

The image features a solid blue background with a series of horizontal, wavy bands of varying shades of blue, creating a sense of depth and movement. Three vertical, semi-transparent blue cylinders are positioned in the foreground, overlapping the wavy bands. The word "Competitiveness" is written in a clean, white, sans-serif font, centered horizontally and partially overlaid by the leftmost cylinder.

Competitiveness

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# Article 2: Sustainable Development and its Economic Relevance

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The NI Sustainable Development Strategy, First Steps towards Sustainability, and an associated Implementation Plan, A Positive Step, were published in 2006. The Strategy and Implementation Plan seek to embed the principles of sustainable development within Government and actions are being taken on a cross departmental basis to deliver 18 strategic objectives and over 60 key targets to ensure progress on sustainability. The purpose of this article is to set out what sustainable development is about, why it is important, what it means in practice and to highlight the challenges and synergies that exist between Sustainable Development and economic growth.

## UNDERSTANDING SUSTAINABLE DEVELOPMENT

Sustainable Development is a concept, which because of its wide ranging and cross cutting nature, is hard to define. The most commonly cited definition of Sustainable Development is the Brundtland definition:

“development which meets the needs of the present without compromising the ability of future generations to meet their own needs.”

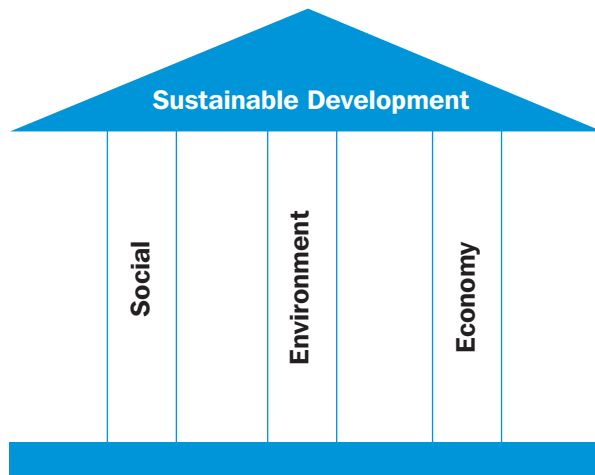
The goal of Sustainable Development, as summarised in *Securing the Future - Delivering UK Sustainable Development Strategy*, is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations. Essentially, Sustainable Development is concerned with safeguarding and using existing resources in a sustainable way to enhance the long-term management of and investment in human, social and environmental capital. Sustainable Development thus requires a balance to be struck between social, environmental and economic needs, see Figure 1.

Balancing the economic, social and environmental needs of society in decision making is fundamental to Sustainable Development. For example, pursuing economic development and social progress without taking account of the limits of the planet's environment, including its resources and biodiversity, is not sustainable in the long term. Similarly, when taking action to protect the environment, issues relating to economic and social wellbeing must be considered and thought given on how to minimise any negative consequences which may arise.

A recent study by Northern Limits estimated that if everyone in the world lived in the same manner as NI, it would take the resources of three planets to support life. NI has an ecological footprint of 5.6 global hectares per person when a pro rata share of the earth's productive capacity would be 1.8 global hectares per person. In NI, we appear to be over-exploiting the earth's resources and this does not look sustainable in the long term. The consequences of unsustainable development include pollution, climate change, biodiversity loss and social problems such as low income and living standards, inequalities in health, wealth and education.

NI's relatively high ecological footprint looks largely due to an over-reliance on fossil fuels for energy, the private car for transport and poor waste management. Almost 95% of electricity used in NI in 2005-06 was generated using fossil fuels (source: DETI). This over-reliance on fossil fuels for energy is not only contributing to the depletion of finite stocks of fossil fuels but also to climate change through emission of greenhouse gases - three quarters of greenhouse gas emissions in NI are accounted for by the burning of coal, oil and gas. According to the NI Travel Survey

**Figure 1**



2002-04, private motor vehicles were used for 73% of journeys made in NI between 2002 and 2004. In terms of waste management, the vast majority of waste collected by local councils in NI goes to landfill sites; in 2004-05, 82% of the municipal waste went to landfill sites (source Environment and Heritage Service (EHS)) while only 18% was recycled.

#### **NI SD STRATEGY AND IMPLEMENTATION PLAN**

The purpose of the Strategy and Implementation Plan is to make a start in addressing longer term sustainability in NI and for Government to show leadership in areas where it can make a difference.

The Strategy and subsequent Implementation Plan represent the first steps towards tackling aspects of the way of life in NI that do not appear sustainable in the longer term and moving towards one planet living.

The Strategy identified six priority areas for action to help NI become a sustainable society:

- Sustainable Consumption and Production
- Natural Resource Protection and Environmental Enhancement
- Climate Change and Energy
- Sustainable Communities
- Learning and Communication
- Governance and Sustainable Development

Government is committed to ensuring that the principles of sustainability underpin its approach to all its business. The first Implementation Plan sets out detailed actions which will be taken by March 2008 to ensure progress in the six priority areas and spotlights three themes to highlight the types of activities and approaches Government is taking in the areas of Sustainable Communities, Energy and Procurement. Although these three areas were selected, there were a wide range of areas which could also have been chosen.

## **SPOTLIGHT THEMES**

### **Sustainable Communities**

The theme of Sustainable Communities is about creating communities in which economic progress is balanced by social and environmental justice. Through this spotlight theme, Government aims to create sustainable communities that embody the principles of Sustainable Development at the local level. This will involve working to give communities more power and say in the decisions that affect them, and working in partnership at the local level to create, greener, safer, thriving and well-connected communities where people want to live and work.

Whilst the NI economy has grown significantly in recent years, experiencing one of the strongest job creation records of all UK regions, evidence suggests that not all areas and communities have benefited equally from this improved performance. Government, working with key partners is determined to address this challenge and ensure that all communities contribute to and benefit from increased prosperity.

### **Energy**

Government recognises the importance of having secure, low carbon and low cost sources of energy. The importance of improving the efficiency of energy use and reducing energy consumption is also acknowledged and Government aims to achieve a coherent approach to the delivery of energy efficiency across all sectors and establish an Energy Efficiency Framework Strategy by 2007. Furthermore, Government will pursue, where economically feasible, renewable energy and energy efficiency opportunities that will lead to reductions in NI's greenhouse gas emissions and in the process will contribute to tackling the global issue of climate change.

### **Procurement**

The annual NI's procurement budget is around £1.8 billion and thus provides Government with the opportunity to lead change in other sectors, influence markets and make a very significant contribution to sustainable development. Government will ensure that SD principles guide capital investment decisions on all major publicly funded building and infrastructure projects, produce a sustainable procurement action plan for NI and ensure that all public sector procurement is channelled through recognised Centres of Procurement Expertise.

