2004

The Competitiveness Challenge 2004

Forfás

National Competitiveness Council

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Annual Policy Statement
of the National Competitiveness Council

September 2004

Forfás

National Competitiveness Council

NCC Members

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Mr Donal Byrne	Chairman, Cadbury Ireland Limited
Mr Martin Cronin	Chief Executive Officer, Forfás
Dr John Fingleton	Chairperson, Competition Authority
Mr Brendan Butler	Director of Enterprise, IBEC
Ms Annette Hughes	Economist, DKM Economic Consultants
Mr Peter McLoone	General Secretary, IMPACT
Ms Ainé Maria Mizzoni	Managing Director, Grafton Recruitment (Ireland) Ltd
Mr Seamus O' Morain	Assistant Secretary, Department of Enterprise, Trade and Employment
Mr Neil Ormonde	Director, Plato Ireland Limited
Mr William Slattery	Chief Executive Officer, State Street International (Ireland)
Mr Paul Sweeney*	Economic Adviser, Irish Congress of Trade Unions
Mr John Travers	Consultant and former Chief Executive Officer, Forfás
Prof Ferdinand von Prondzinski	President, Dublin City University

** = nominated*

Secretariat:
Ms Helena Acheson
Mr Andrew McDowell
Dr Fraser Hosford
Mr Conor Hand
Mr Garrett Murray

Forfás
Wilton Park House
Wilton Place
Dublin 2

Tel: 01 607 3000 Fax: 01 607 3030 Website: www.forfas.ie

Foreword by An Taoiseach

Ireland's recent international competitiveness has played a critical role in our successful economic performance. This economic success has brought many benefits to our society. It is for these reasons that competitiveness remains a key priority of Government policy as we seek to continually improve the living standards of everyone in Ireland.

The economic environment facing Ireland has changed in recent years. Irish firms are facing growing competition both in Europe and globally. We know that we cannot compete on the same basis as in the past. We need to protect our current strengths and develop new bases for competitive advantage. As knowledge and innovation become the basis for competition and economic development, important policy issues in the medium term are developing our innovation potential, the human capital of our country and our economic and technological infrastructure.

As a small open economy we are continually affected by global economic and political developments. Ireland's performance to date has proved robust to these challenges. We have seen inflation fall significantly, although challenges clearly remain. We have maintained huge levels of investment in infrastructure and public services while ensuring that the public finances remain on a sustainable path. We have successfully concluded the Mid Term Review of Sustaining Progress, ensuring that social partnership remains a cornerstone of our success.

The Government's policies are paying off, with employment continuing to increase and a number of very significant new industrial investments announced during 2004. We will continue to pursue policies that create the conditions for our future economic and social development. That is how we will generate the resources to invest for the future, to improve services and to build a better society for all.

The National Competitiveness Council was set up to report to the Government on key issues for Irish competitiveness. I am grateful to the Council for its work. The Government gives careful consideration to all of its recommendations.

I am therefore pleased to introduce both the Annual Competitiveness Report 2004 and the Competitiveness Challenge 2004.

Mr Bertie Ahern, TD
Taoiseach
October 2004

Chairman's Preface

This year the National Competitiveness Council is publishing its seventh Annual Competitiveness Report and Competitiveness Challenge.The Annual Competitiveness Report 2004 (ACR) analyses Ireland's competitiveness using a wide range of key 'input' and 'output' indicators, drawing on data from bodies such as the OECD and Eurostat; this analysis uses a benchmarking process which compares Ireland's competitiveness to that of our trading partners and main competitors. The Competitiveness Challenge 2004 draws on the ACR's statistical analysis, highlights weaknesses which threaten Ireland's current and future economic performance and recommends policy responses to meet these challenges.

The economic context for this year's competitiveness reports is, by most measures, highly reassuring. Economic growth is accelerating in tandem with that of our key trading partners. Foreign direct investment is picking up, unemployment remains low and the public finances are in a strong position.

In this economic environment, it may seem untimely to raise concerns about our future economic well-being. Yet it is the role of the NCC to look beyond the immediate and to focus on what is required to sustain our growth into the medium-term. From the analysis in this year's ACR, two key concerns stand out.

First, the analysis within this year's ACR, as well as in the NCC Statement on Prices and Costs published in September, confirms the widely-held belief that costs in Ireland are out of line with other developed countries. Together with the risk of a further sharp decline in the value of the dollar against the euro, this presents a growing threat to jobs in Ireland. The fall in the cost of insurance has demonstrated the potential of determined Government actions in improving cost competitiveness for businesses. This determination now needs to be applied across a range of sectors and policy areas that affect costs in Ireland, including fiscal policy, incomes policy, public sector efficiency, infrastructure, competition and regulation. The *Competitiveness Challenge 2004* presents recommendations on how this can be done.

Second, the ACR analysis shows that there remains an inconsistency between our image as a 'high-technology' economy and our underlying 'knowledge base'. Large sections of our economy remain beset by low levels of research and innovation and limited sales and marketing capabilities. As a result, large pockets of our economy remain characterised by low levels of productivity relative to other advanced economies.

As knowledge and innovation become the basis for competitiveness and productivity growth, raising productivity through innovation will be the key to improving our nation's living standards. In this regard, Government measures to increase public and private investment in scientific research are very welcome. Much more, however, needs to be done. We need to build the infrastructure that facilitates the development and flow of information and people, ensure that all of our citizens have the skills to be able participate in the knowledge economy, remove the financial and regulatory barriers affecting entrepreneurs, and ensure that our publicly-funded investments in research are well-targeted and support the needs of Irish industry. Recommendations on all these issues are presented in this year's Competitiveness Challenge.

Promoting competitiveness is not an agenda that divides business from wider society. Economic growth and social progress are two sides of the same coin. The NCC believes that implementation of the recommendations on all these issues will help to safeguard Irish competitiveness in the coming years. Sustaining Ireland's future competitiveness is crucial to boosting living standards in our society.

William Burgess
Chairman, National Competitiveness Council
October 2004

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Introduction and Executive Summary

Background

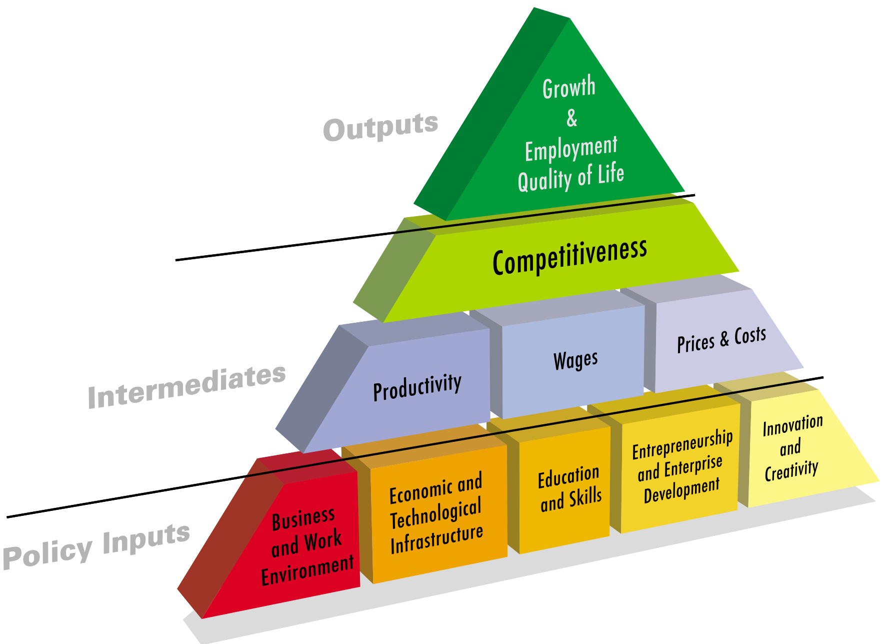
The National Competitiveness Council (NCC) was established in May 1997 under the Partnership 2000 agreement to report to the Taoiseach and other government ministers on key competitiveness issues for the Irish economy and to make recommendations on public policy actions required to enhance Ireland's growth potential. This annual statement sets out the NCC's recommendations for action to safeguard and further enhance Ireland's international competitiveness and economic growth prospects.

In line with its terms of reference, the NCC seeks to develop a consensus in the preparation of all of its reports and statements. Where this is not possible, the NCC resolves disagreements by a simple majority of votes of the members present. In this sense, not all of the views expressed in this document have been supported by all of the NCC's members.

The NCC defines competitiveness as the ability of Irish-based firms to achieve success in international markets leading to better standards of living for all. The 'competitiveness pyramid' below illustrates the framework used by the NCC for understanding and commenting on national competitiveness (Figure 1). It distinguishes between the 'inputs' into national competitiveness – the drivers of growth and competitiveness over which policy makers have significant influence – and the 'outputs' of national competitiveness, such as growth in employment and living standards and other primary objectives of economic policy. The NCC also benchmarks 'intermediate', or secondary policy objectives, such as productivity, costs and prices.

The NCC's 2004 Annual Competitiveness Report (ACR) and Competitiveness Challenge are organised around this framework. The ACR benchmarks Ireland's performance for inputs and outputs relative to 15 other countries. Drawing from the analysis in the ACR, the Competitiveness Challenge makes recommendations on the public policy actions that can help improve the competitiveness and performance of Irish-based firms. These recommendations are grouped under the five 'policy input' headings shown on the bottom level of the pyramid.

Figure 1 The Competitiveness Pyramid



The Economic and Competitiveness Environment in 2004

The economic context for this year's competitiveness reports is, by most measures, reassuring. According to Central Bank forecasts, Gross National Product (GNP) should grow by about 4.25 per cent this year compared with 2.8 per cent last year.[1] This largely reflects the recovery in export demand as a result of the strong global economic recovery, driven mainly by the USA, as well as the improving fortunes of the information and communications technology industry, which is of particular importance to Ireland. Total employment grew by 2.9 per cent in the 12 months to the first quarter of the year. The unemployment rate has fallen to below 4.5 per cent in 2004, down from over five per cent in 2003. Foreign direct investment, business confidence and industrial output have all recovered strongly in 2004, and the public finances are in a healthy state.

Behind the headline indicators of our present performance, however, there are some worrying aspects to our underlying economic performance that raise doubts over the prospects for sustained growth in employment and living standards in the future. Two such issues stand out from this year's Annual Competitiveness Report.

First, our cost base relative to our trading partners has risen dramatically. According to the ACR, the average cost of Irish goods and services (when measured in a common currency) increased by over a fifth relative to our major trading partners since 2000. The rise in the external value of the euro over this period, particularly against the US dollar, has been the biggest cause of the deterioration in Ireland's cost competitiveness, although fast growth in domestic prices and wages has also played a significant role. A significant proportion of domestic price inflation is the result of government decisions. In total, decisions by Government, its agencies and regulators added 7.9 per cent to the total inflation rate in the five years to January 2004.[2]

This loss of cost competitiveness is already undermining the ability of many Irish-based companies to compete in international markets. Employment in manufacturing and other production industries – the sectors of the economy most exposed to international competition – has already fallen significantly. The fact that there has not been an even greater loss of employment in the exposed sectors of the economy to date may relate to the willingness of firms in Ireland to absorb a temporary decline in profit margins. If the decline in cost competitiveness persists, a lagged response in terms of a much bigger loss of employment and living standards may still occur. The recent acceleration in Irish consumer price inflation, together with the growing risk of a further sharp decline in the value of the dollar against the euro, makes this outcome all too possible.

Second, too much of the Irish economy remains characterised by low levels of productivity relative to other advanced economies. 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. According to the ACR, people employed in Ireland produced, on average, 16 per cent less for each hour worked than their US counterparts.[3] This 'productivity differential' accounted for almost 60 per cent of the difference between Irish and US living standards in that year, equivalent to $5,753 per person.

The productivity gap is particularly evident in those sectors of the Irish economy less exposed to international competition, such as retailing, agriculture and parts of our public services. Even in those sectors of the economy more exposed to competition, however, significant pockets of weak productivity and performance remain. Large sections of our industrial base, both Irish and foreign-owned, remain beset by low levels of R&D and innovation, low

1 "Quarterly Bulletin", Central Bank and Financial Services Authority of Ireland, Summer 2004.
2 "NCC Statement on Prices and Costs", National Competitiveness Council, September 2004.
3 Productivity measured as GNP per hour worked.

productivity, limited sales and marketing capabilities, and over-concentration on production activities. In this sense, there is an inconsistency between our image as a 'high-technology' production base and our underlying 'knowledge base'.

This report by the NCC sets out an agenda of action for Government to address these issues, thereby enhancing the ability of Irish-based firms to succeed in international markets.

Recovering Cost Competitiveness

Now that we have adopted the euro as our national currency and no longer have any influence over our external exchange rate, the government should put in place policies to better cushion the competitiveness of Irish based firms from the effects of nominal exchange rate volatility. In particular, policies should be developed to help protect Irish firms from the threat of a further sharp appreciation of the euro against the dollar. To achieve this, the Government should work with the social partners to make wage-setting and government spending and taxation – areas of policy over which we still have domestic control – more responsive to changing competitiveness developments. This is addressed in detail in Chapter One.

As an advanced economy, firms in Ireland cannot compete on the basis of wage costs alone. Measures to sustain Ireland's cost competitiveness must, therefore, be part of a broader economic strategy aimed at accelerating the transition to a more dynamic, enterprising and productive economy – one that can sustain higher living standards for all of the population. Demographic changes and the low rate of unemployment mean that overall employment levels and hours worked are unlikely to grow as quickly in the coming years as over the last decade. Thus, there is little potential for employment growth to be a continued driver of economic growth. With this in mind, improvements in productivity, through more innovation in product and process design at the firm level, as well as greater efficiency across our public services, will be key to future growth in incomes and living standards.

Raising Productivity and Building an 'Innovation-Driven' Economy

In the view of the NCC, there is no reason why Ireland cannot attain the productivity levels of the most advanced economies of the world. To achieve this, it will be necessary to put in place new policies in the areas of competition and regulation, public sector reform, infrastructure development, education, entrepreneurship, enterprise development, and research and innovation. These policies will encourage the acquisition of higher skills, leading to higher value-added and more knowledge-intensive activities.

