is one of the most effective means of transferring knowledge from university research initiatives to industry. It is critical that the structures are in place to allow researchers to move from academia to industry and back. There is an opportunity going forward to design PhD programmes so that they reflect the fact that over 50 per cent of their graduates will work in business and industry. This approach could, for example, involve including appropriate enterprise related modules in areas such as finance, intellectual property management and law, and management (designed in consultation with business and industry) which prepare the graduates for their future careers.[91] Within the science, engineering and technology domain, programmes will become more inter-disciplinary, as the interface areas such as bioinformatics, which spans biochemistry, computer science, physics and mathematics, are potentially dynamic and important. A recent review of the Irish universities noted that most researchers were working in structures which did not encourage the necessary links between different disciplines.[92]

Research management skills also require greater focus. Successful leadership of a research team depends not only on research skills but also competence to manage substantial financial and human resources, and negotiating, liaising and cooperating with outside organisations.

Fourth, as the complexity and multi-disciplinary nature of research increases, Irish higher education systems will need to develop better links with overseas research institutions rather than seeking to develop all capabilities nationally. For all but the largest countries, the great majority of innovations will come from abroad.

89 Ireland's gross expenditure on R&D is about two-thirds of the EU average, equivalent to 1.62 per cent of GNP for 2005, (1.4 per cent of GNP in 2001). Enterprises perform 68 per cent of R&D, the third level education sector performs 22 per cent and Government research centres perform the remaining 10 per cent.
90 "The Sources of Economic Growth in OECD Countries", OECD, 2003.
91 "Development of a Support Programme for Graduate Schools", IRCSTI, 2005.
92 "Review of Quality Assurance in Irish Universities", European University Association, Higher Education Authority, 2004.

Finally, the NCC welcomes the significant progress achieved in establishing a new oversight and governance framework for research policy, including the establishment of a Cabinet Committee on Science, Technology and Innovation, supported by an Inter-Departmental Committee of senior officials, the appointment of Ireland's first Chief Science Adviser and the establishment of a new Advisory Science Council. The NCC looks forward to the further developments and strengthening of these arrangements. In the view of the NCC, the main challenges facing this oversight and governance system is two-fold:

- To achieve a high level of coherence and efficiency in the development and implementation of national research policies.
- To establish a set of relevant metrics that will allow policy makers to judge whether tax-funded investments in research are supporting national economic and social goals. While the benefits of increased research in our higher education system and elsewhere are long term in nature, it is important that Ireland has clear goals and targets to monitor and drive performance. Outcomes are difficult to measure and as a result many R&D targets are input driven (what we spend), rather than focusing on outputs and outcomes. There is a need to develop outcome and output focused indicators. In this regard, some metrics that merit consideration include the value of intellectual capital, the creation of human capital, new company formations, and the creation of commercial value from new products, processes and services.

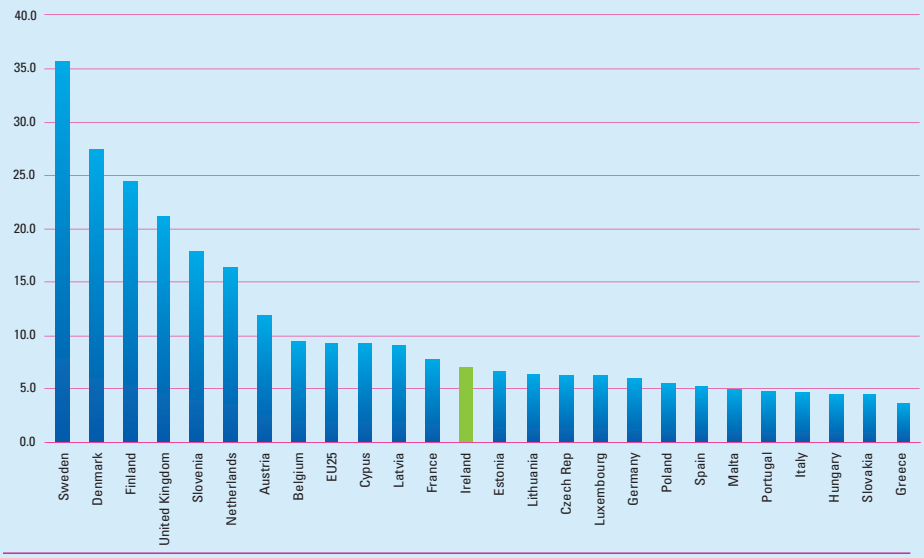
4.4 Upskilling Through Training

In the face of global competition and relatively high domestic costs, Ireland needs a workforce with higher skill levels. Ireland cannot rely on sourcing these individuals exclusively from the output from second level education or through immigration; they can also be sourced from within the existing labour force, through up-skilling. Upskilling through training contributes positively to the development of human capital.[93] The economic and social returns to investment in life long learning are similar in magnitude to the returns from schooling.[94] Life long learning also aids social mobility and inclusion by offering opportunities to those who suffered from educational disadvantage in the past, and enables skilled individuals to stay abreast of technological and market developments.