However, making progress on Sustainable Development is not simply about resources. Many of the targets require action by everyone in NI and individuals can and do make a difference. There are cultural issues which need to be addressed in terms of the behaviour which society views as acceptable and Government seeks to lead by example in this area through the choices it makes and the way in which it acts.

### **ECONOMIC RELEVANCE**

The Strategy contains a number of economic orientated objectives, such as:

- Raise Productivity and Wealth
- Develop Skills
- Invest in Infrastructure
- Promote Regeneration
- Address Deprivation and Disadvantage

However, there are other objectives which are quite challenging in the context of promoting economic growth and productivity improvements, these include:

- Reduce Greenhouse Gas Emissions

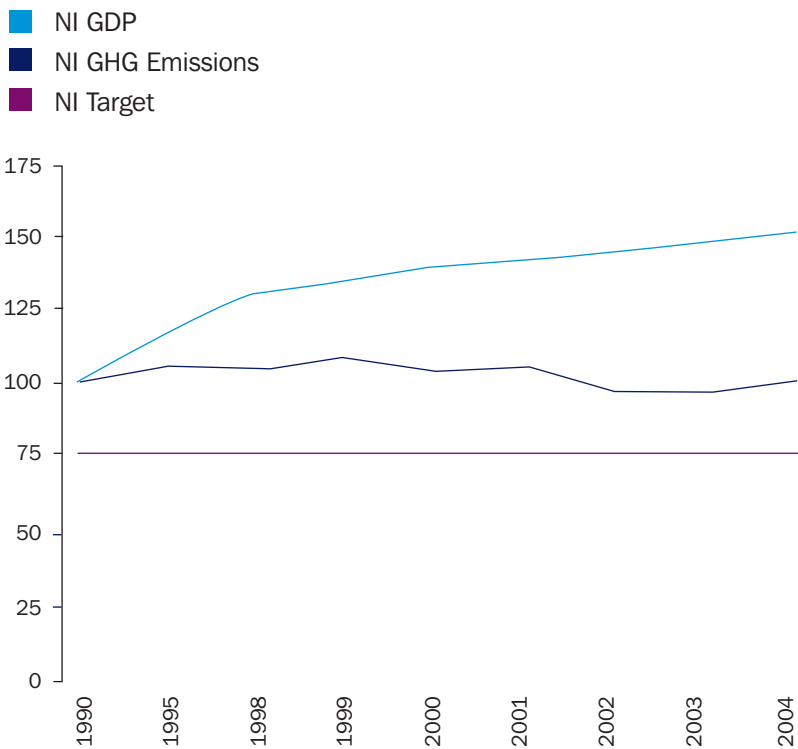
- Improve Resource Efficiency
- Address Sustainable Consumption
- Improve NI's ecological footprint
- Aims for a step change in renewable energy

Reducing the unsustainable impacts of consumption and improving resource efficiency, for example, requires a reduction of consumption and waste and more reuse and recycling. Consumption is a key driver of growth and economic wellbeing in the economy and reducing consumption could have adverse economic consequences. However, Sustainable Consumption and Production is about achieving more with less. As a society we spend huge amounts on items we tend to throw away then pay again to have them collected,

and increasingly properly disposed of. Inefficient use of resources may be interpreted as a drag on the economy and business and waste can have enormous social impacts. Progress on these objectives should not only have a positive impact on the environment but, if properly managed, should also lead to wider economic benefits such as improved business competitiveness and increased economic growth. Improving resource efficiency through reducing, recycling or re-using goods and materials, for example, should reduce material input and disposal costs which in turn should increase value added and improve business competitiveness. Furthermore, developing a larger recycling industry in NI could create income, employment and profit for the local economy.

#### Greenhouse Gas Emissions & GDP 1990 - 2004

**Figure 2**



Source: Regional Trends (ONS) and Greenhouse Gas Inventories for England, Scotland, Wales and NI : 1990 -2004 (NAEI)

Reducing emissions poses complex challenges for business competitiveness and for households and individuals. The aim should be to move the economy from a path where there is a trade-off between economic growth and environmental degradation to one where there is decoupling and in particular growth is obtained at the same time as emissions fall. Economic growth has historically gone hand in hand with increasing emissions. However, in the UK and NI some inroads have been made into this previously strong relationship.

While emissions have been difficult to reduce, since 1990 above average economic growth in NI has not been associated with increasing emissions. This implies that Sustainable Development need not be viewed as an obstacle to economic growth. Indeed, the Stern Review on the Economics of Climate Change, notes although the transition to a low carbon economy brings challenges for competitiveness, it will also bring opportunities for

growth. For the economy as a whole there should be benefits from innovation which will offset some of the costs and there will also be opportunities across a wide range of industries and services.

## **CONCLUSION**

The Sustainable Development Strategy and Implementation Plan represent NI's first steps in tackling the aspects of life in NI that are unsustainable and thus securing a better future for the present generation while protecting future generations to come. Government is committed to leading by example on this important area and will seek to conduct its business in a way that supports and underpins the principles of Sustainable Development. The Strategy poses some complex challenges and opportunities for the economy but ultimately aims to secure a sustainable, globally competitive economy which will drive forward growth and prosperity and offer a better quality of life for all.

# Article 3: The Competitiveness Index: Measuring and Benchmarking Northern Ireland's Performance

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## INTRODUCTION

The concept of competitiveness has been increasingly used over recent years in the discussion of economic growth at the global, national and regional levels. There is no single definition of the term competitiveness but a common understanding is that it refers to success in markets leading to high and rising standards of living. The measurement of competitiveness is a useful process in that it allows countries, or regions, to identify strengths or weaknesses in their economy thus enabling policy action to be taken in specific areas, whilst the benchmarking of competitiveness also enables the identification of any productivity gaps against other comparator nations or regions. Despite its use however, the measurement and benchmarking of competitiveness is not conducted widely, particularly at the regional level, due in part to lack of comparable data. As a result of this information gap, NI's Office of the First Minister and Deputy First Minister (OFMDFM) commissioned the Economic Research Institute of Northern Ireland (ERINI) to undertake a programme of work which would ultimately result in the production of a report which measures and benchmarks the competitiveness of NI against a range of comparable economies.

## MEASURING COMPETITIVENESS

There is no one standard definition of competitiveness; a general understanding of the term in the microeconomic sense refers to the ability of a firm to operate efficiently and productively in relation to other firms; in the macroeconomic sense the term generally describes the overall economic performance of a nation, particularly its level of productivity, its ability to export its goods and services, and its maintenance of a high standard of living for its citizens. Generally,

when discussing competitiveness in a regional context, it is this latter definition that is focused on, and in particular the factors that influence it.