One way to increase Irish productivity is to ensure vigorous competition. Market entry by new firms, and a high degree of rivalry between existing firms, pushes other companies to lower costs, improve quality and service, and create new products and processes.[4] In this way, intense domestic competition is a powerful stimulus to the creation of international competitive advantage. It is worrying, therefore, that much of the Irish economy remains insulated from competitive pressures. Proposals to intensify competition through better regulation and more vigorous competition policy in Ireland are detailed in Chapter One.

While the design of any country's tax system must take into account many considerations, particularly equity, international evidence shows that low rates of direct taxation on corporate and personal incomes support productivity and economic growth. For this reason, there is a need to reverse the rise in the proportion of the labour force paying income tax at the higher 42 per cent rate in recent years, by increasing the standard 20 per cent tax band ahead of inflation, and to re-commit to Ireland's low rate of corporation tax into the

4 "The Sources of Economic Growth in OECD Countries", OECD, 2003. The interaction between competition and innovation is discussed in greater detail in Chapter Five.

medium-term. In order to ensure consistency between the need for low direct tax rates on capital and labour and the need for improvements in public services and infrastructure, the Government needs to consider ways to improve value for money in public services and to broaden the revenue base. Recommendations on these issues are proposed in Chapter One.

There is also considerable evidence that the under-provision of economic and technological infrastructure, such as transport, energy, communications and research facilities, is holding back growth in productivity and living standards in Ireland. The NCC welcomes the ongoing improvements being made to Ireland's physical infrastructure under the current National Development Plan, and the commitment from government to spend five per cent of GNP on capital projects into the medium-term. It is essential, however, that the public investments are spent wisely. In Chapter Two, the NCC recommends improvements in the processes and procedures used to allocate spending on public capital projects so as to ensure that these investments best support national competitiveness and other economic and social objectives.

As knowledge becomes the basis for competition, education is increasingly important to economic performance. While the value of education has long been appreciated in Ireland, we are still only middle-of-the-road among advanced countries with regard to educational investment and attainment. An area of particular concern, in the view of the NCC, is the limited public investment in early childhood development at the pre-primary level. Early childhood development is a key determinant of individuals' performance at all subsequent levels of education. While the merits of pre-primary interventions in Ireland have been examined from a social policy perspective, their potential long-term competitiveness benefits have not received much attention. Targeted pre-primary interventions in areas of social disadvantage could, over time, help to lower the still unacceptably high drop-out rate from secondary education in Ireland, and so maximise the number of our citizens that can participate in the knowledge economy.

Other urgent educational challenges from a competitiveness perspective include the need to improve the scientific literacy of our school-children and the need to promote greater life long learning and up-skilling among the existing workforce. Recommendations on all these issues are presented in Chapter Three.

High levels of entrepreneurship have a positive impact on innovation, productivity and competitiveness. While the rate of business start-ups in Ireland is high by European standards, we still lag behind the leading entrepreneurial nations, particularly the USA, South Korea, New Zealand and Australia. In the view of the NCC, this reflects the growing regulatory and administrative burden faced by all businesses in Ireland, but particularly by entrepreneurs, as well as continued difficulties faced by start-ups in accessing risk finance. Even when entrepreneurs in Ireland overcome these problems, too few indigenous Irish firms go on to become world-beating players in their sectors. In Chapter Four, the NCC makes recommendations to address these issues.

Knowledge generated, and absorbed from international sources, through domestic scientific and engineering research is an increasingly important driver of innovation, productivity and competitiveness. The low levels of public and private investment in research in Ireland, relative to other advanced countries, is reflected in Ireland's poor performance regarding the application of knowledge for commercial innovation. Government measures to stimulate growth in public and private investment in R&D in Ireland, together with the recent establishment of a Cabinet subcommittee to guide and coordinate science and technology policy are, therefore, to be welcomed from a competitiveness perspective. Going forward, key issues that remain to be tackled include:

- Clarifying the roles of various public sector agencies in science, research and innovation;
- Developing a better understanding, by drawing from overseas experience and empirical research, of how publicly-funded investments in R&D should be allocated between universities, research institutes and industry in a way that maximises their economic and social return;
- Putting in place the necessary mechanisms and policies to maximise knowledge transfer between university research programmes and industry, particularly SMEs; and
- Putting in place further measures to support industry investment in R&D, in particular by ensuring the adequate supply to industry of qualified scientists and engineers.

Of course, the examples of Zara, DHL, Dell and many others suggest that non-technological innovations can be just as important as science in improving competitiveness and productivity. Such 'business process innovations' enable business objectives to be met in more efficient or effective ways. These innovations are frequently realised by the efficient use of information and communications technology. International benchmarking suggests, however, that Ireland has performed poorly in the adoption of best practice regarding the application of ICT to business processes. This reflects both an absence of competition (which forces companies to innovate in order to survive), as well as limited awareness among Irish managers of the need to change and of how to implement change. Another factor has been the failure of Government to fulfil its potential as an enabler and driver of the adoption of ICT across the economy. Recommendations on how to address all these issues are discussed in Chapter Five.

Integrating the EU Lisbon Agenda into Domestic Policy

As a member of the European Union (EU), Irish policies in all of the above areas should increasingly take into account initiatives at the EU level. There are many common economic problems affecting all EU countries which can be addressed more effectively through common or co-ordinated actions across the Union. Areas such as R&D, better regulation, and environmental protection all benefit from a process that links national- and European-level policies. At the same time, it is important that common policies across the EU are not used to suppress competition among the member states. A culture of policy innovation, underpinned by a high degree of national autonomy with regard to taxation, regulation, infrastructure, education and skills and other tools of industrial development, is vital for European economic success. In this sense, achieving the right balance of competition and co-operation among EU countries is a central challenge in promoting European growth.

For this reason, the EU's Lisbon Agenda – the programme of EU economic reform designed to raise economic growth across Europe by increasing competition and investment, while simultaneously promoting social cohesion and environmental sustainability – remains as relevant as ever. While reference is made in this year's ACR and Challenge reports to Ireland's progress on various Lisbon Agenda targets, new ways must be found to better integrate these targets into domestic policy making.

Conclusions

The NCC believes that the key to improving competitiveness and living standards in Ireland lies in the recommendations proposed herein, and looks forward to working with Government ministers and departments in the consideration and implementation of these recommendations. Of course, economic development is not solely the job of government, as many of the actions required are outside the remit of policy makers. There is also an agenda for, among others, industry associations, trade unions, universities and the managers of individual Irish firms.

While these recommendations are aimed at improving competitiveness, reflecting the NCC's remit, we also believe they will have strong social benefits. Specific examples include educational priorities aimed at areas of social disadvantage and infrastructural investment that promotes regional development; these will help to ensure that all citizens can avail of the economic opportunities created. More generally, an open dynamic economy aids social mobility by providing opportunities for all, and economic growth sustains jobs and improves living standards.

1 Business and Work Environment

1.0 Introduction

The Business and Work Environment refers to government policies in areas such as business and labour market regulation, competition, international trade and investment, taxation and macroeconomic management, and their impact on business flexibility, cost competitiveness and innovation. Drawing from the analysis of Ireland's performance in these areas in this year's Annual Competitiveness Report (ACR 2004), the NCC has identified three key challenges for Irish policy makers:

- Managing and improving Ireland's cost competitiveness;
- Reducing costs and promoting innovation by removing barriers to competition; and
- Maintaining a competitive taxation system while financing public investment and services.

1.1 Managing and Improving Ireland's Cost Competitiveness

Largely reflecting euro exchange rate movements against the US dollar and UK sterling, the cost competitiveness of Irish-based firms has swung dramatically over the last five years, from a position of 'super-competitiveness' in 1999 to a situation of under-competitiveness at present.[5] In the four years to May 2004, Ireland's 'real' exchange rate index – a measure of the combined impact on competitiveness from domestic price inflation and changes in the external value of the euro – appreciated by 22 per cent.[6] This means that the price of Irish goods and services (when measured in a common currency) increased by over one-fifth relative to our major trading partners in recent years. The rise in the external value of the euro has been the biggest cause of the deterioration in Ireland's competitive position, although fast growth in domestic prices and wages has also played an important role.[7] According to analysis carried out on behalf of the NCC, Ireland's price level in 2003 was, when taking into account the exchange rate, eight per cent above its equilibrium level – the level that keeps the Irish economy competitive enough to sustain full employment. This 'overshooting' of Irish prices is likely to have worsened further in the first half of 2004.[8]

This loss of competitiveness has already undermined the ability of many companies in Ireland to compete in international markets. Employment in manufacturing and other production industries – the sectors of the economy most exposed to international competition – has fallen from a peak of 330,000 in the third quarter of 2001 to 300,000 in the second quarter of this year.[9] Growth in overall employment over this period has taken place mostly within the public sector and the construction industry. The fact that there has not been an even greater loss of employment so far may be partly due to the willingness of firms in Ireland to absorb a temporary decline in profit margins. If the decline in competitiveness persists, a lagged response in terms of a more significant loss of employment and living standards may still occur. The recent acceleration in Irish consumer price inflation, together with the growing risk of a further sharp decline in the value of the dollar against the euro, make this outcome all-too possible.[10]

Now that Ireland is part of European Economic and Monetary Union (EMU), a deterioration in Ireland's competitiveness as a result of an excessively high domestic price level can no longer be remedied through a policy of currency depreciation, since the value of the euro is determined independently of Irish conditions. For this reason, a key economic challenge facing the Government is to better use incomes and fiscal policy – two of the economic policy

5 Ireland is the eurozone member with the largest share of its trade with countries outside the eurozone, and is therefore particularly vulnerable to fluctuations in the value of the euro against other currencies.

6 "Exchange Rates and Trade-Weighted Competitive Indicators", Central Bank of Ireland website.

7 According to the NCC Statement on Prices and Costs (September 2004), Irelands inflation rate has exceeded the eurozone and EU-15 average for the last seven years, and Ireland is now on almost on a par with Finland as the most expensive country in the eurozone.

8 "Assessing Ireland's Price and Wage Competitiveness", P. R. Lane, Institute for International Integration Studies (IIIS) and Economics Department, Trinity College Dublin and CEPR, July 2004.

9 "Quarterly National Household Survey", Central Statistics Office, Second Quarter 2004.

10 Annual consumer price inflation accelerated to 2.7 per cent in July, up from 1.3 per cent in March.

instruments over which Irish policy makers continue to have some control – to cushion Irish competitiveness and growth from the effects of nominal exchange rate volatility.[11] In this regard, the NCC makes a number of recommendations:

First, with regard to incomes policy, there is a need to make pay costs more flexible in order to safeguard competitiveness and employment levels from the effects of nominal exchange rate volatility. This should be pursued at both national and firm levels. At national level, we should re-fashion the social partnership pay negotiations to reflect the new set of economic circumstances. The NCC believes that the social partnership framework for wage-setting continues to offer substantial potential advantages over an uncoordinated 'free for all' wage-setting system. A pay agreement with economy-wide fixed nominal wage increases over a multi-year horizon, however, would put competitiveness and employment at risk, as it would not facilitate rapid adjustment to shifts in the external environment (such as a sharp currency appreciation), particularly in the public sector and other 'non-traded' sectors of the economy.

The greater flexibility needed was partly achieved in 2003-05 by shortening the pay agreements to successive 18-month periods, rather than the traditional three years. While this has been useful, more should be done. The social partners should use the pay discussions in 2005 as an opportunity to consider more innovative ways to make the centralised pay deals more sensitive to changing economic circumstances – including linking, on an ongoing basis, pay growth to measures of our international competitiveness and economic success. Detailed and practical suggestions for modernising Ireland's system of centralised wage bargaining to fit our new set of economic circumstances have already been put forward, and need to be given greater consideration.[12] The next agreement should also make specific reference to wage developments in Ireland's main trading partners. By providing for sustainable wage growth, the NCC believes that a more flexible social partnership wage framework can significantly contribute to protecting international competitiveness and safeguarding employment levels.

At the level of individual firms, there is a need to encourage greater financial participation of employees, in the form of share options and profit- and gain-sharing. Financial participation provides employees with access to rewards in excess of the typical returns from employment in return for efficiency improvements, and raises individual and organisational productivity and performance.[13] By making the cost base of firms more responsive to external competitive conditions, it also makes industry more resilient to exchange rate volatility. Only 14 per cent of Irish firms have, however, adopted employee financial participation schemes – a proportion far behind EU leaders.[14] 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, and also the absence of favourable tax treatment for employee 'gain-sharing' schemes, unlike other schemes suited to larger firms.[15]

The Minister for Finance has already stated, in 1999, that he would be prepared to consider options to support gain-sharing, as long as they do not become a form of tax relief on basic pay. The NCC urges the Department of Finance to intensify its discussions with the social partners so that specific proposals for the favourable tax treatment for gain-sharing – ones that meet the needs of small businesses – are ready for the Finance Bill 2006.

11 The significance of nominal exchange rate volatility is highlighted by the fact that, according to the ACR 2004, in the two years to January 2004 Ireland's cost competitiveness declined by just 3.5 per cent vis-à-vis intra-eurozone trade partners (reflecting higher Irish inflation), but deteriorated by almost 25 per cent vis-à-vis non-eurozone trade partners over the same period.

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

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

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

15 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 and Revenue approval is available for other forms of employee financial participation, such as share options and profit sharing, but these are more suitable to large companies.

Second, with regard to fiscal policy, there is a need to make overall government spending and taxation policies more responsive to external competitiveness developments. When our external competitiveness is suffering as a result of nominal exchange rate developments, putting at risk employment in industries exposed to international competition, there is a need for government to help to stimulate the domestic economy with tax cuts or spending increases. On the other hand, government needs to tighten spending and limit tax cuts when the economy is already competitive and growing quickly. Too often in recent years some changes in government taxation and spending have been inappropriate given external competitiveness developments, and have not supported economic stability. While recognising the challenges of demand management and 'counter-cyclical fiscal policy' in small open economies, and particularly within the constraints imposed by the EU Stability and Growth Pact, the NCC believes that the Government needs to find ways to make the budgetary process more responsive to prevailing economic circumstances.