The latest available data suggests that participation by Irish workers in formal training compares poorly with workers in other European countries. Ireland is ranked 12th in the EU in terms of adult participation in lifelong learning (7.2 per cent of persons aged 25-64 were in receipt of education in the four weeks prior to the survey), below the Lisbon target of 12.5 per cent and far behind leading countries such as Sweden and Denmark which achieve over 25 per cent participation.[95] If we confine the analysis to labour market participants only, and extend the comparisons to include other European countries, such as Norway and Switzerland, participation rates are lower than average, and fall well behind leading countries.[96]

93 "Life Long Learning: Everybody Wins", ICTU, June 2005.
94 "European Economy, European Commission, No. 6 / 2003.
95 "Progress Towards the Lisbon Objectives in Education and Training", European Commission, 2005.
96 "Report for EGFSN on Education and Training", ESRI, Forthcoming.

Figure 4.1: Percentage of Population Aged 25-64 Participating in Education and Training



Source: Progress towards the Lisbon Objectives in Education and Training, European Commission, 2005

There have been numerous reports and studies aimed at promoting life long learning in Ireland. These include the Report of the Commission on the Points System (1999), the White Paper on Adult Education (2000), the Task Force on Life Long Learning (2002) and the more recent 'One Step Up Initiative' proposed by the Enterprise Strategy Group (2004). The NCC welcomes the development of the national qualifications framework by the National Qualifications Authority of Ireland, the one-step-up initiative from FÁS and the provision of additional resources from the Department of Education and Science for further and adult education.

The NCC recommends that training initiatives should be primarily targeted at those with lower levels of educational attainment. Over 570,000 individuals in the current work force have not obtained a Leaving Certificate or equivalent qualification.[97] Training should also be directed at sectors most vulnerable to labour market shocks such as lower value-added manufacturing and construction, and employees at most risk of redundancy.

Funding of life long learning remains a key issue and needs to reflect the rights and responsibilities of employers, individuals and the state. In this context, the NCC welcomes the new FÁS Training Strategy, and encourages FÁS to continue to reorient activities aimed at training those in the labour force. While Ireland is close to the OECD average in terms of expenditure on labour market training, very limited funds are targeted at those in employment. In 2004 FÁS provided training costing €367 million. The main areas of activity were apprenticeship (€128 million), training of the unemployed/job seekers (€217 million) and training for businesses and the employed (€22 million). The upcoming social partnership talks may provide a forum to explore the feasibility of reducing the financial burden faced by employers and workers that are seeking to up-skill.

Greater use should be made of industry-led networks to support life long learning. Enterprise led training initiatives, like Skillnets, should be developed further in the future. These approaches ensure that the training designed meets the specific needs of those attending. By involving a broad array of stakeholders (e.g. firms, unions and industry bodies, education

97 "Census 2002 Vol. 7 Education and Qualifications", CSO, 2004.

and training bodies, certification bodies, etc.) it can also help promote a greater awareness of the necessity of life long learning for employees and employers, the public resources available and the practicality of the new accreditation system. Networks can also usefully disseminate best practice and create a stronger culture of life long learning.

Skillnets

Skillnets was established in 1999 to encourage and support groups of enterprises to develop solutions to their joint training needs. This process is facilitated through the establishment of networks where companies and organisations work together to decide on their training requirements and delivery. With 90 training networks, Skillnets has assisted over 30,000 staff from 5,000 companies (82 per cent of which are SMEs) to improve their skills level.

Skillnets is partially funded by the National Training Fund under the auspices of the Department of Enterprise, Trade and Employment. The Department of Enterprise Trade and Employment has granted a further five year mandate to Skillnets to provide increased funding and support for enterprises to meet their training needs in the period 2005-2010. Funding for Skillnets from the National Training Fund will be €8 million in 2006 and €10 million per annum thereafter. This is made available to enterprise groups on the basis of competitive calls for proposals.