Based on this definition a common approach to measuring competitiveness is to devise a framework which separates out the key inputs and outputs of competitive performance in the economy, the former including those factors that drive productivity and the latter illustrating the overall performance of the economy. These inputs and outputs are subsequently measured through a range of appropriate indicators, derived from available data sources, thus providing a more detailed indication of particular aspects of the economy which could not be obtained by simply reviewing the macroeconomic outcomes alone. The main drawback of this approach however, particularly for regional comparisons, is the general lack of data on inputs. Therefore when measuring competitiveness a balance has to be struck between what one wants to measure and what is possible given the data constraints.

In measuring the competitiveness of NI a typical framework was used; six main inputs plus costs<sup>1</sup> were selected to represent the main factors that drive productivity, based on modern theories of economic growth and standard practise. The outputs chosen were those regarded as factors which represent macroeconomic performance. A set of indicator variables which would represent these inputs, costs and outputs were then identified, and were based on both appropriateness and data availability. Table 1 displays the inputs, costs and outputs and their respective indicator variables.

In selecting the economies against which to benchmark NI's position it was decided to select

## Competitiveness Indicators

**Table 1**

<b>INPUTS</b>	<b>INDICATOR VARIABLES</b>
1. Innovation	Business Enterprise R&D Expenditure as a % of GDP Higher Education R&D as a % of GDP Government R&D Expenditure as a % of GDP
2. Investment	Business Investment (Gross Fixed Capital Formation) per employee
3. Skills/Education	% of the working age population with no/low level qualifications % of the working age population with medium level qualifications % of the working age population with high level qualifications
4. Enterprise	Firm formation rates per head of population
5. Business Environment	Exports as a % of GDP Working age employment rate
6. Economic Infrastructure	Multimodal accessibility (accessibility by air, rail, road)
<b>COSTS</b>	<b>INDICATOR VARIABLES</b>
7. Business Costs	Average annual earnings Electricity Prices Gas Prices Property Costs (Gross Rents)
<b>OUTPUTS</b>	<b>INDICATOR VARIABLES</b>
8. Macroeconomic Outcomes	GDP per employee Working age economic activity rate Nominal compensation of employees

Source: ERINI

other regions, as opposed to national economies, as it is common practise to select areas that are relatively comparable in terms of the nature of political and economic systems, the level of development, population size and geographic proximity (Ginsberg et al., 1986). As NI is part of the UK economy a starting point was the selection of other UK regions, as they operate within the same political and economic systems. The North East and the peripheral regions of Wales and Scotland were selected as comparator regions due to their similar industrial structures and the fact that they are also in direct competition for the attraction of inward investment; whilst the South

East and Eastern UK regions were also selected, as leading regions (based on the European Commission's European Innovation Scoreboard), to provide an indication of how NI ranks in comparison to the better performers. In terms of other comparable regions it was more appropriate to restrict the choice to other EU regions only, rather than a selection of international regions, as they represent NI's main trading partners (outside the UK) and are also contained within the single market. As with the selection made for the UK regions, a number of regions with similar industrial structure to NI were selected, namely the Rol, the Nord-Pas-de-Calais region of France and the

## Competitiveness Sub-Index Rankings

**Table 2**

	INPUTS						COSTS	OUTCOMES
	INNOVATION	INVESTMENT	SKILLS/ EDUCATION	ENTERPRISE	BUSINESS ENVIRONMENT	ECONOMIC INFRASTRUCTURE	BUSINESS COSTS	MACRO OUTCOMES
	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank
Baden - Wuerttemberg	2	3	8	1	2	2	9	4
Eastern	1	7	6	6	4	7	10	5
Emilia - Romagna	7	2	11	4	7	3	1	1
Nord-Pas - de-Calais	11	9	9	10	3	4	2	8
Nordrhein - Westfalen	4	4	10	2	6	1	8	6
North East	8	10	7	11	9	6	5	10
<b>NI</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>9</b>	<b>11</b>	<b>11</b>	<b>3</b>	<b>11</b>
Rol	10	1	4	3	1	5	6	2
Scotland	5	8	1	7	10	10	7	7
South East	3	5	2	5	5	7	11	3
Wales	9	11	3	8	8	9	4	9
EU15	-	-	-	-	-	-	-	-

**Source:** ERINI, derived from Eurostat/National Statistics

**Note:** The cost sub-index is ranked inversely i.e. 1= lowest costs and hence most competitive

Nordrhein-Westfalen region of Germany; whilst Baden-Wuerttemberg and Emilia-Romagna were selected as best-practise regions.

The data was sourced largely from Eurostat, as they provide data on an EU-wide comparable basis; where this was unavailable data was sourced from national official statistics. The drawback with this approach however is that the available data was not always up to date and was not always available for the same year for each region. As a result the

reference year for each indicator variable ranges from between 1999 to 2003; this should be borne in mind when interpreting the results.

### COMPETITIVE PERFORMANCE

Before compiling one overall index to represent competitiveness, a sub-index was constructed for each of the above inputs, costs and outputs, in which the respective indicator variables were weighted in such a way as to represent their relative importance to the overall measure, so for example

of the three R&D indicator variables Business R&D spend was weighted heaviest, followed by HE R&D spend and then Government R&D spend. These were then added accordingly to provide the Innovation sub-index. The benefit of constructing sub-indices for each measure was to provide more detailed analysis of how NI performs against other regions in the same measure, and therefore identify particular areas of strength or weakness that can be addressed through policy. Table 2 collates each sub-index for both the inputs and outputs of competitiveness and reports the respective ranking of each region based on performance<sup>2</sup>.

### **Innovation**

The Innovation Index is weighted in favour of Business R&D Expenditure to reflect its relative importance. In the individual indicators NI performed poorly in terms of expenditure on both Higher Education and Government R&D (ranked 9th out of 11 on both), however its stronger performance in Business R&D Expenditure, combined with the relative stronger weighting of this, results in a final ranking of 6th for NI on the Innovation Index. NI's overall performance in innovation places it midway amongst the regions although its index value (56.0) is well below the EU15 average (100.0).

### **Investment**

Gross Fixed Capital Formation (GFCF) is the only indicator chosen to represent the Investment input; therefore the overall Investment Index simply replicates the GFCF figures. The RoI performs best in terms of investment, followed by Emilia-Romagna and Baden-Wurtemberg. NI is ranked 6th out of the 11 regions, outperforming many of the regions considered closest in terms of underlying economic structure, such as the North East, Wales and Nord-Pas-de-Calais regions.