Recommendations on Managing Ireland's Cost Competitiveness

Social Partnership: The Government should encourage social partners to use the pay discussions in 2005 as an opportunity to consider more innovative ways to make centralised pay deals more sensitive to developments in international competitiveness.

Employee Financial Participation: The Minister for Finance should work with the social partners in order to overcome any practical difficulties to favourable tax treatment for gain-sharing in order to have specific proposals ready for the Finance Bill 2006.

Fiscal Policy: The Minister for Finance should use fiscal policy to promote economic stability and to cushion the economy, should circumstances demand, from the effects of exchange rate instability.

1.2 Reducing Business Costs and Promoting Innovation by Removing Barriers to Competition

Facilitating markets to operate efficiently by ensuring vigorous competition is vital to driving down 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 pushes companies to lower costs, improve quality and service, and create new products and processes.[16] In this way, intense competition is a powerful stimulus to the creation and persistence of international competitive advantage.

According to the ACR 2004, however, Ireland ranks only 13th out of 16 countries with regard to the intensity of domestic competition (ranking of one = most competitive). These data are reinforced by market observation. A leading firm has a share above 50 per cent in the Irish newspapers, beer, whiskey and other spirits, ice-cream, cement, liquid milk, liquid petroleum gas, industrial cleaning and industrial gas sectors. Other markets that are highly concentrated include supermarkets, food distribution, newsprint distribution, banking, soft drinks and outdoor advertising.[17] The impact of weak competitive forces on costs and competitiveness is clear. In 2003, Ireland was the most expensive country in the euro-zone for food, non-alcoholic beverages, tobacco and housing rents, and was the second most expensive country in the euro-zone overall.[18]

16 "The Sources of Economic Growth in OECD Countries", OECD, 2003. The interaction between competition and innovation is discussed in greater detail in Chapter Five.

17 Where the largest four firms have in excess of 80 per cent of the market.

18 "NCC Statement on Price and Costs", National Competitiveness Council, September 2004.

Government action is required to promote competition in Ireland. The NCC welcomes the Government's implementation of 2003 NCC recommendations to request the OECD to carry out a peer review of the Irish competition policy regime and to establish a Consumer Strategy Group to examine how to better promote consumer interests. The NCC awaits the outcome of these reviews with interest, and believes that, in the mean time, there are four immediate priorities to strengthen competition in the interests of businesses and consumers.

First, there should be further improvements in the resources and powers available to the Competition Authority to discourage anti-competitive behaviour. The NCC recognises that the Competition Act 2002 was a significant step forward in enhancing Irish competition law and strengthening the powers of the Competition Authority. In the view of the NCC, improvements in competition enforcement have already yielded significant benefits to the Irish consumers and businesses.[19] This, however, is still not enough as too few breaches of Irish competition law are 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 Authority to focus all of its limited resources on only a small number of cases. This has the potential to undermine corporate compliance with competition law. Ireland should follow the model adopted by the UK, Germany, France and the European Commission, and make the Competition Authority a decision-making body, with the right to impose 'administrative fines' for competition law breaches.

The NCC raised this issue in last year's report, and understands that the feasibility of this proposal is currently being reviewed by the Department of Enterprise, Trade and Employment. The NCC continues to support the principle of administrative fines, and urges the Minister for Enterprise, Trade and Employment to find a way to implement this recommendation.

Second, the government needs to remove barriers to competition in Ireland's retailing, wholesaling and importing sectors. Inefficiencies in these sectors can be particularly damaging to small open economies and may be an important factor in explaining the differential in consumer prices between Ireland and other countries of similar levels of economic development.[20] Little is known about the degree of competition in Ireland's importing, wholesaling and distribution sectors, and the role of government rules and regulations in this regard. Accordingly, these sectors should be the focus of Competition Authority studies in 2005. In contrast, the effects of government restrictions on competition in retailing have already been well-analysed. In this regard, the Government should:

- Reconsider the ban on below-cost selling. In an effort to support the viability of small independent retailers, the 1987 Groceries' Order bans the practice of 'below invoice price' selling of household groceries. With food prices in Ireland higher than in any other euro-zone country, there is evidence that the ban has undermined vigorous price competition between retailers at the expense of consumers.[21] In 2000, the Competition and Mergers Review Group, having reviewed all the evidence, recommended that the Order should be repealed – a view subsequently endorsed by the OECD in 2001.[22] The

19 No analysis is available that precisely estimates the benefits of increased competition enforcement across the Irish economy. Benefits are, on occasion, quantified in individual cases. For example, the successful High Court action by the Authority in 2000 to stop a blockade of Natural Dairies in Convoy, Co. Donegal by farmers opposed to the importation of milk from Northern Ireland took place against a background of increasing competition in the liquid milk market that resulted, according to analysis by the Competition Authority, in savings to consumers of €100 million annually. A recent OECD report found that, as a result of its strong competition policy, Australian GDP is 2.5 per cent higher, and household income is A$7,000 higher, than would otherwise be the case.

20 "EU Productivity and Competitiveness: An Industry Perspective, Can Europe Resume the Catching-up Process?", M. O'Mahony and B. van Ark, eds., Office for Official Publications of the European Communities, Luxembourg, 2003. According to this research, productivity in the Irish wholesale and retail sectors (not including motor vehicles and motorcycles and the repair of personal and household goods) was just 42 per cent of U.S. levels in 2002. This research is examined more closely in the ACR 2004.

21 "A Rational for Repealing the 1987 Groceries Order", P. P. Walsh, Trinity College Dublin and Katholeike Universteit Leuven and C. Whelan, London School of Economics and Katholeike Universteit Leuven, January 1999.

22 "Regulatory Reform in Ireland", OECD, 2001.

NCC has not had an opportunity to consider the Groceries' Order in detail, but recommends that the Consumer Strategy Group review the evidence for and against the Order in its final report to Government later this year.

- Ensure that there is sufficient zoning for new retail outlets in local area development plans. One of the biggest restrictions on the ability of retailers to grow in the Irish market is the availability of suitable sites. Many local area development plans have zoned insufficient space for new retail outlets. In too many instances, incumbent retailers are using the planning process to frustrate new entry by competitors.
- End the blanket ban on large retail formats for food and non-food shopping. The NCC believes that the country-wide exclusion of large retail warehouses as a result of the 2000 Retail Planning Guidelines undermines competition and reduces consumers' range of choice and access to lower prices. Instead, the proper balance between consumer interests and considerations for good urban planning and environmental sustainability should be assessed on a case-by-case basis by regional authorities.
- Eliminate restrictions on the ability of pharmacists educated in other EU countries to establish in Ireland. As of 2000, pharmacy retail margins were higher in Ireland than anywhere else in the EU.[23] These restrictions on pharmacists educated in other EU countries offer limited consumer protection, serve only to protect owners of existing pharmacies from competition and should be eliminated as part of the legislative proposals on pharmacy retailing due to be brought to Government.
- End quantitative restrictions on premises licensed to sell alcohol. The responsible consumption of alcoholic products should be promoted by measures other than restricting competition. In this regard, the proposal to remove the requirement to extinguish an existing licence in order for a new retail licence to be issued, contained in the Intoxicating Liquor Bill, 2004, is a positive step.

Third, the Government needs to accelerate regulatory reform of the transport and energy sectors in order to increase competition. With regard to transport, inter-urban bus transportation should be liberalised without delay. Any re-regulation of the taxi markets in Dublin and other towns and cities should not inhibit market entry and should be strictly necessary for health and safety purposes.

With regard to energy, the regulatory regime adopted since 2000 has, to date, failed to promote adequate entry into the power generation sector or sufficient competition in the supply of electricity or gas. The 11 per cent increase in electricity prices for business customers from September 2004, together with a further 3.5 per cent increase to be imposed from January 2005, has meant a cumulative increase in electricity tariffs of approximately 40 per cent since September 2001. As of January 2004, the cost of electricity for an Irish industrial consumer, using 10 GWh of electricity per annum, was 40 per cent above that for a UK firm, which equates to a difference of approximately €350,000 per annum.[24]

In order to address spiralling energy costs for industry, and rising industry concerns regarding energy security, the NCC looks forward to the publication of a draft comprehensive energy policy promised earlier in 2004 by the Minister for Communications, Marine and Natural Resources. To restore industry confidence in the regulatory regime, the NCC urges the Minister to complete this review before the end of this year, and include a substantial focus on a number of issues. First, the review should serve to expedite the creation of an all-island energy market through regulatory convergence and physical inter-connection with Northern Ireland.[25] Second, it should explore the potential of full Irish

23 "Assessing Supply in Relation to Prospective Demand for Pharmacists in Ireland, Report to the Higher Education Authority", Peter Bacon & Associates, 2000.

24 "NCC Statement on Prices and Costs", September 2004.

25 On June 21, 2004, the Minister for Communications, Marine and Natural Resources 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.

integration, over time, into a wider EU energy market, so as to bring Irish energy costs back towards the EU average. Third, the review should also examine whether the vertical separation of the ESB generation, transmission and distribution components into separately owned, managed and operated entities, might promote greater competition and cost efficiencies.

Finally, the government can help to reduce 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, particularly for food, services and utilities.[26] EU agricultural protectionism cost the average European family of four an estimated $1,500 per year in 1997 in higher food prices.[27] With regard to services, the NCC urges the government to attach a high priority to the draft EU Directive on Services which, if adopted in the current form, will help to eliminate, through administrative simplification, obstacles to setting up a services company in other EU countries and will encourage greater cross-border delivery of services by making service providers subject only to the law of the country in which they are established. This will all boost competition and thus increase choice, improve quality and bring down prices for Irish consumers and businesses across a range of service areas.

Recommendations on Reducing Costs by Removing Barriers to Competition

Competition Authority's Resources and Powers: There should be further improvements in the powers available to the Competition Authority to discourage anti-competitive behaviour. In particular, the Minister for Enterprise, Trade and Employment should find a way to empower the Authority to impose administrative fines for competition law breaches.

Competition in Importing, Wholesaling and Distribution: The Minister for Enterprise, Trade and Employment should request the Competition Authority to carry out market studies into Ireland's importing, wholesaling and distribution sectors in 2005.

Competition in Retailing: The Government should intensify competition in Ireland's retailing, wholesaling and importing sectors, in particular by:

- Asking the Consumer Strategy Group to review the ban on below-cost selling (Responsibility: Minister for Enterprise, Trade and Employment);
- Ensuring that local area development plans provide sufficient zoning for new retail outlets, and replacing the retail planning guidelines (Responsibility: Minister for the Environment and Local Government);
- Eliminating restrictions on pharmacists educated in other EU countries being able to establish in Ireland (Responsibility: Minister for Health and Children); and
- Ending quantitative restrictions on premises licensed to sell alcohol (Responsibility: Minister for Justice, Equality and Law Reform).

Competition in Transport and Energy: The Government should accelerate regulatory reform of the transport and energy sectors in order to increase competition and to reduce costs for consumers and businesses. (Responsibility: Ministers for Transport and for Marine, Communications and Natural Resources).

WTO Negotiations: The Ministers for Enterprise, Trade and Employment and for Agriculture and Food should support European Commission efforts to dismantle those EU farm supports that distort international trade to the detriment of Irish businesses and consumers, as well as farm producers in developing countries.

EU Services Directive: The Minister for Enterprise, Trade and Employment should work with other EU countries to implement the EU Directive on Services as quickly as possible.

26 In this regard, the current round of World Trade Organisation (WTO) trade negotiations offers a significant opportunity to reduce European agricultural protectionism and Irish food prices.

27 "10 benefits of the WTO trading system", World Trade Organisation, 2003.

1.3 Maintaining a Competitive Taxation System while Financing Public Investment [28]

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. All other things being equal, businesses and employees prefer lower taxes. At the same time, there are limits to the extent to which a low-tax low-spend strategy is good for the overall welfare of citizens, and even for the competitiveness of the business sector. Striking the right balance between low taxes and the adequate provision of public goods important for enterprise, such as infrastructure and education and research, is a central task in sustaining long-run competitiveness.

On aggregate, changes in the Irish tax system have been a factor behind our economic success over the last 15 years. Drawing from the experience of Ireland and other countries, the NCC believes that three principles should be kept in mind as part of the ongoing reform of Ireland's fiscal system into the medium-term.

First, irrespective of political choices regarding the most desirable overall level of government spending and taxation, there is a need to keep direct taxes on profits low and to lower the taxation of personal income. 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 weaken economic growth and competitiveness.[29] High direct taxes on profits and labour undermine incentives for work and investment.

Of course, considerations other than economic efficiency and growth, such as fairness and simplicity, are important in designing any tax system. In an era of globalisation, however, individuals and capital are increasingly free to re-locate to low income tax jurisdictions. Some research suggests that for small countries in particular, a high degree of international capital mobility means that both workers and companies can benefit from low corporate tax rates.[30] For this reason, the Irish strategy of establishing a low 12.5 per cent corporation tax rate has, in the view of the NCC, facilitated fast and sustainable employment and wage growth by attracting investment into Ireland – a view that has recently been endorsed by the Enterprise Strategy Group.[31] In symmetric fashion, the NCC believes that a reversal in this strategy would threaten a fall in wages and employment.

The general reduction in the labour tax burden in Ireland over the last decade has also supported growth and competitiveness by reinforcing wage moderation 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 significant competitive advantage for Ireland.[32] These policies should be reinforced. For this reason, there is a need to reverse the rise in the proportion of the labour force paying income tax at the higher 42 per cent rate in recent years, by increasing the standard 20 per cent tax band ahead of inflation and/or by increasing personal tax allowances.[33]

Second, there is a need to broaden the revenue base that finances public spending. This is necessary to ensure consistency between the need for both low direct tax rates on capital and labour and for improvements in public services and infrastructure, as well as to ensure a more equitable distribution of the tax burden. Ireland offers one of the lowest property tax

28 A minority within the NCC oppose the broad thrust of this section of the report.

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

30 "Sensible Tax Policies in Open Economies", J. R. Hines Jr., Department of Economics, University of Michigan, 2003.