There is a need to put in place measures to increase significantly the numbers of mature students in part-time courses at third-level. Demographic changes mean that the number of school leavers (and the number of full-time third level students) is going to decline over the coming years.[98] The Commission on the Points System recommended that by 2005, 15 per cent of places for new entrants to third level should be set aside for mature students (aged 23 or over); furthermore this quota should increase to 25 per cent by 2015.[99] For 2004 the proportion of CAO acceptances for mature students was just 8.5 per cent.[100] A more flexible third level system, with course offerings and timetables tailored for the needs of part-time students (weekend courses, evening classes and distance learning) will greatly contribute to developing a culture of further education and lifelong learning.

98 According to Economic and Social Research Institute (ESRI) estimates, the annual inflow of 15 – 24 year olds to the labour force will decline from approx. 59,000 p.a. in 2000 to 54,000 in 2005.
99 "Final Report and Recommendations", Commission on the Points System, Dept. Education & Science, 1999.
100 "Board of Directors Report 2004", CAO, 2005.

5 Entrepreneurship and Innovation

Summary

Entrepreneurs and high-growth firms are key to exploiting new ideas and innovations in technology and business processes, and will be the main driver of long run productivity growth in advanced societies. While Ireland enjoys high levels of entrepreneurship, too few Irish entrepreneurs have 'scaled up' into world-beating players in their sectors.

Evidence from the 2005 ACR suggests a mixed performance with regard to innovation and entrepreneurship.

- Ireland has a strong entrepreneurial culture. Ireland is ranked 2nd in the EU and 7th among the OECD countries for entrepreneurial activity.
- Many Irish enterprises are characterised by low levels of R&D, limited sales and marketing capabilities, a strong concentration in traditional sectors and on the domestic and UK markets. As a result, too few Irish entrepreneurs have 'scaled up' into world-beating players in their sectors.
- While Ireland continues to attract a high share of FDI flows into the EU, many existing foreign-owned firms in Ireland are positioned at a relatively low point in the value chain; the R&D, marketing and other capabilities that underlie the competitive strength and success of these firms are not, for the most part, located in their Irish operations.

The challenge for Irish policy makers is to provide an environment that supports the creation and development of more high-growth indigenous firms involved in international markets through development of innovative new products, services, processes and technologies. In addition to recommendations in chapter 4 on developing Ireland's scientific research system, this suggests three related and mutually reinforcing priorities for enterprise policy:

Supporting Technological Innovation by Industry

- Ireland still does not have enough companies – foreign or indigenous – engaged in significant levels of scientific or engineering R&D. Support for individual firm R&D through direct grants and tax credits should be complemented with greater supports for clusters and networks and industry-academic research and technological collaboration.

Improving Business Process Innovation

- Productivity growth through innovation does not just derive from scientific and engineering breakthroughs. Business process innovation is also a key source of greater efficiency. In this context, there should be greater emphasis in the development of ICT literacy within the workforce in addition to greater promotion of the potential benefits for SMEs of investment in ICT. Furthermore, there needs to be increased quality, efficiency and innovation in the delivery of management skills training and development.

Improving the Financing Environment for High-potential Growth Firms

- Irish entrepreneurs continue to report difficulties in accessing risk capital for start-up and growth-oriented companies. A number of measures are required to improve the financial environment for enterprise. There should be more competition in the banking industry, particularly in the provision of financial services to SMEs. There is also a need to expand the venture capital market in Ireland and to assist investors to realise their investments. State support should be considered through mechanisms such as direct equity supports, enhanced tax incentives and the promotion of seed investment by 'angel' investors.

5.1 Introduction

Entrepreneurship is the process of creating and developing enterprises.[101] High levels of entrepreneurship have a positive impact on growth in productivity, employment and competitiveness.[102] The emergence of larger and stronger companies with the ability to compete in international markets is good for economic growth.

Innovation is the creative process that transforms new and existing knowledge and technology into commercial value. The development and exploitation of novel products, processes, services and systems and their incremental upgrading is the main driver of long run productivity growth in advanced societies.[103] Equally important is innovation diffusion and absorption; for all but the largest countries, the vast majority of new products and ideas will come from abroad. Innovation and entrepreneurship are, of course, closely linked; entrepreneurs and high-growth start-ups are the key to exploiting new ideas and innovations.

Evidence from the ACR 2005 suggests that Ireland's comparative performance with regard to entrepreneurship and innovation is mixed:

- Ireland has a strong entrepreneurial culture. Ireland is ranked 2nd in the EU and 7th among the OECD countries for entrepreneurial activity. Around 193,000 individuals in Ireland are either actively planning or in the process of establishing a new enterprise.
- Many Irish enterprises are characterised by low levels of R&D, limited sales and marketing capabilities, a strong concentration in traditional sectors and on the domestic and UK markets. As a result, too few Irish entrepreneurs have 'scaled up' into world-beating players in their sectors; and
- While Ireland continues to attract a high share of FDI flows into the EU, many existing foreign-owned firms in Ireland are positioned at a relatively low point in the value chain; the R&D, marketing and other capabilities that underlie the competitive strength and success of these firms are not, for the most part, located in their Irish operations.