### **Skills/Education**

The Skills/Education Index was constructed on the basis that in terms of contribution to the economy, those with the highest qualifications are most important, followed by medium and finally low (the literature on the returns to education suggests that in addition to private returns, there are numerous more measurable public benefits of increasing individuals' years in education) and was therefore weighted accordingly. Due to the relatively high proportion of the population with high-level qualifications, and its subsequent strong weighting in the overall index, NI performs well in terms of skills/education. NI is ranked 5th overall, just behind the RoI, with an index score (107.7) well above the EU average (100.0).

### **Enterprise**

New business formation rates were the only indicator available under the Enterprise heading; therefore the figures are replicated as the Enterprise Index. NI ranks amongst the bottom three in terms of enterprise, with just the Nord-Pas-de-Calais region and the North East trailing. NI is well below the EU average (100.0), with an index score of just 48.7.

### **Business Environment<sup>3</sup>**

The Business Environment Index is a weighted aggregation of the individual export and employment rate indices. NI's performance in the Business Environment Index is poorest of the eleven regions. NI is ranked 11th, with an index score of just 76.3, in comparison, the best performing region, the RoI, has a score more than double that (180.6).

### **Economic Infrastructure**

The multimodal accessibility indicator was the only one available under the economic infrastructure

input; as a result the overall Economic Infrastructure Index simply replicates the figures. NI is bottom of the table, ranked 11th in terms of accessibility, behind the peripheral regions of Wales and Scotland. The poor performance of these peripheral regions in terms of transport access reflects in part differences in the population density and the degree of urbanisation between them and the more central EU regions of Germany and France, which dominate the top of the table.

### **Business Costs**

The Business Costs Index is weighted in favour of the labour costs measure to take account of the fact that labour costs were found to contribute the largest share, after purchases, to the costs that firms face (ERINI, 2005). Property costs were also found to account for a slightly higher share of turnover than energy costs and so have been weighted accordingly. Due largely to its relatively low labour costs NI ranks 3rd in the overall Business Costs Index (i.e. it has the 3rd lowest costs) despite having amongst the highest energy costs of the selected regions. The lower labour costs give NI a competitive advantage in terms of the regions chosen for comparison, however it must be remembered that NI's labour costs exceed salaries in Eastern Europe and the developing areas of Asia, which are now in direct competition for manufacturing jobs.

### **Macroeconomic Outcomes**

The Macroeconomic Outcome Index represents a weighted aggregate of the individual indicator variables, namely GDP per employee, economic activity rate and compensation per employee. The overall index is weighted in favour of the productivity measure to take account of the fact that productivity growth is central to long-term economic performance and rising living standards.

Due largely to its poor productivity performance, relative to the EU average, NI ranks bottom of the overall Macroeconomic Outcome Index. In fact, the bottom three regions are all within the UK, with Wales and the North East ranked 9th and 10th respectively.

### **CONSTRUCTION OF INDEX OF COMPETITIVENESS**

In order to translate the indices into one composite index a weighting system has to be applied. The particular weights, or biases, assigned to the sub-indices obviously influence the final score and ranking of each region, therefore rather than simply choosing one set of weights, a range of weighting scenarios was applied to the indices, following the lead of Huggins (2003)<sup>4</sup>. Table 3 displays the resulting scenarios, to include an equal weighting system, and various biased approaches, with the biased component in each scenario weighted most heavily.

The various scenarios result in slightly different rankings for each region; however both the top and bottom three positions are dominated by the same regions. Baden-Wurtemberg, the Rol and Nordrhein-Westfalen occur most often in the top positions whilst the North East, NI and Wales account for the bottom three in the majority of cases. The exception to this is the Cost-led scenario in which a reverse pattern is generally found, however this is due largely to the fact that the poorer performing regions have lower costs and hence are more cost competitive.

NI performs best under Scenario F (Cost-led), where it is ranked 3rd and worst in Scenario C (Output-led) where it ranks bottom out of the eleven regions. With the exception of the Cost-led scenario NI's index score is consistently below the

Composite Indices Achieved Under Different Weighting Scenarios (costs included)

**Table 3**

	A: EQUAL-WEIGHTED		B: INPUT-LED		C: OUTPUT-LED		D: INPUT-LED, KNOWLEDGE-BIASED		E: INPUT-LED, ENTERPRISE-BIASED		F: COST-LED		STD DEVIATION
	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	
Baden - Wurttemberg	130.4	1	135.1	1	103.6	3	137.9	1	138.0	1	93.8	7	14.5
Eastern	104.8	5	107.1	4	97.6	6	120.0	2	97.9	6	80.4	10	9.1
Emilia - Romagna	106.5	4	104.9	5	113.4	1	94.2	6	112.0	4	121.7	1	7.6
Nord-Pas - de-Calais	87.0	8	84.3	8	94.6	7	81.0	9	78.5	8	116.2	2	6.2
Nordrhein - Westfalen	119.1	2	122.7	2	97.7	5	113.2	4	128.7	2	92.4	8	11.8
North East	81.3	11	79.4	11	89.5	10	79.3	11	74.2	11	97.5	5	5.6
<b>NI</b>	<b>82.0</b>	<b>9</b>	<b>79.6</b>	<b>9</b>	<b>89.3</b>	<b>11</b>	<b>81.2</b>	<b>8</b>	<b>77.1</b>	<b>9</b>	<b>106.0</b>	<b>3</b>	<b>4.6</b>
Rol	118.0	3	120.0	3	111.8	2	106.5	5	127.3	3	97.1	6	7.9
Scotland	87.3	7	86.6	7	92.8	8	90.7	7	81.1	7	91.1	9	4.5
South East	102.9	6	104.9	5	101.4	4	113.9	3	99.1	5	76.2	11	5.7
Wales	82.0	9	79.6	9	92.1	9	80.3	10	75.3	10	105.0	4	6.2
EU15	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	0.0
Std Deviation	16.6		18.9		7.9		18.8		22.9		13.1		

Source: ERINI

EU average. The strong performance on the Cost-led scenario must however be set in context; a) it is driven largely by relatively low labour costs, and b) it reflects NI's position only in relation to the selected regions. Any policy which is seeking to move NI to a more competitive position cannot rely on low labour costs in the long term, particularly when faced with competition from the emerging low cost eastern European and Asian economies. The low cost scenario should therefore be viewed as a guide for comparison purposes only rather than an indication of NI as a highly competitive region.