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

32 The tax wedge on labour cost calculates the income tax on gross earnings plus the employee's and employer's social security contributions and then expresses this sum as a percentage of the total labour cost for average earners. Decreases in the tax wedge are usually shared between employees and employers, and reduce the cost to businesses of hiring employees.

33 Thirty three per cent of income earners were paying tax at the higher 42 per cent after the 2004 budget, well above the government's own target of a maximum of 20 per cent.

regimes amongst the 15 countries benchmarked in the ACR 2004.[34] All other things being equal, low taxes on property and other forms of wealth require higher taxes on income and consumption, making Ireland a low-tax country for some but a medium- to high-tax country for many others. In recent years, the government has financed fast growth in public spending partly by lowering, in real terms, the income threshold at which the higher 42 per cent rate of tax applies and by increasing indirect taxes on consumption, particularly through increases in excise duties. While this may have been preferable to increasing direct tax rates on corporate or personal incomes, it has, in the view of the NCC, damaged the competitiveness of Irish industry through its impact on prices, pay claims and work incentives. Instead, the government should, over time, broaden its revenue base. Priority measures that should be considered in this regard are:

- The phasing out of tax incentives for property investment as part of the annual budgetary process, and the introduction of some form of property taxation, starting with second homes not made available in the rental market;
- The continued elimination of corporate tax loopholes and the costing of all corporate tax incentives and exemptions and their elimination where these costs exceed their estimated economic benefits;
- Greater powers for the Revenue Commissioners to combat tax evasion in the 2005 Finance Act, in particular by making it easier to prosecute banks and financial advisers that facilitate tax evasion;
- Greater use of taxes to reduce transport congestion and other forms of environmental pollution;
- Greater application of user charges for public services; and
- A widening of the application of local authority rates to include households.

Clearly, each of these measures would have different implications beyond broadening the Government's revenue base, and thus the overall merits of each individual measure must be carefully considered.

Finally, for any desired level of public service, there is an imperative to maximise 'value for money' in order to minimise the required overall level of taxation. In the view of the NCC, the rapid rise in public spending in recent years has often reflected not an increase in the quality or quantity of public services, but instead rapid growth in public sector wage costs that was not accompanied by higher efficiency and productivity. Of all the countries benchmarked in ACR 2004, a recent study estimated that only Italy performs worse than Ireland in terms of public sector efficiency.[35] These inefficiencies have been passed onto the rest of the economy in the form of increases in taxes and charges, undermining competitiveness and jobs in those sectors of the economy exposed to international competition. Without an improvement in public sector productivity, the rapid growth in public sector wages recently agreed by the social partners will lead to further increases in taxes and administrative charges not accompanied by improvements in public services and infrastructure.

To counter this threat, the Government needs to accelerate the process of public service modernisation, increasing public sector efficiency and improving value for money. The NCC is aware of the Expenditure Review Initiative launched by the Department of Finance in 1997, but notes with concern a critique of the Initiative by the Comptroller and Auditor General regarding the limited coverage, and mixed quality, of the reviews.[36] To expedite this

34 In 2001, revenue from property taxes accounted for just 1.7 per cent of Irish GDP, compared with 4.8 per cent in the UK.

35 "Public Sector Efficiency: An International Comparison", A. Afonso, L. Schuknecht and V. Tanzi, European Central Bank Working Paper Series, July 2003. Results for Ireland have been adjusted to use GNP rather than GDP as measure of national economic output.

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

process, the Government should commission a much more ambitious and independent 'Gershon style' review of government expenditure across the board, focusing in particular on finding new ways of providing government departments, their agencies and other parts of the public sector with incentives to exploit opportunities for efficiency savings, and so release resources for front line public service delivery.[37]

The review should also look into how the present policy on decentralisation of public services could be re-designed so that it can contribute to greater efficiency and effectiveness. It should also be used to bring forward the Government's thinking on how to generate more cost efficiencies in public procurement. This review should be finalised in time to feed into the 2006 spending estimates process.

Recommendations on Maintaining a Competitive Taxation system while Financing Public Investment

Low Direct Taxes on Capital and Labour: Irrespective of future political choices regarding the most desirable overall level of spending, the Minister for Finance should keep direct taxes on profits low and further lower the taxation of personal incomes, in particular by increasing the standard 20 per cent tax band ahead of inflation.

Broadening the Revenue Base: The Minister for Finance should broaden the Government's revenue base. Priority measures that should be considered in this regard are:

- The elimination of tax incentives for property investment, and the introduction of some form of property taxation, starting with second homes not available in the rental market;
- The costing of all corporate tax incentives and exemptions and their elimination where these costs exceed their estimated benefits;
- Greater powers for the Revenue Commissioners to combat tax evasion in the 2005 Finance Act, in particular by making it easier to prosecute banks and financial advisers that facilitate tax evasion;
- Greater use of taxes to reduce transport congestion and other forms of environmental pollution;
- Greater application of user charges for public services; and
- A widening of the application of local authority rates to include households.

Ensuring 'Value for Money' in Public Spending: The Government should commission an independent review of new ways of providing government departments, their agencies and other parts of the public sector with incentives to exploit opportunities for efficiency savings. The review should also look into how decentralisation of public services could be re-designed so that it can contribute to greater public sector efficiency and effectiveness.

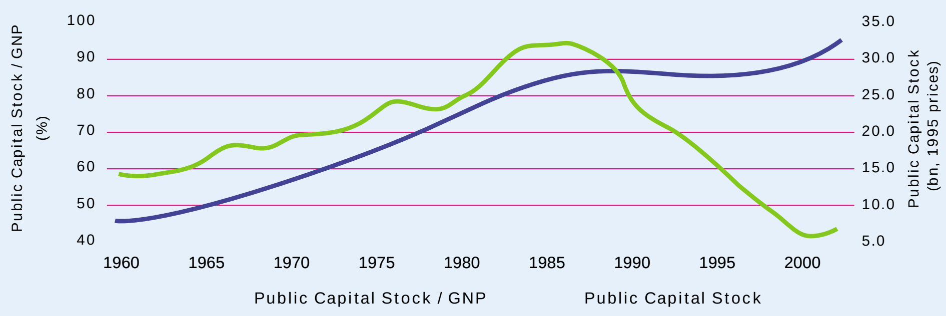
37 "Releasing Resources for the Frontline: Independent Review of Public Sector Efficiency", A Report for the UK Treasury, July 2004. The review was chaired by Sir Peter Gershon, chief executive of the UK Treasury's Office of Government Commerce.

2.0 Introduction

Economic infrastructure refers to the forms of physical infrastructure that are required for the efficient functioning of an economy. Key components of economic infrastructure include transport and energy infrastructure. 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. 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 public provision of economic and technological infrastructure can increase economy-wide productivity levels; thus an inadequate level of infrastructure implies productivity is lower than its potential with correspondingly higher unit costs. Therefore, inadequate infrastructure also decreases the attractiveness of Ireland as an investment location for multinational companies.

Ireland's economic infrastructure has come under increasing strain in recent years. Survey evidence in the ACR 2004 gives Ireland a ranking of 15th out of 16 for the efficiency and effectiveness of infrastructure in transport, energy and ICT, and for overall infrastructure quality.[38]

Figure 2 Real Government Net Capital Stock in Ireland



Source: Kamps 2004

This survey evidence can be backed up with harder quantitative data for the first time, due to the publication of new research estimating the level of public capital stock in different countries using historical data on gross government investment.[39] Data for Ireland are presented in Figure 2 above.[40] The 'Public Capital Stock / GNP' figure gives the ratio of government capital stock to GNP: this measures the level of our infrastructural wealth relative to our national income, which ultimately pays for new infrastructure. The Irish data shows a remarkable change in trend in the mid to late 1980s. The 50 per cent decrease in the ratio over a 15 year period confirms that our stock of infrastructure has not kept pace with our increasing income. Indeed, as the darker line in Figure 1 illustrates, our absolute level of public capital stock did not increase over a ten year period. As a result of the low levels of investment over the last 15 years, Ireland's stock of infrastructure now ranks 11th out of the 12 countries in the ACR 2004 for which comparative data are available.[41]

38 Ireland's low population density means that it may not be realistic for it to have a top ranking on transport infrastructure.

39 "New Estimates of Government Net Capital Stocks for 22 OECD Countries 1960-2001", C. Kamps, IMF Working Paper WP/04/67, April 2004. Kamps assumes that over the period 1960-2001 the depreciation rate for government assets gradually increases from 2.5% to 4%.

40 The Irish 'Public Capital Stock / GNP' series is a Forfás estimate using GNP data, at constant 1995 prices, from the CSO; there are two breaks in the CSO data series. The underlying Public Capital Stock data for Ireland is the variable 'gross physical capital formation of central and local government', taken from Table 25 of "National Income and Expenditure" (CSO); it should be noted that this is a broad definition of capital formation.

41 Forfás estimates using Kamps' real capital stock data and GDP data, at 1995 market prices, from the OECD; GNP is used as the national income scaling variable for Ireland due to Ireland's GDP/GNP disparity. It should be noted that governments can also over-invest in infrastructure: if a country has an adequate level of infrastructure, the returns from further investment may be diminished to a level below the cost of the investment.

It is, of course, important to place these data in an historical context, in particular the necessary 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 delayed. At the same time, these new data highlight our present predicament. Past under-investment in infrastructure is now suppressing productivity and increasing costs across the enterprise sector. In this context, the NCC's priorities for government policy on infrastructure are discussed under three headings:

- Sustaining Investment in Public Infrastructure;
- The Effective Allocation of Public Capital Spending; and
- Improving Value for Money in the Delivery of Infrastructure Projects.

2.1 The Need to Sustain Investment in Public Infrastructure

The evidence on Ireland's infrastructural deficit strongly makes the case for a continued expansion of the public capital stock. 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 CSF/NDP are significantly higher than previously estimated, at approximately 14 per cent per annum.

In this context, the NCC welcomes the commitment from Government to spend five per cent of GNP on capital projects each year into the medium-term. In order to better assess the progress being made in addressing Ireland's infrastructural deficit, the Public Capital Programme should detail the extent to which infrastructural spending is in respect of repair and maintenance and the extent to which spending constitutes investment in new infrastructure. Investment financed by semi-state and private companies will also be required to improve much of Ireland's infrastructure, including in energy, transport and telecommunications. The government's responsibility in this regard is to develop a regulatory environment which attracts higher levels of non-exchequer investment in these areas.

Recommendation on the Need to Sustain Investment in Public Infrastructure

The Public Capital Programme should be supplemented with information on the extent to which spending is in respect of repair and maintenance and the extent to which there is net investment. (Responsibility: Department of Finance).

2.2 The Effective Allocation of Public Capital Spending

With this considerable spending commitment from government, it is important 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. Indeed, these overlap with the priorities identified by the NCC regarding the allocation of infrastructural spending in 2003, which included inter-urban transportation, urban transportation, broadband, regional development, waste management and other environmental infrastructure.[42] Indeed, the increasingly visible signs of improvements in these 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 business competitiveness.

42 NCC/Inter-Agency Submission to the NDP Mid-Term Review, July 2003.

Notwithstanding the positive outcomes from the current NDP, it remains less clear that the process used to make decisions regarding the allocation of public investment in infrastructure is adequate to address the challenges of the future. This has led the NCC to explore the process through which allocation decisions are made, and to make suggestions on how to improve the system further.[43] In particular, the NCC has identified two key weaknesses in the current system:

First, the analysis underpinning the decisions regarding the allocation of finance for public investment is, in the view of the NCC, insufficient. Good economic analysis is necessary to accurately compare the costs and potential benefits from different infrastructure projects, ensuring the projects that offer the greatest social and economic returns are prioritised. 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. Good economic analysis is required 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 areas of infrastructure, e.g. whether to invest in roads or research infrastructure.[44]

With regard to the allocation of funding across different departments and categories of infrastructure, the only studies that attempt to address this issue in a comprehensive way under the current NDP (illustrated in Figure 3) are the ESRI's National Investment Priorities report (1999) and its NDP Mid-Term Review (2003). Noting that the 1999 study was to inform €52 billion of investment, it strikes the NCC that a study costing in the region of €320,000 is not appropriately resourced. This is evidenced by the fact that the ESRI study itself makes reference to significant information gaps that hindered its work, thereby pointing to a need for more research and analysis to guide spending. It also strikes us as inappropriate that what should be a core task for the Department of Finance (the establishment of the analytical basis for substantial public spending) is contracted out on a consultancy basis.

With regard to appraisal at the level of individual capital projects, all such publicly funded projects are already subject to the processes set out in the Department of Finance's Guidelines for the Appraisal and Management of Capital Expenditure Proposals in the Public Sector (1994).[45] The problem is that there is no general requirement to publish the appraisal reports. As a result, it simply is not possible to assess how well these evaluation techniques are applied or how consistently they are applied across departments. This leads onto the second weakness in the current system, a lack of transparency.

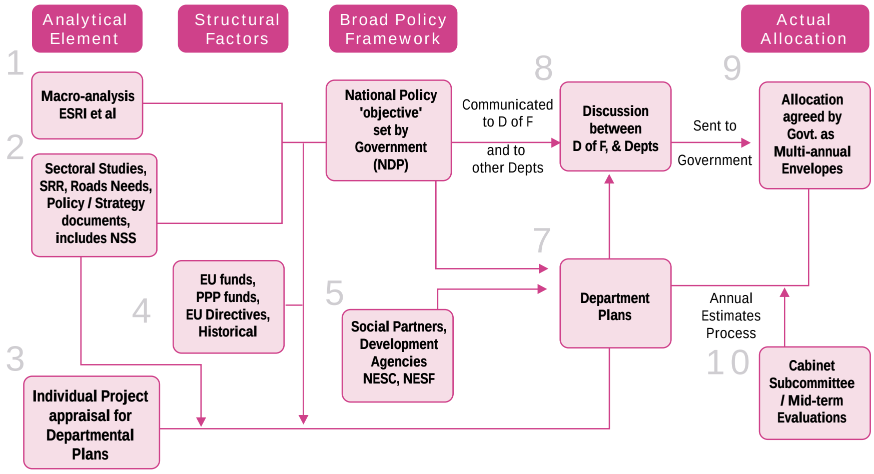
Second, even where good analysis is carried out, it is not always clear how this analysis translates into actual allocations for infrastructure investment. Transparency is a necessary element of an effective system for capital investment, as the existence of good analytical work does not guarantee its use. 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 economic and political objectives to determine allocations. For example, there is no clear explanation in the NDP as to why there is a significantly larger investment in the area of mainline rail relative to that recommended by the ESRI.