The challenge for Irish policy makers is twofold: (1) to provide an environment that supports the creation and development of more high-growth indigenous firms involved in international markets through development of innovative new products, services and technologies; and (2) to encourage foreign investors to increase the strategic importance of their Irish operations through R&D and marketing. In the view of the NCC, these challenges present three related and mutually reinforcing priorities for enterprise policy.

- Supporting technological innovation by industry
- Promoting business process innovation
- Improving the financing environment for high-potential growth firms

The recommendations in chapter 4 on developing Ireland's scientific research system are crucial to supporting entrepreneurship and innovation in Ireland, and they underpin the recommendations in this chapter.

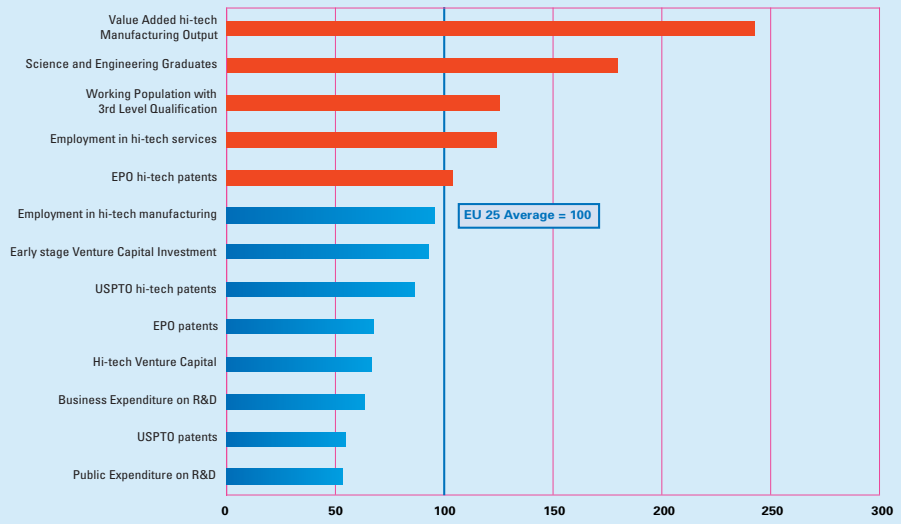
5.2 Supporting Technological Innovation by Industry

To prosper, Irish companies need to expand their involvement in international markets through the development of innovative new products and technologies. Evidence from the ACR 2005 suggests that Ireland still does not have enough companies – foreign or indigenous – engaged in significant levels of scientific or engineering R&D.

101 Recent literature also refers to "entrepreneurship" meaning entrepreneurship within a corporate structure.
102 "Promoting Entrepreneurship and Innovative SMEs in a Global Economy", OECD, June 2004.
103 "A Contribution to the Theory of Economic Growth", R.M. Solow, Quarterly Journal of Economics, 1956, and "Endogenous Technological Change", P.M. Romer, Journal of Political Economy, 1990.

- In 2003, Irish companies spent 0.97 per cent of GNP on R&D, (up from 0.89 per cent in 1993), compared with 2.5 per cent in Finland, 1.8 per cent in the USA, 1.7 per cent in Denmark and an OECD average of 1.45 per cent.[104]
- As of 2003, 79 per cent of total business spending on R&D in Ireland was accounted for by foreign-owned firms – a figure surpassed only by Hungary among the 16 countries benchmarked in the ACR 2005. Even so, the research intensity of many of our FDI dominated export industries (pharmaceuticals, ICT, and medical devices, etc) is well below that of other advanced countries.
- While Irish firms perform well for the introduction of new and improved products to market (3rd out of nine countries), we rank 10th out of 11 countries for patents granted by the European Patent Office.[105] This may indicate that the technology underpinning new product and process introductions in Irish plants is sourced from abroad.

Figure 5.1: Ireland's Innovation Performance Relative to EU 25



Source: European Innovation Scoreboard, 2004

Growing market-led research and technological innovation efforts by Irish enterprises will be central to growing the productivity and competitiveness of Irish industry. With this as a central objective, the Government adopted a National R&D Action Plan, "Building Ireland's Knowledge Economy" in 2004, which set out a number of ambitious targets for industry:

- Business investment in R&D should increase to €2.5 billion in 2013 (1.7 per cent of GNP), up from €1,076 million in 2003 (0.97 per cent of GNP).
- The number of indigenous enterprises performing 'significant R&D' (in excess of €2 million) should increase to 100 by 2013, up from 21 in 2003.[106]
- The numbers of foreign affiliates performing 'significant R&D' should increase to 150 by 2013, up from 60 in 2003.