In order to provide further analysis and draw some conclusions as to where NI's competitive position lies relative to others, it was decided to focus on one index, Scenario D, to highlight the region's performance. The knowledge-biased nature of this scenario was favoured due to the fact that current literature, particularly that on New Growth Theory, suggests that knowledge in the form of skills and innovation/technology are characterised by increasing returns, and hence key to producing improvements in productivity and long-run growth, and raising the standard of living in an economy (Romer, 1986).

## Index of Regional Competitiveness, Input-led, Knowledge-Biased Scenario

**Table 4**

	WITHOUT COSTS		WITH COSTS	
	Index	Rank	Index	Rank
Baden-Wurttemberg	140.5	1	137.9	1
Eastern	124.5	2	120.0	2
South East	118.7	3	113.9	3
Nordrhein-Westfalen	115.1	4	113.2	4
Rol	105.2	5	106.5	5
Emilia-Romagna	91.2	6	94.2	6
Scotland	90.0	7	90.7	7
<b>NI</b>	<b>79.3</b>	<b>8</b>	<b>81.2</b>	<b>8</b>
Nord-Pas-de-Calais	78.1	9	81.0	9
Wales	78.1	9	80.3	10
North East	77.4	11	79.3	11
EU15	100.0	-	100.0	-

Source: ERINI

Table 4 displays the Knowledge-biased scenario, calculated both with and without the business costs included. As can be seen the ranking of each region remains virtually unchanged when costs are included, although obviously there is a slight difference in the index numbers.

The top ranking regions in this index, such as Baden-Wurttemberg, Eastern and the South East are those which are associated with high levels of innovation. Other regions which perform well include Nordrhein-Westfalen and the Rol although the drivers of each region's performance differs; with Nordrhein-Westfalen having a strong performance in R&D expenditure, and the Rol having high shares of those qualified to third level

education. The bottom ranked regions are those which would have been considered at the outset to be least competitive, and include NI, Wales, Nord-Pas-de-Calais and the North East. Nord-Pas-de-Calais was weak on both education and innovation, however the three UK regions performed relatively well in terms of education but their weak performance with regards to innovation have lowered their overall score. NI's performance at 8th overall indicates that it is somewhat competitive in terms of its knowledge base compared to those with similar industrial structures, however it's placing in the lower half of the table suggests that it is still a lagging region, even when compared to the EU average.

## SUMMARY AND CONCLUSION

The joint aims of the benchmarking process were a) to measure NI's competitive performance across a number of indicators, and b) to assess this performance against a set of competitor regions, including those considered most similar in nature and those regarded as leading economies. The disaggregation of NI's performance into individual indicators and to an overall index is valuable in that it not only permits an assessment of relative position against other regions but also allows for specific areas of strength and weakness to be identified and hence policy responses to be tailored accordingly.

On average NI's performance was relatively poor across each of the individual indices; excluding Costs, its best performance was in the area of Skills/Education in which it ranked fifth overall (out of eleven regions), due largely to the relatively large share of the economically active qualified to tertiary education level. Performance on the other drivers ranged from average to poor, with NI's ranking varying between sixth and eleventh. The components in which NI fared particularly poorly, and which may require specific policy focus, were the Business Environment, which includes trade and the employment rate, and Economic Infrastructure. NI as a small, peripheral economy should be relatively open as the smallness of the domestic economy cannot fully support efficient production, nor can it produce all its required goods and services, yet despite policies to promote overseas trade NI's export performance not only ranked bottom of the UK regions but also bottom of all the regions selected. In terms of infrastructure NI also performed badly, again ranked bottom of all regions. Its performance can be explained in part due to the low population density and skewed patterns of urbanisation, however underinvestment

in the transport network over a number of decades must also be recognised as a key contributing factor.

The composite index further provides an indication of NI's overall competitive position. It was created by aggregating each of the individual indices into one single index and was constructed across a range of weighting scenarios, each with its own particular bias. The one regarded as most appropriate for benchmarking NI's competitiveness, and linked to modern economic thought on growth, was that of an Input-led, Knowledge-biased approach. The knowledge-biased component of the scenario placed a heavier weight on Innovation and Skills/Education amongst the inputs, to reflect the theories in which knowledge is considered key to the long-run growth of an economy. NI's position on this knowledge-biased composite index was 8th overall, with its relatively strong performance in Skills/Education ranking it higher than regions of similar industrial background such as Nord-Pas-de-Calais and the North East. However, the fact that NI's overall competitive position was in the bottom third of the table suggests, as stated above, that a number of issues must be addressed across all drivers of productivity.

NI's performance on the Competitiveness Index will obviously be affected to a degree by the indicators selected and the weights chosen. However the UK Competitiveness Index (Huggins, 2006) arrives at a similar conclusion in terms of NI's relatively poor performance. The Index, which focuses on both the development and sustainability of businesses and the economic welfare of individuals, measured through input, output and outcome factors, ranks NI tenth out of the twelve UK regions, with Wales and the North East ranked eleventh and twelfth respectively. The report does however also reveal

that NI, along with Yorkshire, Wales and the North East, which were traditionally the least competitive regions, actually made the biggest improvements in competitiveness over the year, with NI topping the list (although it's ranking remained unchanged), driven largely by better labour market performance. These improvements, the authors suggest, may be a signal that investment in regional development policies may be starting to pay off, reinforcing the notion that successful regional industrial policies require long-term commitments before they can be judged as successful or not.

The overarching aim of UK regional policy is to narrow the gap between the lagging regions and the most prosperous; and whilst the Huggins (2006) report suggests an upturn for the uncompetitive regions, a concerted action will still need to be taken by NI and these other lower-ranked regions

if such regional disparities are to be permanently reduced over time, and if NI is to be considered as a competitive regional economy. The strong performance in business costs cannot be relied on to drive growth as it reflected low labour costs rather than an overall low cost environment (in fact energy prices were amongst the highest of the comparator regions). Whilst low labour costs may have been advantageous in the past the competition for manufacturing jobs from emerging low cost eastern European and Asian economies means it is no longer a viable option in the era of globalisation. The advent of industrial de-rating and water charges will further impact on the cost competitiveness of conducting business in NI and therefore costs are more likely to rise in the short term, suggesting that improvements in competitiveness will have to come from other areas.

#### Notes

- <sup>1</sup> Business costs are included in the framework however due to the difficulty in obtaining regional data on costs national figures were largely used as proxies. As a result two versions of the final index were constructed, with and without costs included.
- <sup>2</sup> See ERINI (2006) for the actual index numbers.
- <sup>3</sup> The Business Environment Index reflects the structure in which the various labour, capital and product markets operate. Unfortunately there were no comparable figures available on the business regulatory environment.
- <sup>4</sup> It must be noted that the Huggins' methodology was followed as it was deemed an appropriate way of weighting the data to provide various scenarios, however other weighting systems are available and have been utilised in the construction of composite competitiveness indexes, most notably, in reports such as The Global Competitiveness Report (WEF, 2004) and The World Competitiveness Yearbook (IMD, 2004).