43 In order to advance its thinking in this area, the NCC commissioned FGS Consulting to carry out analysis in this area. The results of this analysis are published under "A Study on The Allocation of Public Capital Spending", FGS, August 2004. Further detail is contained in this report available at www.forfas.ie/ncc/.

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 These guidelines are currently being updated and the new guidelines should be available later this year.

Figure 3 The Present System of Allocation of Public Capital Spending



Source: FGS Consulting 2004

Addressing both of these issues is particularly important as investment choices in the future may be more difficult once obvious projects, such as the inter-urban motorways, are completed. With the current NDP coming to a close in 2006, now is a good opportunity to consider changes in the processes behind the allocations for public investment in infrastructure. In this regard, the NCC makes three recommendations:

First, there should be an increase in transparency at the individual capital project level: 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. In this sense, the NCC recognises that the responsibility for good analysis and evaluation of individual infrastructure projects lies within individual Government departments. The Department of Finance should have the responsibility (and skills) to ensure that these appraisals are of a high quality. In evaluating these appraisals it should be acknowledged that a high quality study provides greater certainty as to the true value of undertaking an investment. This principle, sensible in itself, will also increase the incentive for the production of high quality studies and enhance the competition between departments for funds.

Second, consideration should be given to augmenting the resources and expertise that are devoted to producing the research that informs decisions on public capital allocations across departments and categories of infrastructure. Clearly, better and more consistent analysis by all Government departments regarding the merits of individual projects will increase the ability of the Department of Finance and other observers to compare the returns from investment in different areas.[46] There still needs, however, to be more centralised analysis that can draw from international research regarding the returns to different categories of infrastructure and can ensure that strategic economic thinking and vision influence our overall co-ordinated infrastructural spending. This should be the responsibility of the Department of Finance. In this regard, the resources that already exist within the NDP/CSF Evaluation Unit could be drawn upon.

46 This is significant in the absence of analytical techniques that adequately address the trans-departmental issue, which was confirmed in discussions with experts in Britain, New Zealand and the Netherlands.

Finally, in order to facilitate more open discussion and debate on Ireland's priorities for infrastructural investment going forward, the NCC recommends that the Department of Finance should publish its thinking regarding the need for and returns from different categories of infrastructure, in the context of stated political, economic and social objectives. This should take the form of a biannual strategic publication outlining and explaining future capital spending priorities. This publication should be comparable with the annual Public Capital Programme.[47]

Recommendations on the Allocation of Public Capital Spending

- The Minister for Finance should publish all appraisals of individual capital projects. This should occur before the commencement of the projects concerned.
- The resources that are devoted to producing the research and analysis that informs decisions on public capital allocations across sectors should be substantially augmented. (Responsibility: The Department of Finance).
- The Minister for Finance should publish the cross-sectoral analysis which informs future investment decisions, in a form comparable to the Public Capital Programme.

2.3 Planning and Project Management Issues

Once the appropriate projects have been selected, the next imperative is for the management of these projects to ensure value for money. The NCC commented on this issue in detail in last year's Challenge. We welcome the progress that has been made including the 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, however, still believes that more can be done. In particular, there is a need for greater certainty, speed and consistency in the planning process as delays in this process, and uncertainty over land costs acquired under Compulsory Purchase Order, are impeding the timely and efficient rollout of infrastructure. Thus, we would like to re-emphasise the need for a specialised 'one-stop-shop' for planning applications for all national infrastructure projects. We also re-iterate 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 greater number of stakeholders.

Recommendations on Planning and Project Management

- The Strategic National Infrastructure Bill, providing for a National Infrastructure Board, should be a Government legislative priority. (Responsibility: Department of the Environment, Heritage and Local Government).
- The Centre for Management and Organisation Development (CMOD) study on project management skills should be fast-tracked. (Responsibility: Department of Finance).

47 This is an important issue for transparency as there were major problems of comparability between the NDP and the PCP, in terms of the treatment of semi-state companies, other classification issues and the denomination of prices.

3

Education and Skills

3.0 Introduction

Human capital has become increasingly important to economic performance. Human capital consists of the education and skills of a country's supply of labour, a key input into economic development. An increase in the level of education and skills increases the quality of this labour input, boosting productivity and economic growth.

The empirical research substantiating this economic reasoning is broadly consistent. At the macroeconomic level the quantity and quality of education have statistically significant effects on labour productivity growth.[48] Furthermore, education is also found to yield additional indirect benefits to economic growth through technological development.[49] In addition, there is considerable evidence that the returns to individuals from education and schooling (in terms of later income levels) are also significant. One study has found that returns to UK 15 year-olds for staying in school for an additional year was around 15 per cent.[50]

While this link has obviously been evident in Ireland, with our educated workforce playing a significant role in our recent economic success, there is still room for improvement. According to the ACR 2004, Ireland ranks close to the middle in both performance and investment in education. Looking first at the levels of investment, the ACR data shows that public and private investment in education in Ireland in 2001 was around 5.3 per cent of GNP (4.5 per cent of GDP), placing us joint 9th out of 15 countries, and well behind the two leading countries on this measure, Korea (8.2 per cent of GDP) and the USA (7.3 per cent of GDP). In terms of average spending per student, Ireland has relatively low levels of investment at all stages in the education system – primary (11th out of 14), secondary (11th out of 14) and tertiary (8th out of 14). Of particular note are the paltry levels of investment in Ireland in pre-primary education and development compared with most other advanced economies (with spending at just 0.1 per cent of GNP (2000 data) in Ireland and 1.0 per cent in Denmark, the leading country on this measure).[51]

We look next at performance, as proxied by participation and attainment. With regard to attainment, Ireland ranks 5th and 8th respectively out of 14 countries with regard to scientific and mathematical literacy among 15 year-olds (2000 data). We perform better on reading ability, ranking 3rd out of 14 countries. OECD data from 2002 indicate that only 77 per cent of Irish 17-18 year-olds currently finish secondary-level education, compared with 100 per cent in Denmark, giving Ireland a ranking of nine out of the 11 ACR countries for which data on this measure is available.[52] Our third level performance is good in terms of participation, but as regards quality there is no quantitative evidence available. Finally, Ireland ranks 5th out of 11 countries on the number of 25-65 year olds participating in life long learning.

Relating these ACR indicators to the economic issues presently pertinent to the country, the Council believes that three issues merit immediate attention:

- Pre-primary Initiatives;
- Life Long Learning; and
- Promotion of the Physical Sciences.

48 "Human Capital and Growth in Cross-Country Regressions", R.J. Barro, Swedish Economic Review, 1999.

49 "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.

50 "The Returns to Education: A Review of Evidence, Issues and Deficiencies in the Literature", C. Harmon and H. Walker, Journal of Economic Surveys, 2002.

51 One caveat with benchmarking this expenditure data across countries is that children in different countries may commence school at different ages, affecting the definition of pre-primary across countries. Examining the cross-country data by focusing on one particular age, however, shows that this caveat is not empirically significant. Only 2.9 per cent of 3 year olds in Ireland are in pre-primary education; this compares unfavourably to Italy and Germany, for example, where the figure is 96 per cent and 55 per cent respectively ("Key Data on Education in Europe – 2002", European Commission).

52 More recent national data from the ESRI/Department of Education School Leavers Survey, 2004, estimate that approximately 18.2 per cent of Irish students that commenced secondary education drop out before completing this level.

3.1 Pre-Primary Initiatives

Pre-primary development is a key determinant of performance at all levels of education: primary, secondary and tertiary. Research led by the Nobel Laureate Professor James Heckman has shown that the decision to remain in school, and consequently the ability to proceed to third level, is strongly influenced by development in the pre-primary years.[53] Much learning occurs in the first six years of life and especially in the first three years.[54] The Heckman research suggests that development during early childhood affects cognitive abilities, motivation and social skills in later life, and is a more important determinant of subsequent performance at primary or secondary level education than the standard of tuition or family income constraints during those periods.

Governments across the world have developed pre-primary policies that stimulate early childhood development. Common characteristics of successful pre-primary programmes include: the promotion of speaking and listening skills, the cultivation of the foundations of numeracy, interaction with other children and adults, and day long time periods. The Heckman research shows that investment at this stage is comparatively more successful at addressing educational disadvantage than later intervention 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."[55] According to some research, early interventions can make returns of up to 700 per cent.[56] One such example is the Highscope Preschool Model in the USA and the UK, where every dollar invested achieved a rate of return to society of around seven dollars.[57]

There is strong evidence, therefore, that targeted pre-primary interventions could help to address educational disadvantage in Ireland, and in particular help to lower the still unacceptably high drop-out rate from secondary level education in Ireland. While the merits of such interventions have already been considered in Ireland from a social policy perspective, their potential long-term competitiveness benefits have not received much attention. As knowledge becomes the basis for competition, education is increasingly important to economic performance. The 18.2 per cent of students currently not completing secondary level education represent an untapped resource for the economy.[58] They represent a decrease in the average productivity of our workforce. Furthermore, our innovative and entrepreneurial ability as a nation is below its potential as the educated proportion of the workforce, from which the majority of ideas and business start-ups flow, is not maximised.[59] It is imperative that we increase the numbers of our citizens that can participate fully in the knowledge economy.

It is of concern, therefore, that Ireland's level of investment in pre-primary interventions and early childhood development is lower than nearly every other country benchmarked in the ACR. The level of government funding in Ireland to address educational disadvantage is clearly sub-optimal. 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. While the Department of Education and Science has acknowledged the need to support and develop the educational achievement of children through high quality targeted early education, only one significant pilot early intervention

53 "Human Capital and Growth in Cross-Country Regressions", R.J. Barro, Swedish Economic Review, 1999.

54 "Towards an early Learning Framework", National Council for Curriculum Assessment, 2004.

55 "Human Capital Policy", P. Carneiro and J. Heckman, National Bureau of Economic Research, 2003. 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.

56 See footnote 55.

57 "When Two are One: The Changing Nature of Early Childhood Care and Education in Ireland", Centre for Early Childhood Development and Education, 2004.

58 On an individual level, the earnings potential of this 18.2 per cent is decreased. This directly reduces average GDP per capita, in an accounting sense, and also has an economic effect whereby consumption in the economy is decreased.

59 The 2003 GEM report, "How Entrepreneurial is Ireland?", finds that entrepreneurial activity is lowest among those with only some secondary schooling.

preschool scheme presently exists in Ireland, the Early Start Pilot Project; the Dublin Docklands' Development Authority (DDDA) is in the preliminary stages of developing a pre-school programme as well.[60] Considering the importance of this issue to the Irish economy and the evidence of the potential impact of these programmes, the NCC encourage the swift development and implementation of a government policy to support early childhood development in disadvantaged areas.

Recommendation on Pre-Primary Initiatives

The Minister for Education and Science should develop a programme for the roll out of pre-primary initiatives targeted towards areas of social and economic disadvantage. This should not be financed out of existing education programmes, but rather from a re-allocation of resources from other wider labour market programmes that are no longer needed in the current economic environment.

3.2 Life Long Learning and Up-skilling

International evidence finds that life long learning contributes positively to the development of human capital. There is a general consensus that the economic and social returns to investment in life long learning are similar in magnitude to the returns from schooling.[61]

The importance of life long learning is underlined by current demographic trends. In Ireland, as throughout Europe, there is a decline in the number of new entrants to the workforce. This implies that the existing population of workers will constitute a high percentage of the future labour force: 80 per cent of all persons working ten years from now are already in the labour force.[62] Life long learning facilitates the development of this existing labour force. In addition to this economic argument, life long learning will aid social mobility and inclusion by offering opportunities to those who have suffered from educational disadvantage in the past. The ACR 2004 ranks Ireland 5th of 11 countries for the percentage of 25-65 year olds participating in life long learning. Ireland should strive to achieve a stronger ranking in this area, in light of its importance.

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 follow-up to these reports has, however, been mixed at best. With the exception of the development of the National Qualifications Framework, it is hard to point to many other concrete initiatives that have had any significant impact on this pressing problem.

Life long learning should be on the Government's list of policy priorities. The solution, in the view of the NCC, lies with the National Adult Learning Council (NALC). The NALC was established by Government in 2002 in response to a recommendation made by the Task Force on Life Long Learning that an overarching structure should be put in place to cost and implement the recommendations contained in its report. While a chairperson has been appointed, the NALC has not, however, received statutory authority and does not have a Chief Executive Officer or any staff.[63] Thus, the NALC is not fully operational, which is impeding the promotion of the life long learning agenda. This should be corrected so that the

60 "Ready to Learn", White Paper on Early Childhood Education, The Department of Education and Science, 2001. The Educational Disadvantage Committee, established by the Department of Education and Science, also concluded that more investment should be targeted at early years' interventions in disadvantaged areas ("Education Disadvantage Forum: Report of the Inaugural Meeting", Educational Disadvantage Committee, 2002).

61 "European Economy", European Commission, No. 6 / 2003.

62 International Labour Organisation, cited in "Towards a Strategic Plan", B. Asgeirsdottir, Deputy Secretary General, OECD, 2003.

63 National Adult Learning Council, Annual Report, 2002/2003.

NALC can swiftly draw up an implementation programme for the life long learning agenda in consultation with the main stakeholders, including the business community.

Recommendation on Life Long Learning

The Minister for Education and Science should put the National Adult Learning Council on a statutory footing and instruct it to speedily draw up an implementation plan for the recommendations contained in the report of the Task Force on Life Long Learning.