The Government has charged an Inter-Departmental Committee on Science, Technology and Innovation with the preparation of a strategy to reach these ambitious targets. In the view of the NCC, this plan should consider a number of policy directions.

104 "Business Expenditure on Research and Development (BERD) 2003/2004", Forfás, 2005.
105 Number of patent grants is calculated per million of population.
106 Enterprise Ireland's recent corporate strategy has also committed it to doubling to 1,050 the number of firms engaged in "meaningful" R&D (defined as annual R&D spending of over ?100,000).

Greater Support for Industry-Led Research

Public funding for industry-led research and in-firm R&D should be progressively increased to support firms in their efforts to develop more efficient processes, and innovative products and services that satisfy customer needs. We also need a new approach to the provision of State support for in-company R&D, that recognises that firms at different levels of technological sophistication and absorptive capacity require different supports.

Support for Networks and Clusters

Much of the production and commercialisation of new knowledge is now less associated with individual firms and more with high-tech 'clusters' and 'networks' populated by small innovative entrepreneurial firms linked to multinational corporations, universities and research institutes, such as in the Research Triangle in South Carolina.[107] The concentration of enterprises, a skilled labour pool, and suppliers of goods and services in a particular geographical area boosts efficiency, encourages downstream activity and sub-supply opportunities and stimulates innovation and enterprise formation.

According to the ACR 2005, however, there is a perception among industrialists that cluster development in Ireland remains limited compared with other advanced economies, particularly Finland and Singapore. Forfás research suggests that R&D collaboration by Irish firms with other firms and with the higher education sector in Ireland actually declined between 1993 and 2003.[108] More recent survey evidence confirms only a limited role for local universities, suppliers and development agencies in the research efforts of Irish companies.[109] The evidence confirms the need for better developed innovation systems at the national and regional level within Ireland in order to raise Irish industry's innovation performance up to the levels of the most advanced countries (e.g. Finland, Denmark).

While such co-operation is the responsibility of individual firms, government and state bodies can play a supporting role. Many successful clusters include governmental and other semi-public 'institutions', such as government research institutes, standards-setting agencies, economic development agencies, educational institutes and trade associations.

The NCC recommends that investment in cluster and network assets should be financed and implemented jointly between government and industry on the basis of competitive industry-driven proposals. In this regard, the pilot initiative by Enterprise Ireland to develop industry-led cluster based technology programmes will provide valuable lessons. A number of other successful Irish networks (e.g. Irish Medical Devices Association, Wireless Software Network) are promoting interaction between publicly funded research, the development agencies and research in the enterprise base. Potential also exists to develop all-island networks and clusters.

It is important that these networks be used to encourage greater interaction between indigenous and foreign-owned firms. R&D investments by multinational bring cutting edge technologies that can spill over into indigenous industry, and help to upgrade the pool of skills available for managing complex research and innovation projects involving universities, suppliers and customers. For this reason, cluster support will require strong collaboration by Forfás, IDA Ireland, Enterprise Ireland, InterTradeIreland and Science Foundation Ireland.

107 Clusters can be defined as geographically proximate groups of interconnected companies, suppliers, services providers and associated institutions in a particular field, linked by commonalities and complementarities. Networks refer to groups of firms with restricted membership and specific, even contractual business objectives likely to result in mutual gains, and are not bound by geographical constraints. Networks can develop within clusters, especially where there is a wide range of business transactions conducted over a substantial period.
108 "Business Expenditure on Research and Development (BERD) 2003/2004", Forfás, 2005.
109 "The Roles of Interaction and Proximity for Innovation by Irish High Technology Businesses: Policy Implications", Declan Jordan and Eoin O'Leary, ESRI Quarterly Economic Commentary, June 2005.

Tax credits on R&D

The positive spill-over effects associated with industry R&D have prompted nearly all OECD governments to also encourage such R&D through grants, loans and tax credits. Tax credits are particularly effective for large firms and for attracting mobile enterprise R&D activities; most OECD members, including France, the Netherlands, Spain and the UK, have long provided tax credits or enhanced tax allowances for this purpose. Ireland's low rate of corporation tax has acted as a disincentive to locating R&D activities here; as business R&D expenditures in most countries are treated as tax deductible expenses, there are advantages to locating such activities in higher tax jurisdictions.