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# Article 4: Differential Corporation Tax in Northern Ireland: Analysis and Policy

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## INTRODUCTION

The issue of a competitive rate of corporation tax has risen to the top of the economic and political agenda for a restored NI Executive with remarkable speed. In little more than eighteen months the idea of a differential rate of corporation tax equivalent to that in the Republic of Ireland (RoI) first mooted by Sir George Quigley, Head of the Industrial Task Force, has been endorsed by all of the parties in the NI Executive and is a central plank in their discussions with the Chancellor of the Exchequer on a financial package for the restored Executive.

This short article looks at the strategic background to the corporation tax debate, the work done by the Economic Research Institute of Northern Ireland (ERINI) to model the effects of a cut in the local rate to 12.5% and the practical issues that have to be addressed in implementing a regionally differentiated corporation tax regime in the UK.

## THE STRATEGIC CONTEXT

On some measures the NI economy has performed well over the past decade. Employment in particular has grown strongly and is now approaching the 800,000 mark while unemployment has fallen to not much more than 4 per cent, a historic low, notwithstanding a poor record on economic inactivity. On the other hand this encouraging labour market performance has not been matched by equivalent productivity gains. Indeed in terms of Gross Value Added per head NI has been stuck at 80 per cent of the UK average for at least 10 years. This is the central strategic dilemma NI faces. We are comparatively good at generating jobs but rather poor at creating marketed output and from this certain consequences flow inexorably. The value of the imports needed to sustain existing standards of living greatly exceed the value of exports from the private sector and to cover this

deficit on trade the public sector runs a large fiscal deficit of more than £6 billion per year. In short, the public sector takes the strain and in consequence is proportionately larger in NI. It is imperative that the private sector should grow faster but under current circumstances and with existing policies this is a monumental task.

Consider now the experience of the Irish economy over the same period. Employment there has also grown by over 750,000 but output has grown much faster. During much of the 1990's the Irish economy was growing at a rate that would double its size in ten years. After a brief setback in 2000/2001, growth resumed at a more modest pace though still faster than in NI. Moreover, Irish growth has been primarily fuelled by the private sector and in the main through international companies establishing a presence in the country.

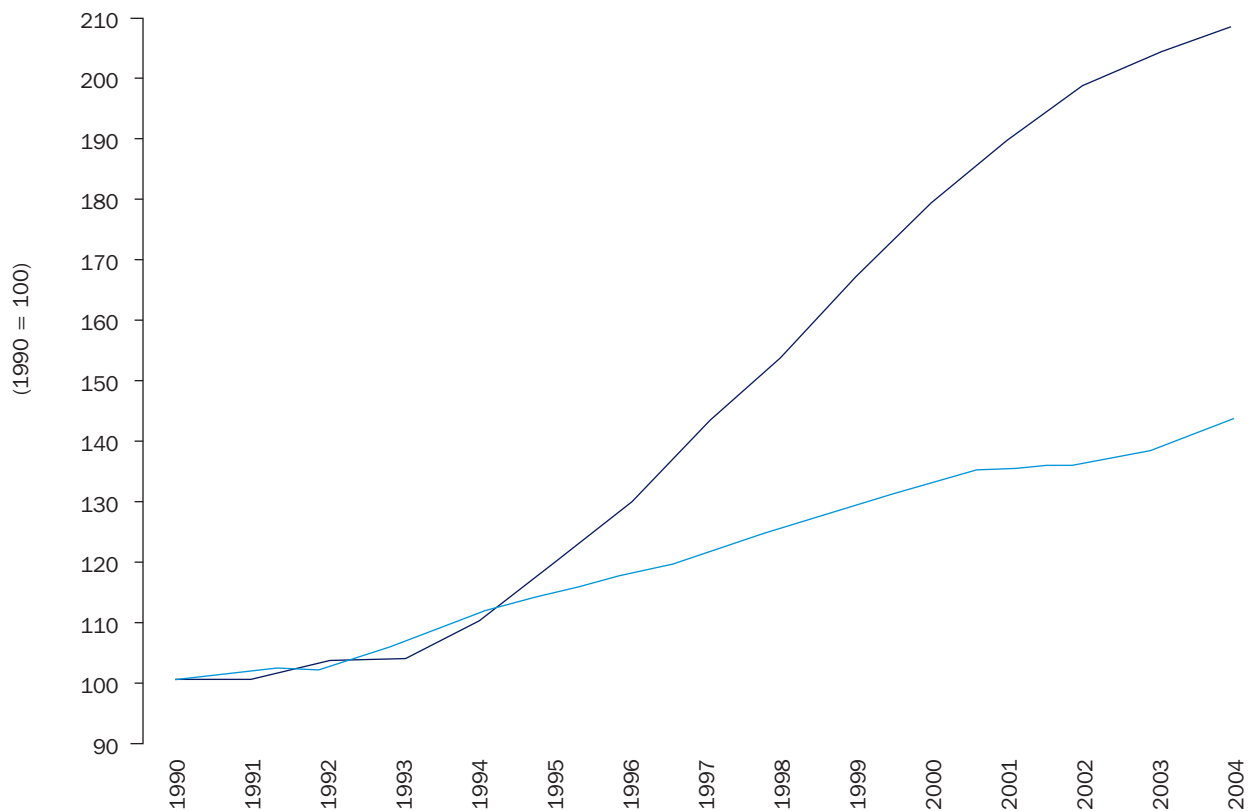
The contrast between the experience of RoI and NI is captured quite neatly in Figure 1 which shows how Gross Value Added in the economies has developed since 1990. The difference between these two paths is the difference between relative poverty and relative wealth, and the gap continues to grow.

There are many explanations for the success of the Irish economy in its 'Celtic Tiger' phase, including a young and relatively well educated population, membership of the European Union and investment in business relevant infrastructure such as telecommunications. However, one factor stands out above all others - an exceptionally low rate of corporate taxation. Since the 1960's when the economy was largely agrarian RoI has pursued a policy of holding down corporation tax rate for inward investment. At first a zero rate applied to profits from exports and this gave way to a 10 per

NI and RoI Total Gross Value Added per Head 1990-2004

**Figure 1**

- Republic of Ireland
- Northern Ireland



Source: NI and RoI National Accounts

cent rate on manufacturing profits and finally, under pressure from the European Union, the introduction from 2003 of a uniform 12.5 per cent rate for all companies.