3.3 Promotion of the Physical Sciences

One academic subject area that deserves the particular attention of policymakers is the physical sciences. Scientific literacy (using scores on science tests as a proxy) has a particularly strong positive relationship with economic growth.[64] It is likely that this is due to the particular role of scientific education in aiding technological progress. Moreover, in Ireland's case, science is central to many of our leading industrial sectors including the ICT, pharmaceutical, chemical, medical devices, and food and drink sectors. Indeed, one of our key industrial policy objectives is to increase the amount of R&D and higher value activities in these sectors. Thus, the issue of science education is crucial to Ireland's development as a knowledge-based economy.

It is of concern, therefore, that there has been a fall-off in interest in the sciences throughout the education system. In 2002 only 12 per cent of Leaving Certificate students were enrolled in chemistry and 16 per cent in physics, a marked decline from the situation in 1990 when 16 per cent took chemistry and 20 per cent took physics. This performance at second level threatens Ireland's future ability to supply an adequate amount of science and engineering graduates at third level (see Chapter Five).

In recognition of this threat to our competitiveness, the Government set up a Task Force on the Physical Sciences that reported in 2002. While the Government approved the recommendations of the Task Force in principle, the issue of the funding for implementation was left unresolved.[65] While progress on implementation has been made by the Department of Education and Science and other relevant Government departments, many recommendations from the report remain unactioned.[66] The NCC note that the Task Force viewed their recommendations as inter-dependent parts of an overall strategy to ensure an increase in the take-up among secondary students of the physical sciences. Therefore, the Task Force highlighted the need for full implementation of all the recommendations contained in their report. The Council believe that the Government needs to formally respond to this pressing issue.

Further to the recommendations of the Task Force, the NCC recommends the introduction of one combined science subject for the Leaving Certificate similar to that available for the Junior Certificate. This subject would replace the physics, chemistry, and biology syllabi. The Council believe the implementation of this proposal would assist in attracting a greater number of students to study science at second level. This in turn should increase the number of students applying to study science at third level.

64 "Human Capital and Growth in Cross-Country Regressions", R.J. Barro, Swedish Economic Review, 1999.

65 The cost of implementing the recommendations in the report was estimated at €244 million, of which €66 million was estimated to be a recurring annual cost.

66 Response of the Department of Education and Science to the Report of the Joint Oireachtas Committee on Education and Science, 2003.

Recommendations on Promotion of the Physical Sciences

The Minister for Education and Science should:

- Issue a considered response to the report of the Task Force on the Physical Sciences setting out clearly the Government's policy on science education and awareness, including a progress report on implementation.
- Provide a new science subject for the Leaving Certificate, replacing the stand alone subjects of physics, chemistry and biology without delay.

Entrepreneurship and Enterprise Development

4.0 Introduction

Entrepreneurship is the process of creating new enterprises and is characterised by risk-taking and innovation. Enterprise development is the process by which start-up and existing companies grow into larger companies, many of which go on to trade internationally. Economic theory suggests that high levels of entrepreneurship have a positive impact on growth in productivity and competitiveness. This is confirmed by empirical evidence which shows that countries with higher levels of entrepreneurial activity also enjoy higher rates of growth and lower unemployment.[67] It is also clear that the emergence of larger and stronger companies, many with the ability to compete in international markets, is good for economic growth and living standards.

Ireland's comparative performance with regard to entrepreneurship and enterprise development is mixed. On entrepreneurship, Ireland generally performs positively. Ireland leads Europe in the rate of business start-ups and ranks 4th out of the 16 countries benchmarked on this measure in the ACR 2004.[68] It is likely that this strong performance reflects a number of factors, including the improved incentives for risk-taking as a result of changes to Ireland's tax structure, the development of Ireland's financial markets and the improvement in cultural attitudes towards entrepreneurship.

While the rate of business start-ups is high by European standards, Ireland lags behind the leading entrepreneurial nations, particularly the USA, South Korea, New Zealand and Australia. In the view of the NCC, this reflects the growing regulatory and administrative burden faced by all businesses in Ireland, particularly entrepreneurs, and continued difficulties faced by Irish entrepreneurs in accessing risk finance. There also remain a number of specific difficulties experienced by women entrepreneurs, such as inadequate childcare facilities, lower confidence levels and negative attitudes on the part of some service providers.[69]

Measures of enterprise development for Ireland are less encouraging. Too few indigenous Irish firms have grown into world-beating players in their sectors. Large sections of indigenous Irish enterprise remain beset by low levels of R&D and innovation, low productivity, limited sales and marketing capabilities, and over-concentration in traditional sectors and on the domestic and UK markets.[70] While Ireland continues to win new FDI projects, too many existing foreign-owned firms in Ireland are still positioned at a relatively low point in the value chain.[71] 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. In this sense, there is an inconsistency between our image as a 'high-technology' production base and our underlying 'knowledge base'.

In this context, the NCC has identified three objectives for public policy towards industry:

- Easing the growing regulatory burden on entrepreneurs and SMEs;
- Ensuring an adequate supply of risk capital for entrepreneurship and enterprise; and
- Modernising Irish enterprise policy to help Irish firms move up the value chain.

67 "Promoting Entrepreneurship and Innovative SMEs in a Global Economy", OECD, June 2004.

68 "How Entrepreneurial is Ireland? The Global Entrepreneurship Monitor 2003", P. Fitzsimons and C. O'Gorman, 2004.

69 See footnote 68

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

71 An IMD survey of leading industrialists ranked Ireland 11th out of the 16 countries benchmarked in ACR 2004 regarding "value chain presence" – the extent to which firms perform product design, marketing, sales, logistics and after sales services alongside basic production functions. The same survey ranks Ireland 13th out of 16 for the use of marketing and 7th out of 16 for the importance attached by Irish companies to customer satisfaction.

4.1 Easing the Growing Regulatory Burden on Entrepreneurs and SMEs

One of the strengths of the Irish business environment over the last decade has been the light administrative and regulatory burden faced by entrepreneurs and the SME sector, compared with other (particularly EU) countries. There is a danger, however, that we have become complacent. According to the ACR 2004, Ireland ranks 7th out of 16 countries benchmarked, using an IMD survey of leading industrialists, on the impact of regulation on the creation of firms – down from 1st place in 2003. The deterioration in Ireland's ranking reflects increasing concerns about the impact on entrepreneurship and SME competitiveness of the growing regulatory compliance burden. A number of actions are needed to restore Ireland's competitive advantage in this area.

First, at a general level, the NCC believes that there needs to be a greater recognition by Government of the hidden costs of regulation, and their impact on competitiveness. It has been estimated that excessive regulation cost Irish business about €582 million in 2002 and that a small firm employing just eight people devotes half of one person's time to filling out forms.[72] Much of the administrative burden is unnecessary, consisting of duplicated information requests from different state agencies: 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.[73] Clearly, most regulations are implemented for valid public policy reasons. The costs of such regulations should, therefore, be explicitly stated and compared with the estimated benefits. In many cases, the same objectives can often be achieved by other non-regulatory means with fewer negative implications for business efficiency and costs. Better regulation is increasingly being used across the developed world as a means of developing a competitive edge in the race for investment and jobs. Ireland should not be left behind.

For this reason, the NCC views as crucially important the programme of regulatory reform that is being led by the Department of the Taoiseach. The NCC welcomes the introduction of a pilot project this year where each government department will examine a proposed piece of legislation using Regulatory Impact Assessment (RIA). Ultimately, the NCC would like to see significant resources devoted by all departments to a system of RIA that tests major regulatory proposals, using best practise, with regard to their impact on competitiveness; this should include, where necessary, quantified cost-benefit analysis, as is the practice in the USA and the Netherlands. As also occurs in the USA and the Netherlands, the quality of impact assessments from government departments should be tested in a transparent fashion by an independent body. It is also important for the Government to develop effective indicators of regulatory quality so as to better measure the effects of regulation, including the cumulative administrative and compliance burden on firms. In order to reduce 'red tape', information requests to industry from government agencies should be consolidated through the use of technology under the direction of Reach, the organisation set up by Government to develop a strategy for the integration of public services and to develop and implement the framework for electronic government.[74]

Second, and more specifically, the Government should examine the impact of recent laws relating to corporate governance on entrepreneurs and start-ups. Corporate governance refers to the systems by which companies are directed and controlled. The NCC recognises the importance of developing good standards and practices in the area of corporate governance. High standards of corporate governance increase investor confidence and support the operation of financial markets. Excessive regulation, however, erodes Irish competitiveness by imposing unnecessary costs on industry, particularly SMEs. Corporate governance legislation causing specific concern for the NCC includes:

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

73 "Survey on factors affecting the growth potential of small businesses", Small Firms Association, 2002.

74 Reach is an agency established by the Irish Government to develop a strategy for the integration of public services and to develop and implement the framework for electronic government. In particular, Reach is mandated to procure and build the Public Services Broker, which is an integrated set of processes, systems and procedures designed to provide a standard means of access to public services.

- The Company Law Enforcement Act 2001. This 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. A restriction order on a director impedes the operations of a company by laying out specific share capital requirements with which the company must comply. Even if the Director of Corporate Enforcement eventually waives the obligation on the liquidator to apply for a restriction in respect of a particular director, the time taken for the Corporate Enforcer to reach this decision, and the uncertainty surrounding the future ability of the individual to act as a director without restriction, pose a deterrent to experienced directors taking up positions on the boards of start-up companies.
- The Companies (Auditing and Accounting) Act 2003. This requires directors of companies above a certain size to prepare and sign statements detailing their company's compliance in respect of all company and tax law and all other relevant obligations that may affect the company's financial statements.[75] The collating of a compliance statement is an expensive and time consuming process that greatly adds to the regulatory burden of directors. More significantly, an inaccurate compliance statement can leave a company director open to legal action. By requiring non-executive members of a company board to have an extraordinary knowledge of company operations and compliance, this obligation goes beyond the responsibilities of directors in other countries, including the obligations on directors in the USA even after its recent strengthening of corporate governance legislation.

Both Acts combined create difficulties for start-up and expanding companies in attracting skilled and experienced non-executive directors. In a recent survey, 67 per cent of respondents stated they were slightly or significantly less likely to accept a position as a non-executive director.[76] Development agencies and venture capital companies have also reported increased difficulties in finding suitably qualified non-executive directors to guide the development of start-up clients.[77] These additional responsibilities increase the costs to business of compensating, and possibly insuring, qualified directors and may also result in less qualified and experienced people being appointed to the boards of Irish companies. Moreover, the survey suggests that the legislation is already causing directors' attention to be monopolised by the exercise of good corporate governance, at the expense of issues relating to company profitability and development.

The Company Law Review Group (CLRG) is the statutory body responsible for advising the Minister for Enterprise, Trade and Employment on company law. In advising the Minister the CLRG has, among their statutory functions, the responsibility of seeking to "promote enterprise, facilitate commerce, simplify the operation of the Companies Acts, enhance corporate governance and encourage commercial probity."[78] The NCC believes that the remit of the CLRG should also specifically include the promotion of entrepreneurship and that the promotion of enterprise in general should be given greater weight in the overall process of evaluation of legislation. In addition, the NCC also believes that SMEs should have considerably more representation on the CLRG.

75 Directors of private companies with a balance sheet total of less then €7,618,428 or a total turnover not exceeding €15,236,856 are exempt from having to compile a statement.

76 Amarach Corporate Governance Survey, 2004.

77 Based on discussions between the NCC Secretariat, Enterprise Ireland and various venture capital companies.

78 Company Law Enforcement Act, 2001 (Part 7).

Recommendations on Easing the Regulatory Burden

- In order to reduce ‘red tape’, information requests to industry from government agencies should be consolidated through the use of technology. (Responsibility: The Department of Enterprise, Trade and Employment).
- All Government departments should devote greater resources to a system of Regulatory Impact Assessment that tests major regulatory proposals with regard to their impact on competitiveness, including the application, where necessary of quantified cost-benefit analysis (Responsibility: The Department of the Taoiseach).
- Impact assessments from government departments should be published and their quality tested in an independent fashion by a Government body with the requisite expertise. The Government should develop effective indicators of regulatory quality, including the cumulative administrative and compliance burden on firms (Responsibility: The Department of the Taoiseach).
- The Minister for Enterprise, Trade and Employment should instruct the Company Law Review Group to review the Company Law Enforcement Act 2001 and the Companies (Auditing and Accounting) Act 2003 with regard to their effects on entrepreneurship and start-up companies.
- The Minister for Enterprise, Trade and Employment should increase the representation of small business on the CLRG.

4.2 Ensuring an Adequate Supply of Risk Capital for Enterprise

Finance is the lifeblood of entrepreneurship and enterprise development. Despite improvements over the last decade, Irish entrepreneurs continue to report difficulties in accessing risk capital for start-up companies.[79] The ACR 2004 ranks Ireland 10th out of 12 countries for the percentage of private equity investment directed to start-up/seed technology companies. This poor performance threatens to weaken the ‘pipeline’ of new employers and exporters in the medium-term. More often than not, these difficulties reflect the risky nature of start-up companies and swings in investor confidence over the economic cycle. This is not, in itself, a justification for state intervention. In these circumstances, the way for policy makers to promote competitiveness is not to subsidise entrepreneurs through grants and tax breaks, but rather 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, three challenges stand out in the Irish context.

First, there is a need for more competition, 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 over the last decade, there remain concerns about the degree of concentration, and consequent lack of price competition, in the provision of banking services to SMEs in Ireland. A Competition Authority study into this issue is due to be completed by the end of 2004 and the NCC encourages its swift consideration.

Second, there is a need to create a more even playing field for those competing for investment funds. In particular, the excessive tax-driven allocation of savings in Ireland into property in Ireland and abroad – funds that might otherwise have found their way into productive enterprise and entrepreneurship – should be ended. A recent survey found that property represents the single biggest asset class, on average, in more than half of the respondents’

79 “How Entrepreneurial is Ireland? The Global Entrepreneurship Monitor 2003”, P. Fitzsimons and C. O'Gorman , 2004.

investment portfolios.[80] The need for many 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. Changes in personal, corporate and capital gains tax rates in recent years have already boosted entrepreneurship, and it is now time to go further. In addition to encouraging investment in entrepreneurship and 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 (see Chapter 1).