The R&D tax credit introduced in Ireland in 2004 was designed to provide a more competitive tax environment for industry to engage in new R&D or to increase existing R&D activities in Ireland, without placing an unreasonable burden on the exchequer. Already, there are a small number of large users drawing significant benefits from the scheme, although others have criticised its 'incremental' nature i.e. only R&D expenditure above historical levels in a pre-defined base period qualify for the allowance. Some research also suggests that support for R&D through the tax system remains limited compared with other countries.[110] As more data on the up-take of the current R&D tax credit becomes available, there will be an opportunity to assess its effectiveness in providing a competitive environment for attracting and maintaining mobile R&D and in supporting smaller scale R&D projects by indigenous firms.

Intellectual Property and Research Commercialisation

Significant increases in funding for research and development in the third level sector in Ireland under the current National Development Plan have resulted in increasing focus on the importance of leveraging investment in knowledge generation for economic and enterprise growth.

It is important that a framework is in place to facilitate the diffusion of knowledge generated from publicly funded research. Uncertainty about intellectual property (IP) ownership is one of the main barriers to effective technology transfer and research collaboration between industry and higher education as it leaves researchers and campus based companies open to exploitation. Once protected, inventions resulting from publicly funded R&D should be available for licence to industry in order to get the balance right between IP protection and diffusion. While a code of practice addressing these uncertainties in IP management is a welcome addition to the policy environment, it is equally important that the state provide support services and advice to those (particularly academics etc.) negotiating IP agreements. In this context, an appropriately resourced intellectual property capture/protection/management and commercialisation function needs to be developed within each research institution supported by external expertise and assistance, as required. Such a service would promote greater industry-university co-operation, thus increasing society's capacity to convert technological breakthroughs into industrial and commercial successes.

110 According to the latest, OECD Science, Technology and Industry Outlook (2004), for every $1 of spending on R&D, large companies receive a tax subsidy of five cents in Ireland, seven cents in the USA, ten cents in the UK and 44 cents in Spain.

5.3 Promoting Business Process Innovation

Productivity growth through innovation does not just derive from scientific and engineering breakthroughs. Three-fifths of U.S. productivity growth during the 1990s was accounted for by innovation in business processes, rather than technology, primarily by firms using information and communications technology (ICT) to streamline their organisations and methods of delivering products and services to their customers.[111] Business process innovation through ICT was found to be of particular importance to U.S. services sectors, where opportunities for science-drive technological innovation are more limited.

These findings have important implications for all advanced economies, most of which are seeing a rising share of services in total economic activity. In a recent survey of European firms, more than 60 per cent and 50 per cent, respectively, of respondents from the business and financial services sectors reported that they had introduced a new product or service in the previous three-year period - higher than the average share among manufacturing firms. However, services accounted for only about 20 per cent of OECD. Evidence regarding the depth and breadth of business process innovation is much more limited in Ireland. What data is available suggests room for improvement. Firms in Ireland, on average, do not perform well in the adoption of best business practices and business performance.[112] Data reported in the ACR 2005 rank Ireland only 10th out of 16 countries surveyed for perceptions of production process sophistication.

Better industry performance in business process innovation can be supported by long-term policy attention in the following areas: competition, ICT policy and management skills. Data for Ireland show that more companies change their production technology and working practices in sectors where competition is strong. Policies to support the development of competitive markets were discussed in Chapter two. Below the NCC suggests policy directions for government support for:

- The use of ICT, and
- Management development.

The Use of ICT

The relatively low levels of ICT usage by European companies have been identified by the Economist Intelligence Unit (EIU) as the main differentiating factor explaining the USA's higher productivity growth.[113] The EIU also notes that Europe's weaknesses are most acute among SMEs and that success in encouraging innovation and effective ICT usage by SMEs across all sectors of the economy will have a large impact on the European economy's ability to reap greater economic growth and productivity gains.

While Ireland has a very strong ICT producing sector, our performance is much less impressive when it comes to the adoption of ICTs by existing enterprises in the non-ICT related sectors of the economy.[114] Ireland spends significantly less on ICT than virtually all other EU countries.[115]

In the view of the NCC, Ireland's ability to maximise the benefits of ICT is related to the level of ICT literacy in the country. An ICT literate country has a workforce with the appropriate technological skills to enable the widespread integration of ICT into business processes. This places a policy emphasis on the upgrading of ICT skills in both students and the present workforce.

111 For example see "Lessons from the U.S. Growth Resurgence", D. Jorgenson, M. S. Ho and K. J. Stiroh, Journal of Policy Modelling, July 2003.
112 "Made in Ireland, Benchmarking Ireland's SME's", Enterprise Ireland and UCD, 2001.
113 "Reaping the Benefits of ICT, Europe's Productivity Challenge", The Economist Intelligence Unit, 2004.
114 Forfás eBusiness Monitor November 2003. http://www.Forfás.ie/publications/ecommerce.htm.
115 "The European Innovation Scoreboard", 2005, European Commission.