The corporate tax system in the UK is uniform and NI based companies therefore pay the equivalent UK rate of Corporation tax which over the years has varied from 19 per cent for small companies to 52 per cent for large firms (changed in the 2007

Budget to 22 and 28 per cent respectively). Since the other factors credited with RoI's success have not been significantly better than their equivalents in NI and in matters such as infrastructure (including telecommunications) have been considerably worse, it is difficult not to conclude that the differential in Corporation tax has had a crucial role to play in explaining the difference in performance between the two economies.

## CORPORATION TAX AND INWARD INVESTMENT

All taxes do two things. First, they raise revenue, but perhaps more importantly for the current discussion they modify behaviour by changing the relative return between different courses of action. Thus income tax changes the choice between work and leisure and corporation tax alters the investment decisions of companies. Because of the way in which international companies in particular operate the effects that corporation tax has on their behaviour can be exceptionally complex. In theory a pure Corporation tax should fall only on the surplus or economic rent created by a company so avoiding any distortion to investment choices by the firm. In practice corporate taxes often apply not only to the economic rents of firms but also to their usual returns to capital so affecting the choices between equity and debt financing of investments. In this paper we are particularly interested in the effect of corporate taxes on the location and magnitude of investment decisions by international companies.

When contemplating an investment an international company has a number of choices to make. It first has to decide whether to invest in its home country and service customers abroad through exporting or alternatively to locate abroad. This is a discrete choice and will be settled by balancing the post tax returns from the two options, taking account of all costs such as labour and shipping. If the decision is to locate the investment abroad there is a further

choice of where to locate. This again is a discrete choice that will be influenced by the tax mix in potential recipient countries. Having settled on a suitable location the company now has to decide on the scale of the investment. This is a marginal as opposed to a discrete decision and is therefore determined by the marginal returns post tax to the investment. Finally, in some instances multinational companies can influence where they actually pay tax on profits. They do this through the use of transfer pricing to shift taxable income between jurisdictions though there is of course a limit as to how much shifting can take place. The decision on profit location (or its corollary, cost location) again depends on relative rates of Corporation tax.

This simple framework suggests that different decisions are influenced by different aspects of the Corporation tax between countries. In particular we can distinguish three relevant dimensions of Corporation tax that are important for these decisions. The first is the effective average Corporation tax rate which is simply the proportion of total pre tax profits that is taken in tax when all allowances are taken into account. The second is the effective marginal Corporation tax rate which is the proportion of the marginal unit of profit taken in tax when all allowances are taken into account. Finally, there is the headline or statutory Corporation tax rate which is the rate quoted ignoring any allowances. These rates are connected

### Corporation Tax and Multinational Investment Decisions

**Table 1**

DECISION	TYPE	RELEVANT CT RATE
Locate outside home country?	Discrete	Effective Average Tax Rate (EATR)
Locate in which country?	Discrete	Effective Average Tax Rate
Scale of investment	Marginal	Effective Marginal Tax Rate (EMTR)
Location of profit/costs	Discrete	Statutory Tax Rate

## Statutory and Effective Corporation Tax Rates (2005)

**Table 2**

COUNTRY	STATUTORY RATE (%)	EATR (%)	EMTR (%)
UK (inc NI)	30%	24%	20%
Rol	12.5%	11%	10%
United States	39%	29%	24%
Germany	38%	32%	29%
France	34%	25%	20%
Italy	37%	26%	19%
Japan	40%	32%	28%

**Source:** Institute for Fiscal Studies. The UK statutory large firm rate has now fallen to 28% implying an EATR of 22% and an EMTR of 19%. Note also that there are many ways of calculating effective tax rates depending on the nature of investment and associated allowances.

to the decisions of international companies broadly as in Table 1.

Other things being equal therefore we may expect multinationals to locate where they face the lowest overall rate of tax on their profits and to scale their investments in line with the tax they face at the margins. The differences between countries in the average, marginal and statutory rate they impose are consequently of some importance. Table 2 shows how these rates vary across a selection of countries, including the UK and the Rol.

It is fairly clear from these figures that the Rol has a significant advantage compared to NI in all of the Corporation tax dimensions relevant to attracting inward investment. Not surprisingly therefore the representation of leading multinational companies in Rol far outstrips those choosing to locate in NI.

### THE ERINI STUDY

In the Summer of 2006 the Industrial Task Force approached the Economic Research Institute of Northern Ireland (ERINI) to examine what the possible effects would be for the NI economy if it was possible to apply the 12.5% Corporation

tax rate available in the Rol to the region. The study was undertaken in association with leading academics in the UK and Rol and used the econometric model of the NI economy maintained by Regional Forecasts (now part of Oxford Economics) to simulate the effects of a tax change under various assumptions. The results were published in November 2006.

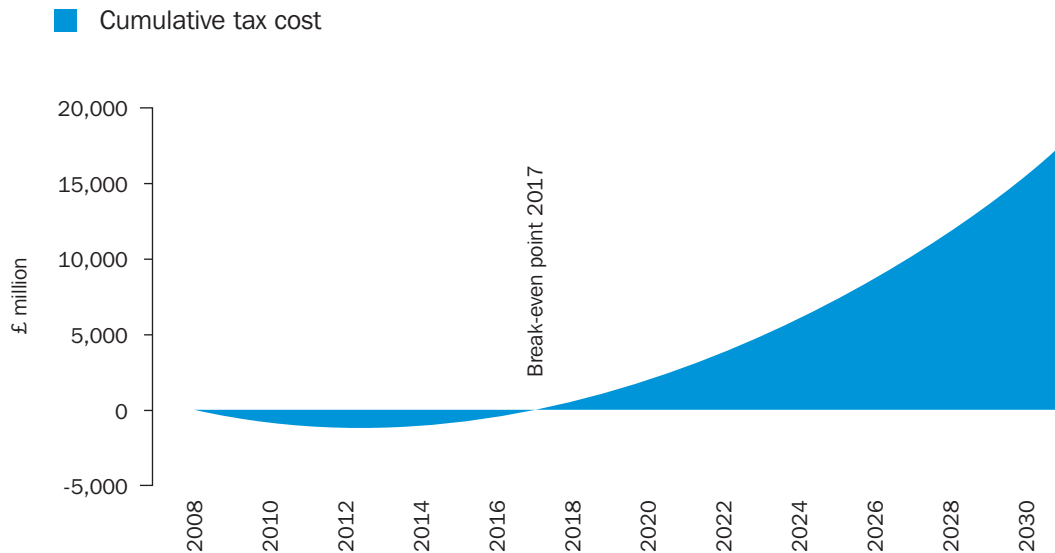
Based on the assumption that NI would over time capture a proportionate share of new inward investment forecasts for the Irish economy (which were well down on the peak years of the 1990s) the ERINI study concluded that reducing the local rate of Corporation Tax to 12.5 per cent could inter alia:

- Create over 180,000 new jobs by 2030.
- Double the growth rate of the NI economy and eliminate the productivity gap with the UK in a decade.
- Recover an initial loss of £300 million in reduced Corporation tax within 6 years with substantial benefits to the Exchequer thereafter.