Third, there is also a need, on occasion, for direct and targeted measures by state agencies, such as in the provision of risk capital for knowledge-intensive start-ups and for entrepreneurship in areas of disadvantage. In these circumstances, wider economic and social benefits of the investments are not fully captured by the private investors who are taking the risk, requiring some state intervention. In this context, the NCC welcome the Government's acceptance of a recommendation from the Competitiveness Challenge 2003, to extend the Business Expansion Scheme (BES) and the Seed Capital Scheme (SCS). Existing financial supports to entrepreneurs, in both the public and private domains, are, however, currently too fragmented.[81] These programmes should be brought under a common heading. Greater public awareness and understanding of the supports available, from both public and private sources, should be achieved.

Recommendations on Risk Capital

- The Minister for Enterprise, Trade and Employment should swiftly consider the Competition Authority study on banking services to SMEs in Ireland.
- The Minister for Finance should increase the funds available for investment in entrepreneurship and enterprise by ensuring that tax breaks on investment in the Irish property market are not extended beyond their existing termination date.
- The Minister for Enterprise, Trade and Employment should consolidate the existing direct risk-capital supports for entrepreneurs and further develop and promote the 'one-stop-shop' for this information, www.basis.ie.

4.3 Modernising Irish Enterprise Policy and the Role of the Development Agencies

A changed domestic and global economic context means that Ireland's enterprise policy formula, in place since the early 1990s, and the role of our development agencies, need to be re-considered. Unemployment is four per cent today, compared with 15 per cent in early 1992; our tax system and financial markets are now better structured to support entrepreneurship and enterprise; and the handicap of our peripheral geographic status has been reduced by improved infrastructure, transport competition and ICT. The challenges to be overcome by Irish enterprise policy in the coming decade are different to the obstacles that had to be overcome in the 1990s. There is now much greater global competition for mobile Foreign Direct Investment (FDI), Ireland's cost base has risen dramatically, and much of Irish industry (both indigenous and foreign-owned) is struggling to move into higher value-added and more sophisticated activities that are less vulnerable to competition from emerging low cost locations.

80 "Asset Allocation and Property", NCB Wealth Management, 2004. The majority of Irish investment in property is still directed towards domestic properties. A comparison of the following statistics, while not definitive, does illustrate this point: €250 million was spent on overseas property in the first quarter of 2004 (Central Statistics Office) and approximately €2.2 billion was spent on investment properties in the Republic of Ireland for the same period (an NCC estimate).

81 A recent InterTrade Ireland report entitled "North / South Cross Border Trade Seminars 2003, Financial Incentives – North and South" outlines the plethora of supports and funding mechanisms.

For this reason, the NCC welcomes the report of the Enterprise Strategy Group (ESG). The report puts forward a new strategy for Irish enterprise over the coming decade and complements recommendations from the NCC in this and previous reports.[82] Particularly welcome is the role that the ESG report has played in highlighting the weaknesses in technological and marketing expertise that is holding back much of Irish industry. This is reinforced in this year's ACR and in a recent survey on management development in Ireland.[83] The implementation of the ESG report must be a key priority for Government. In considering the ESG report and its recommendations the government should keep in mind the following principles.

First, as a general matter, government interventions to support industry should be organised around clear market failures – situations where firms acting individually or in concert fail to deliver optimal outcomes for society as a whole. Furthermore, any new government interventions need evidence that state programmes can succeed where markets have failed. Obvious examples include investment in general education, physical infrastructure and basic research. Much of Ireland's current industrial apparatus and programmes were, however, set up to address market failures that no longer exist, or at least not to the same extent. Job shortages and emigration have been replaced by people shortages and immigration. It can be difficult to terminate programmes even after their usefulness has long passed. The enterprise support budget of the Department of Enterprise, Trade and Employment and its agencies should be redirected from programmes focused on job creation and training for the unemployed to new priorities, including the up-skilling of those already in employment, knowledge creation and diffusion and regional development.

Second, future development agency supports for industry should be increasingly organised around clusters and sectors, rather than individual firms.[84] This was recommended by the NCC in 2003 and re-affirmed by the ESG. Not only will this become necessary under EU competition rules from 2006, but it is also the right course of action for Ireland. Much of the production and commercialisation of new knowledge is now less associated with individual firms and more with high-tech 'clusters' populated by small innovative entrepreneurial firms linked to multinational corporations, universities and research institutes, such as in the Research Triangle in South Carolina. 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 2004, however, leading industrialists believe that the development of clusters in Ireland remains limited compared with other advanced economies, particularly Finland and Singapore.

State support for clusters and industry sectors is justified on a number of grounds. There may be reluctance among firms, and SMEs in particular, to commit time and resources to a process that is not well understood. Also firms are not always best placed to identify the opportunities for network relationships with other companies. More significantly, firms will under-invest in the specialised factors of production or infrastructure associated with clusters out of a realisation that other non-participating firms are able to 'free-ride' on their investments. Many successful clusters include governmental and other semi-public 'institutions', such as government research institutes, standards-setting agencies, joint overseas marketing programmes, vocational training providers and trade associations. The promotion of clusters, including these collaborative 'institutions', should aid the performance of Irish enterprise in areas such as innovation, productivity, and sales and marketing.

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

83 "SME Management Development in Ireland", Expert Group on Future Skills/FAS, forthcoming.

84 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.

Investment in these types of cluster assets should be financed and implemented jointly between government and industry on the basis of industry-driven proposals. In this sense, industry sectors must take greater responsibility for their own development. As Ireland's economy becomes more advanced, it will prove increasingly difficult for the state agencies to micro-manage industrial development, due to the increasing complexity of different industries and the relationship between these industries. In such circumstances, development agencies simply cannot be as in tune with market forces as industry participants and are likely to make erratic decisions about the industries to develop, the technologies to invest in and the competitive advantages that will be appropriate and achievable.

Cluster support will also require greater collaboration by IDA Ireland, Enterprise Ireland and Science Foundation Ireland to support opportunities for cluster development. This will require Forfás to strengthen its coordination responsibilities regarding the activities of these agencies. The ESG, in this regard, has called for the boards of the development agencies to have a number of directors in common, particularly a common chair. The state will also have to concentrate research funding in a number of niche sectors of strategic economic opportunity, and ensure that our universities are more responsive to the needs of industry. Issues relating to Ireland's research agenda are discussed in greater detail in Chapter Five.

Recommendations on Modernising Irish Enterprise Policy

- Enterprise policy going forward should be guided by the principle of addressing market failures, in order to maximise the impact of government intervention. For this reason, the enterprise support budget of the Department of Enterprise, Trade and Employment and its agencies should be redirected from programmes focused on job creation and training for the unemployed to new priorities, including the up-skilling of those already in employment, knowledge creation and diffusion, and regional development. (Responsibility: Minister for Enterprise, Trade and Employment).
- Government and development agency supports for industry should increasingly be organised around industry-specific interventions to support 'clusters' of related enterprise activities. (Responsibility: Minister for Enterprise, Trade and Employment).
- Government supports for cluster creation will also require greater coordination and collaboration between the development agencies (Responsibility: Minister for Enterprise, Trade and Employment).

5 Innovation and Creativity

5.0 Introduction

Innovation is the creative process that transforms new and existing knowledge and technology into commercial value, and reconfigures existing processes in new ways. Innovation and technological change are the main drivers of long run productivity growth and, as outlined in the introduction, productivity growth must increasingly become the driver of economic growth and improved per capita income in Ireland.[85] In this way, technological and non-technological innovations in product and process design are crucial to future Irish competitiveness.

Scientific and engineering research is an essential component of innovation. A good 'national innovation system', however, is dependent on more than just investment in research activities; innovation is essentially a societal process involving interplay over time between many different actors.[86] In this context, there are many key drivers of innovation, including the way in which research and development (R&D) activities are managed and linked to the needs of industry, improvements in human capital and technological infrastructure, and framework and market conditions such as finance and competition. While many of these drivers of innovation have been examined in previous chapters of this report, this chapter focuses on how scientific research, ICT and business process innovation can be used to better promote Irish competitiveness.

Ireland's performance with regard to research and innovation compares poorly with other countries. In terms of investment in knowledge, business investment in R&D measured just 0.98 per cent of GNP in 2002, compared with an OECD average of 1.6 per cent and a Lisbon Strategy target of 2.0 per cent, giving Ireland a rank of 10th out of 15 for this measure in the ACR.[87] Similarly, public investment in R&D measured just 0.43 per cent of GNP in 2002, compared with an OECD average of 0.64 per cent and a Lisbon target of 1.0 per cent, ranking Ireland 15th out of 15 in the ACR.

Given Ireland's limited historical investment in knowledge creation, it is not surprising that Ireland also performs poorly regarding the application of knowledge for commercial innovation. Ireland has a rank of 9th out of 13 countries for both patents granted by the US Patent Office and for patent applications to the European Patent Office.[88] Ireland also ranks poorly for production process sophistication (10th out of 16), suggesting a poor performance also in 'business process innovation'.

On the basis of this analysis, the NCC has identified two inter-related challenges for government policy in this area:

- Developing Ireland's scientific research and innovation system; and
- Encouraging 'business process innovation' through ICT.

5.1 Developing Ireland's Scientific Research and Innovation System

The generation and use of scientific knowledge is an important part of a 'national innovation system'; one additional euro invested in R&D can, in the long term, return a multiple of this amount in terms of value added.[89] In the context of the growing importance of scientific knowledge for competitiveness and growth, the NCC welcomes the Government decision (in line with a recommendation in last year's Challenge report) to establish a Cabinet

85 "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.

86 A system of innovation has been defined as the "all important economic, social, political, organisational, and other factors that influence the development, diffusion and use of innovations," in "Systems of Innovation: Technology, Institutions and Organisation", C. Edquist, 1997.

87 The Lisbon Strategy is a commitment to bring about economic, social and environmental renewal in the EU. In March 2000, the European Council in Lisbon set out a ten-year strategy to make the EU the world's most dynamic and competitive economy.

88 Both of these statistics are calculated per million of population.

89 This multiple seems to be at least five, but could be as high as ten. See "R&D and Innovation", P. Donselaar et. al., in "Fostering Productivity", Gelauff et al., 2004.

subcommittee to guide Irish science and technology policy. It is also heartening to see that this subcommittee will be a supported by an inter-departmental committee of senior civil servants and by the new Chief Science Adviser to the government. We believe that these are important steps in ensuring coordinated thinking and cohesive policy-making in this important area. There are, in the view of the NCC, a number of competitiveness issues that need to be considered by these new institutional actors.

First, there is a need for clarification of the roles of various public sector actors in the research and innovation system in Ireland. Currently, there are many government agencies with roles in the area of science policy, research and innovation, notably Forfás and the industrial development agencies, Science Foundation Ireland, the Higher Education Authority and now the new Chief Scientific Adviser. Any cohesive partnership of these agencies and the higher education sector, government departments, other government agencies and industry needs to be rooted in a shared vision, including a clear outline of respective responsibilities.[90] In the view of the NCC, the constituent elements of the Irish innovation system, their roles and interactions, are not very clearly defined. This is supported by recent reviews of the Irish research and innovation system by overseas experts.[91] The Irish innovation system needs to be more clearly mapped out and the exact roles and responsibilities of the actors in the system need to be explicitly agreed. This should include setting out key interactions and allocations of responsibility, e.g. it should be clear who in the state system is primarily responsible for engaging with the enterprise sector on a regular basis to elicit its research needs.

Second, there should be a sustained commitment to public investment in research and research infrastructure beyond the current NDP 2000-06. The NCC has been a consistent supporter of the Government's decision to dramatically raise investment in research (up to €2.56 billion under the current NDP). As developing a scientific research infrastructure is a long-term project, this level of investment should, at a minimum, be sustained into the medium-term. Government spending on R&D in Ireland remains well below the levels of other advanced economies. Government support for scientific research is justified, as much of the knowledge that is created from scientific research and its associated economic benefits do not accrue solely to the economic actors that make the initial investment; these benefits spill over to others.[92] As the incentive to undertake research depends on these economic benefits, firms will under-invest in research from a national perspective. For a small open economy like Ireland's, while foreign sources of technology are the dominant source of domestic productivity growth, domestic technology investments are necessary to enable the absorption of newly developed knowledge from other countries.[93]

A third and equally important priority is to review the present distribution of public investment in research in order to maximise the return from this investment to the economy and wider society. Achieving the correct balance here is complex. The NCC offers the following observations:

- Both university-based and industry-based research are important for competitiveness and economic development.[94] The NCC believes, however, that much deeper analysis is required to understand the desired correct balance between these types of research. Economic theory suggests that higher levels of public funding are necessary for university based research, relative to industry based research.[95] This is because

90 "Building Ireland's Knowledge Economy", report to the Inter-Departmental Committee on Science, Technology and Innovation, July 2004.

91 "The Programme for Research in Third Level Institutions Impact Assessment – Vol 1", Higher Education Authority, 2004, and "Analysis of the Irish Innovation System", J. Romanainen, Strategy Director of TEKES, commissioned by the Enterprise Strategy Group, 2004.

92 See "An Introduction to Economic Growth", C. I. Jones, 2002.

93 For a review of this literature see "International Technology Diffusion", W. Keller, Journal of Economic Literature, forthcoming.

94 The NCC uses these terms in an indicative fashion, recognising that the boundaries between these types of research are blurred.

95 A good introduction to these issues is contained in "An Introduction to Economic Growth" by C. I. Jones, 2002.

university based research is broader in its technology and in its potential use, so that more of its benefits spill over to other economic actors. Furthermore, excellence in the public research sector stimulates private investment in R&D, as confirmed by the recent Bell Labs announcement.[96] On the other hand, public sector research has the potential to crowd out private investment in R&D. Some empirical economic evidence also suggests that industry-based research has a bigger effect on economic growth than university based research, at least in the short term.[97] It is of concern that there has, to date, been little research into the applicability of these different effects, and the balance between them, in an Irish context. This needs to be corrected.