Lack of ICT knowledge in senior management and the failure of ICT and business management to work together effectively have been cited as the two main barriers to maximising the benefits of ICT.[116] One in three of the European companies surveyed noted that fewer than half of ICT projects meet their business objectives. These findings are relevant to Ireland where a recent study on management development in SMEs found inadequate ICT management skills, with SMEs managers failing to grasp the opportunities presented by ICT sufficiently clearly.[117] There needs to be an awareness of the need to change and an ability to manage change. State sponsored eBusiness advisor networks have proved successful in the promotion of ICT adoption in the UK and Germany.[118] Growth-oriented companies in Ireland need to be encouraged and possibly assisted to have their ICT needs identified by independent advisors with the necessary expertise.

Management development

More business process innovation will also require improvements in management skills across all areas – sales, marketing, research, finance, production, logistics and others. While Ireland has been good at producing high numbers of well-educated technology graduates, there are still not enough managers with the experience and training necessary to link technology and international markets.[119] The Enterprise Strategy Group report also highlighted weaknesses in technological and marketing expertise as a barrier to the growth and internationalisation of Irish SMEs and foreign-owned manufacturing companies alike.[120]

While management development is ultimately the responsibility of individual firms and there is no shortage of training providers, engagement by industry, and particularly SMEs, is less than optimal for a number of reasons:

- More pressing short-term business survival and growth issues.
- High turnover levels among recently appointed managers.
- Lack of experience and expertise in smaller companies in building management capability; and
- A mismatch between the quality and orientation of formal training providers and the individual needs of SMEs.

For these reasons, policy makers across the OECD are giving increasing attention to how policy can support education and training for entrepreneurship and innovation. Many countries have put state-supported skill development and management training programmes in place. Enterprise Ireland's corporate strategy 2005-07 also identifies enhanced management capability and skills within its client companies as essential components in the transformation of Irish industry. In this regard, Enterprise Ireland will:

- Focus on building the management and executive competencies in its client companies that are critical to their success in export markets
- Introduce a new specialist service which will enable companies to assess their current and future required competencies in their sectors
- Put in place action plans to build management teams to the required levels – this will include supports for the recruitment of new talent along with building the current capabilities within the firms
- Develop a new international mentor network across its main markets and continue to build the existing mentor network in Ireland

116 "Reaping the Benefits of ICT, Europe's Productivity Challenge", The Economist Intelligence Unit, 2004.
117 "SME Management Development in Ireland", Expert Group on Future Skills Needs / Fás, forthcoming.
118 "eBusiness Monitor Report", Forfás, November 2003.
119 This is borne out by the ACR 2005, which found that Ireland ranked 12th out of 16 countries for the extent of marketing.
120 "Ahead of the Curve – Ireland's Place in the Global Economy", Enterprise Strategy Group Report, 2004.

- Enable clients access to its specialist market information services and databases - through its 'Client Knowledge Services' unit

The NCC welcomes the strong focus by Enterprise Ireland on management capabilities and skills, and notes the positive feedback from Enterprise Ireland's existing training programmes in the areas of sales management. The NCC suggests that the following principles should guide the state's approach to management development going forward:

- Management training needs to be specific and targeted at the appropriate stage of a firm lifecycle. While start-ups will face many similar challenges, the development of management skills at later stages of firm development should be more sector focussed.
- A greater use of networks can support the development of courses and also encourage greater SME participation (as discussed in section 4.4).
- Consideration should also be given to developing greater coordination between the activities of FÁS, Irish Management Institute (IMI) and others, perhaps through the development of specialised centres in management training.
- There is also potential for the third-level sector to make a greater contribution to delivering management courses targeted specifically at SMEs. Reforms of the higher education system should take into account the need to make earning income from services to SME managers attractive to college managers and teaching staff.

5.4 Improving the Financing Environment

Finance is the lifeblood of entrepreneurship and innovation. Significant improvements have occurred in the financing environment for industry in Ireland over the last decade, reflecting the development of the Irish banking sector, as well as reforms to personal, corporate and capital gains taxes that have provided greater incentives to entrepreneurs and investors alike.

Yet Irish entrepreneurs continue to report difficulties in accessing risk capital for start-up and growth-oriented companies that are endeavouring to develop scale.[121] These difficulties often reflect the risky nature of technology-based start-up companies and swings in investor confidence over the economic cycle. This is not, in itself, a justification for state intervention. As a general rule, the best way for policy makers to promote competitiveness is to promote the development of sophisticated financial markets that channel the right level and type of finance to industry on competitive terms. With this principle in mind, a number of challenges stand out in the Irish context.