- The profile of public research funding should take account of the present sectoral structure of the economy, its likely future evolution, and the differing research needs of various sectors. It is likely that the existing distribution of resources for research across business, the higher education sector and other public research organisations is influenced by historical factors that are no longer relevant.
- The economic impact of all research funding should be continually monitored, to the extent possible; in this regard we welcome the reviews of Enterprise Ireland's research programmes, as well as of the Programme for Research in Third Level Institutions (PRTLI) and of Science Foundation Ireland (SFI). While recognising that much of the economic benefit from these programmes will be long term, we need better measures and indicators of how these programmes support economic development and wider social objectives.
- Funding should increasingly be allocated on a competitive basis.

The fourth high level issue is the need to better use publicly funded university-based research efforts to support the technological innovation efforts of the enterprise sector. A key mechanism for knowledge transfer between the public sector and the private sector is the movement of people between the two. Anecdotal evidence available to the NCC suggests that the movement of researchers between university and industry remains limited compared with other advanced countries; greater efforts should be made to understand and address this problem. Another concern is the low level of appreciation of intellectual property (IP) issues by individual researchers.[98] In this regard, the NCC welcomes the recent launch of a voluntary National Code of Practice on IP from publicly funded research by the Irish Council for Science, Technology and Innovation (ICSTI), and calls for adequate resources to be made available to ensure its full implementation and dissemination to individual researchers. Knowledge transfer should also be promoted by greater government support for clusters and networks linking small innovative firms with multinational corporations, universities and research institutes. This is addressed in greater detail in Chapter Four.

Finally, in order to encourage investment in R&D and innovation by individual companies, the future supply of qualified scientists and engineers will need to be increased. Qualified scientists and engineers are perhaps the key input into research activities; an increase in their supply will naturally aid Ireland's research performance. Without increases in the number of scientific researchers in Ireland, the large increase in publicly-funded R&D programmes threatens to crowd out R&D activity in the private sector. Increasing the numbers of scientific researchers operates in a technology neutral fashion: the state does not direct limited resources to particular industries; instead it allows businesses, which have better

96 A €69 million investment programme has been agreed, in June 2004, between Lucent Technologies' Bell Labs, IDA Ireland and Science Foundation Ireland, for a Bell Labs centre and a research centre attached to Trinity College Dublin.

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

98 "The Programme for Research in Third Level Institutions Impact Assessment – Vol 1", Higher Education Authority, 2004.

market knowledge, to decide where the returns to R&D are highest.[99] Attracting more researchers from overseas will also be critical in this regard. The NCC recognises the present role of SFI in increasing the quantity and quality of scientists and engineers, including through the impact of introducing competitive mechanisms to the university system. Other measures should address both science education at second level (see Chapter Three) and concerns about a lack of a defined career path for scientists.

Recommendations on Ireland's Research and Innovation System:

The Cabinet subcommittee, the inter-departmental committee on science, technology and innovation and the Chief Science Adviser should:

- Ensure the clear defining and mapping out of the Irish innovation system;
- Support continued funding for public investment in science and technology after the current NDP;
- Review the present distribution of the public research budgets;
- Formulate proposals to maximise knowledge transfer between the public research system and the enterprise sector; and
- Seek to increase the supply of qualified scientists and engineers.

5.2 Business Process Innovation and ICT

Business processes permeate every corporate activity - buying and selling, delivering products and services, and interacting with customers and partners. Business process innovation enables business objectives to be met in more efficient or effective ways, adding to a company's competitive advantage. Prominent company examples of effective business process innovation include Zara, DHL and Dell.

The economic importance of business process innovation has been highlighted by its key role in the acceleration of productivity in the USA in the second half of the 1990s. This acceleration was almost entirely concentrated in six sectors.[100] Research has shown that, within these six sectors, the majority of the productivity acceleration is explained by fundamental changes in the way that companies deliver products and services.[101] Central to this business process innovation, in four of these six sectors, was the strong role of information and communications technology (ICT). This pattern is confirmed by the productivity literature which finds that approximately three-fifths of the productivity growth pickup is accounted for by the greater use of information technology.[102] Thus international evidence points to a strong link between business process innovation and productivity growth, which is frequently realised by the efficient use of ICT investment.

These conclusions have important lessons for Ireland, particularly as the relative importance of the services sector continues to increase, given that services innovation is often driven by

99 This economic argument changes somewhat in a small open economy like Ireland, where state subsidised scientists and engineers may leave the country. Evidence from the HEA, however, suggests that this may not be a large issue empirically: less than ten per cent of graduate scientists and engineers, and only 15 to 17 per cent of postgraduates in these disciplines, emigrate after graduation ("What do graduates do?", Higher Education Authority, 2001. This report surveys graduates nine months after graduation).

100 These six sectors (retail, wholesale, securities, telecommunications, semiconductors and computer manufacturing) contributed 76 per cent of net productivity growth – or 1.55 percentage points of the 2.04 per cent annual productivity growth experienced by the US economy in 1993-2000.

101 This research is contained in two reports by the McKinsey Global Institute: "US Productivity Growth: 1995-2000", 2001, and "How IT Enables Productivity Growth", 2002.

102 For example see "Lessons from the U.S. Growth Resurgence", D. Jorgenson, M. S. Ho and K. J. Stiroh, Journal of Policy Modeling, July 2003.

business process innovation.[103] Applying this research into an Irish context yields some interesting results. The 2003 European Innovation Scoreboard lists one of Ireland's innovation weaknesses as a low expenditure on ICT.[104] Ireland's score is 25 per cent below the EU average and the fourth lowest in the EU. Thus Ireland has fallen behind on investing in a key input to business process innovation. It seems, however, that what we do spend on ICT, as a country, we spend well: research has found a positive contribution of ICT investment to Ireland's economic growth.[105] The NCC infers from these pieces of evidence that further returns could be realised if we increased our ICT investment to the EU average and above.

The evidence relating to business process innovation in Ireland confirms the above results on ICT. Ireland has performed poorly in adoption of best business practice and consequent business performance, according to research which benchmarks Irish SMEs against their European counterparts.[106] Ireland has a large subset of companies, compared to our European competitors, which are scoring particularly low in terms of both practice and performance. None of the Irish companies, in the sample analysed, achieved a high score in any of the best practice areas.[107] Furthermore, in the ACR 2004, Ireland ranked 10th out of 16 countries surveyed for production process sophistication.

To guide policy in correcting this performance, the international literature has identified competition, management capabilities and ICT policy as key drivers of business process innovation. In all the six sectors mentioned in the US research above "high or increasing competitive intensity was essential to the spread of innovation." Technology diffusion and business process innovation happen as a result of existing firms adopting new technologies and processes in the face of competition, or through the emergence of new, more innovative market participants. Competition provides new and existing firms with an incentive to innovate: the earning of higher profits from finding better ways to serve consumers. A large number of empirical studies confirm that the link between product market competition and productivity growth is positive and robust.[108] Data for Ireland show that more companies change their production technology and working practices, in response to external pressure, in sectors where competition is strong.[109] Thus government policy should aim to increase competition in less competitive sectors, like wholesale and retail, as outlined in Chapter One.

In addition, there needs to be an awareness of the need to change, how to change and an ability to implement change. In a recent survey of European senior business executives, lack of ICT knowledge in senior management and the failure of ICT and business management to work together effectively were cited as the two main barriers to maximising the benefits of ICT.[110] These failings have painful repercussions: one in three of the European companies surveyed say 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 managers of SMEs failing to grasp the opportunities presented by ICT sufficiently clearly.[111] The key recommendation of this research, in the case of the industrial sector, is the need for one organisation or agency within

103 "Medium-Term Review 2003–2010", A. Bergin, J. Cullen, D. Duffy, J. Fitz Gerald, I. Kearney, and D. McCoy, ESRI, July 2003, and "Services Innovation, Performance and Policy: A Review", B. van Ark, L. Broersma and P. den Hertog, June 2003.

104 "The European Innovation Scoreboard", European Commission, 2003.

105 This refers to the contribution of the ICT-using sectors (as proxied by ICT investment) and not the ICT-producing sectors which have played a much larger role in Ireland's recent economic growth. A range of estimates exists on the size of the contribution of ICT investment (see "Is there a new economy in Ireland?", G. Slevin, Central Bank of Ireland, 2002, and "The European Competitiveness Report 2003", European Commission).

106 "Made in Ireland, Benchmarking Ireland's SME's", Enterprise Ireland and UCD, 2001.

107 The lowest scoring practice areas for Irish SMEs are performance measurement, engineering application tools and product planning horizon.

108 "Competition, Innovation and Productivity Growth: A Review of Theory and Evidence", S. Ahn, OECD Economics Department Working Paper No. 317, 2002.

109 "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.

110 "Reaping the Benefits of ICT, Europe's Productivity Challenge", The Economist Intelligence Unit, 2004.

111 "SME Management Development in Ireland", Expert Group on Future Skills Needs / FÁS, forthcoming.

the state to be invested with specific responsibility for promoting management development across the entire SME sector.[112]

A related issue here is the role of the development agencies. State sponsored eBusiness advisor networks comprising a multi-disciplinary advisory approach have been successful in the promotion of ICT adoption in the UK and Germany.[113] SMEs need to be encouraged and possibly assisted to have their ICT needs identified by independent advisors with the necessary expertise. Commenting on specific support programmes, the NCC notes the importance of Enterprise Ireland’s Applied Benchmarking for Competitiveness (ABC) programme. It aids the adoption of best practice among Irish SMEs by identifying areas where improvements can be made in their business processes.

With regard to business process innovation in public sector organisations, the Office of the Revenue Commissioners is a worthy example. Their Organisation Development Unit assists managers to examine structures, processes and practices with a view to identifying areas where improvements can be made. Their Value for Money Unit identifies and recommends ways in which Revenue’s return on the resources that it employs can be maximised. Furthermore, they have continued to advance the use of ICT to deliver and enhance the range of services available to the public electronically. Public sector innovation and efficiency is important for national competitiveness as any public sector inefficiencies are ultimately passed on to the private sector. It seems ironic that the public sector’s acclaimed standard bearer in terms of innovation and efficiency is in the business of collecting revenue, not providing services. The NCC recommends that all public bodies should promote business process innovation with the same vigour as the Revenue Commissioners. The government should also seek to increase ICT usage through the rollout of eGovernment; the NCC remains unhappy with progress on this issue since last year’s Competitiveness Challenge.

Ireland’s ability to maximise the benefits of ICT is also 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 the present and the future workforce. In this regard, the NCC welcomes the joint industry and government initiative to provide broadband to every primary and secondary school in the country.[114] We believe, however, that a range of supporting measures on issues such as PC penetration, teacher training and curriculum reform is also necessary. Ireland performs poorly on PC penetration, ranking joint 8th out of 10 ACR countries on the average number of students per computer. Ireland has an average of thirteen students per computer compared to the OECD average of nine. Overall, Ireland ranks in the bottom three of a group of 14 countries assessed by the OECD for the use of computers in schools.[115] A more integrated and comprehensive approach to this issue is necessary: the NCC notes in this regard the ambitious C2K project in Northern Ireland which covers everything from web communities for teachers to share ideas, to outsourced ICT equipment maintenance.

The government should also investigate measures to promote ICT in the home. A notable example of a policy in this area from another country is Sweden’s PC Tax Reform of 1998, which provides tax relief for company employees to purchase home PCs. This policy has led to a dramatic increase in PC penetration in the home (to 64 per cent of all households), with Sweden now the world leader on this measure.[116] The UK has since mirrored this policy framework with its Home Computing Initiatives.

112 At present, in the case of the industrial sector, three national state agencies operate in the sphere of general management training: Enterprise Ireland, FÁS and Skillnets. Fáilte Ireland will continue to be responsible for the tourism sector.

113 “eBusiness Monitor Report”, Forfás, November 2003.

114 The telecommunications sector and Government have jointly committed €18 million towards the roll-out of broadband to all primary and secondary schools.

115 “Completing the Foundation for Lifelong Learning: An OECD Survey of Upper Secondary Schools”, OECD, 2004.

116 “The Worlds Most Effective Policies for the e-Economy”, Booz Allen Hamilton, 2002.

Recommendations on Business Process Innovation:

- The Minister for Enterprise, Trade and Employment should continue to promote a pro-competition agenda in order to promote business process innovation and increase productivity, as well as to improve the business and work environment through lower costs (see specific recommendations on competition in Chapter One).
- One of the existing national state agencies operating in the sphere of general management training for the industrial sector should be invested with specific responsibility for promoting management development across the entire SME sector. (Responsibility: Minister for Enterprise, Trade and Employment; Minister for Agriculture and Food, for the food sector).
- The development agencies should actively promote and assist the use of ICT, in indigenous SMEs in particular. This should be part of an overall package to promote enterprise development. Enterprise Ireland's Applied Benchmarking for Competitiveness (ABC) programme should be expanded to aid business process innovation.
- The Minister for Education and Science should formulate an integrated long term policy that entrenches ICT-related training at all levels of the educational system.
- The Minister for Education and Science should actively engage with industry to take a strategic perspective on ICT-related education (as has been achieved with broadband) and to contribute to the provision of PCs, software and networks.
- An Taoiseach, through the auspices of the Cabinet Sub-Committee on the Information Society, should allocate the necessary responsibility and resources to ensure the accelerated rollout of eGovernment, initially targeting the completion of a comprehensive system of e-procurement, e-payment and e-recruitment by January 2006.

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
Report on Costs	June 1999
Statement on Social Partnership	September 1999
Proposals on Transport Infrastructure, the Planning Process and Public Transport	March 2000
The Competitiveness Challenge	May 2000
Annual Competitiveness Report, 2000	May 2000
Statement on Telecommunications, e-Business and the Information Society	July 2000
Statement on Regulatory Reform	July 2000
Statement on Labour Supply and Skills	September 2000
The Competitiveness Challenge, 2001	December 2001
Annual Competitiveness Report, 2001	December 2001
The Competitiveness Challenge, 2002	November 2002
Annual Competitiveness Report, 2002	November 2002
Inflation Statement	May 2003
The Competitiveness Challenge, 2003	November 2003
Annual Competitiveness Report, 2003	November 2003
Statement on Innovation	February 2004
Statement on Prices and Costs	September 2004