First, there is a need for more competition in the banking industry, particularly in the provision of financial services to SMEs. Notwithstanding the considerable advances made in increasing competition in the provision of banking services to SMEs and wider industry over the last decade, the Competition Authority has raised continuing concerns about the degree of concentration, and consequent lack of price competition, and has presented industry and Government with a practical agenda for moving forward on these issues.[122]

Second, there is a need to create a more even playing field for those competing for investment funds. Growing companies of scale require substantial funding. The tax-driven allocation of savings in Ireland into property – funds that might otherwise have found their way into productive enterprise and entrepreneurship – should be reviewed. These fiscal policies are at odds with Ireland's industrial policy goal of fostering the growth of domestic firms. The review of property related tax exemptions being undertaken by the Department of Finance is welcome in this regard. In addition to encouraging investment in entrepreneurship and

121 "How Entrepreneurial is Ireland? The Global Entrepreneurship Monitor 2003", P. Fitzsimons and C. O'Gorman, 2004.
122 "Competition in the (non-investment) banking sector in Ireland", The Competition Authority, September 2005.

enterprise, removing tax breaks on property investment has the added advantage of broadening the tax base and re-enforcing the long-term sustainability of low direct taxes on labour, profits and capital gains.

Third, there is a need to expand the Irish venture capital (VC) market. Venture capital refers to equity investment made by professional investors, typically in early stage, fast growing and high potential private companies. A properly functioning VC industry is an essential component of national innovation systems in all advanced economies. According to the ACR 2005, the Irish venture capital market is limited by the standards of other advanced economies, has a high dependence on a narrow range of high-tech industries, and is mainly oriented towards company growth rather than seed capital.

Enterprise Ireland has played a key role in developing the VC industry in Ireland to date, having invested over ?300 million in Irish firms and venture capital funds since 1994. Given the relative immaturity and small size of the Irish venture capital (VC) market, there is a strong case for continued state support over the coming years to build a VC industry with enough scale, experience and critical mass to be self-sustaining into the long-run. State support should be used to extract a commitment of increased support for the VC industry from the private sector, particularly from the pension fund industry. Consideration should also be given by the National Treasury Management Agency to the opportunities that exist in private equity investment.

Increased equity financing of Irish companies also requires consideration of ways to close the 'exit gap' faced by entrepreneurs and venture capitalists in Ireland. Initial public offerings (IPOs) are the most successful exit mechanism for venture capitalists, and vibrant public equity markets are a condition of deep and liquid VC risk capital markets the world over. Only five per cent of venture backed companies in Ireland go public, compared with a European average of 20 per cent.[123] Instead, trade sales dominate 'exits' of VC backed companies in Ireland, which represent a much lower return on investment than IPOs. Factors behind the low rate of IPOs for VC-backed companies in Ireland may include limited company understanding and preparation for IPOs, as well as the limited development of the Irish Stock Exchange. These issues need to be better understood and tacked by Ireland's development agencies as part of an overall strategy to develop the VC industry.

Finally, while the VC industry in Ireland has proved a significant source of investment for Irish growth companies, it has not addressed the financing gap for early stage seed capital i.e. proof of concept and start-up stages of development. Indeed, it is arguable that it is at this stage of company development where the greatest financing gap exists in Ireland. A number of mechanisms need to be explored to address this shortfall, including:

- Increased direct state provision in the forms of grants and equity stakes
- Tax incentives for promoting investment in seed capital. The scale and the conditions underpinning both the Business Expansion Scheme (BES) and the Seed Capital Scheme (SCS) may need to be reviewed. For example, the BES prohibits investors from making inputs into the management or direction of the company, while the SCS excludes individuals who may wish to invest in companies founded by family, friends or colleagues.
- Support by Enterprise Ireland for promoting seed investment by 'angel' investors. Angel investors are wealthy individuals, often former entrepreneurs, interested in financing and helping start-up businesses. In the USA, angel investment represents a far more important source of capital for start-up companies than VC.

123 "Angels and IPOs: Policies for Sustainable Equity Financing of Small Irish Business", Mulcahy D., The Policy Institute, Trinity College, 2005.

NCC Publications

Annual Competitiveness Report, 1998	March 1998
The Competitiveness Challenge Summary Statement	March 1998
Statement on Telecommunications: A Key Factor in Electronic Commerce and Competitiveness	November 1998
Statement on Skills	December 1998
Annual Competitiveness Report, 1999	May 1999
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Statement on Social Partnership	September 1999
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Statement on Prices and Costs	September 2004
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