Figure 2 summarises the net exchequer position after lowering the Corporation tax rate. At first there

## Cumulative Tax Cost in NI

**Figure 2**



Source: ERINI

is a growing deficit as existing firms are now paying less tax and the positive benefits of new inward investment and new business from indigenous firms has not yet taken hold. Within six years however these tax losses have stabilised and start to recover thereafter with breakeven occurring in a further three years. After this there are substantial tax surpluses generated for the exchequer.

The modelling exercise clearly demonstrates that lower Corporation tax rates can be a powerful instrument for tackling the strategic problems of the NI economy discussed above. By putting the economy on a definitively higher growth trajectory the underlying factors begin to move in favour of further growth. For example, increasing exports from the private sector reduce the trade deficit and this is manifested in a lower level of subvention needed to provide public services at an acceptable level. Growth in private sector employment also helps to rebalance the local labour market.

Beyond the factors that can be modelled however there are other benefits that flow from lower corporate taxes that impart a dynamic to the economy. Most important of these is the opportunities that now become possible to work with multinational companies and to connect to the World economy at a level of sophistication not previously possible. In short, NI would be afforded an invaluable opportunity to raise its game in the context of globalisation. The importance of this sort of strategic driver cannot be over-emphasised.

### **PRACTICAL CONSIDERATIONS**

The ERINI study focused on the potential prize from introducing a differential rate of Corporation tax in NI but it did not look at the practical issues that would have to be addressed before such a policy could be introduced. Following the publication of the ERINI report a great deal of work was done with the committees and parties in the NI Assembly on these issues and the remainder of this paper

provides a short overview of the difficulties involved and how they might be resolved.

Allowing NI to have its own rate of Corporation tax within the UK effectively turns it into a form of tax haven. The practical objections to this can conveniently be grouped into two categories:

- International issues
- Administrative and political issues

### **INTERNATIONAL ISSUES**

The major international issue arises from the desire of the European Commission to restrict state aids on the one hand and to harmonise tax rates and tax bases across the countries of the European Union to avoid distortions to trade. The definitive statement of state aid policy in relation to regions of a national economy being allowed to have a separate Corporation tax regime can be found in the ruling of the European Court of Justice (ECJ) adjudication in the Azores case delivered in the Autumn of 2006. In that case the Portuguese government introduced a separate Corporation tax regime for the autonomous region of the Azores and were somewhat tardy about notifying the European Commission for state aid approval. The Commission objected to this scheme as a state aid under Article 87 of the Treaty but interestingly not in relation to manufacturing industry but because of fears that the financial services sector would abuse a lower corporate tax rate without producing any additional real activity (Commission Decision 2003/442). The ECJ in ruling on the case laid down three conditions that would have to be met for a region to be able to enjoy its own Corporation tax regime. These are:

- The region must have the political and administrative authority to introduce its own tax regime;

- The national government must have no authority to influence such a decision; and
- The region must bear the full fiscal consequences of introducing its own tax regime and in particular must not be compensated by the national authorities for a loss of tax revenue.

These are, of course, quite strenuous conditions to meet but they are certainly not a blanket ban on regions enjoying a differential rate of Corporation tax as some have argued. Interestingly, the UK Government supported Portugal in this case with an eye to maintaining some freedom of manoeuvre with respect to devolution.

The second international issue of concern relates to double taxation treaties. These treaties are necessary to prevent the same corporate income being taxed excessively in more than one jurisdiction and are an essential element of the Corporation tax regimes in force around the world. RoI has about 44 such treaties and the UK over 140. In principle if NI had its own Corporation tax the UK treaties would have to be amended to reflect this fact. In practice only a few treaties are likely to be with countries that play any significant role in foreign investment.

### **ADMINISTRATIVE AND POLITICAL ISSUES**

Granting a separate Corporation tax system to NI would break the integrity of the UK tax system and give rise to a range of political and administrative difficulties. The major political difficulty is, of course, that Scotland and Wales might push for similar treatment as might poorer regions in England. This is entirely possible but it should be obvious that NI is by far the region that is most disadvantaged by the presence of a radically lower Corporation tax regime on the same island. It is also the region most likely to benefit from the correction of this anomaly.

The administrative difficulties of a separate NI Corporation tax regime arise because of the incentives for arbitrage that are created by having two tax regimes in the same national jurisdiction. The major issues are outlined below:

- ‘Brass plating’ - UK companies would relocate headquarters to NI to avail of lower tax rates with substantial losses to the UK exchequer. This is a genuine concern and would probably have to be addressed in primary legislation.
- The need to apply transfer pricing rules to UK to UK transactions since companies will attempt to artificially shift profit to NI. The rules on transfer pricing are set out in Income and Corporation Taxes Act 1988 Schedule 28AA and essentially require that these transactions follow an ‘arms length’ principle. In the 2004 Finance Act these provisions were extended to cover UK to UK transactions so the policing framework is already in place though quite difficult in practice to operate.
- Self employed incorporation - the self employed would have incentives to incorporate to avoid up to 40% income tax in favour of low Corporation tax. However, the company profits would be caught as dividends etc if they were distributed so this is not a very serious issue. In the event the Corporation tax changes in the 2007 Budget addressed the problem.

#### **ALTERNATIVE DIFFERENTIAL CORPORATION TAX MODELS**

As well as the conventional lower Corporation tax model which simply lowers the rate in NI to match that in the RoI, ERINI has also examined several variants on the lower corporate tax theme. These are described very briefly as follows:

#### **DISCOUNTED TAX BASE**

This model allows the integrity of the UK national Corporation tax rate regime to be maintained but achieves a lower tax in NI by discounting part of the tax base for the purpose of calculating Corporation tax. For example, by disregarding the first 60 per cent of profits and applying the higher tax rate of 30 per cent (now 28 per cent) an overall rate of 12 per cent is achieved. This is a model that has an analogy in the enhanced level of capital allowance which applied to smaller firms in NI between 1998 and 2002.

#### **RESTRICTED ACCESS MODELS**

The Azores judgement obscured the fact that the European Commission had no objection to a lower Corporation tax rate in the Azores for non financial businesses. They were particularly concerned about ‘inter-group’ financial activities (profit shifting with no underlying economic activity).

This option goes some way to alleviating EU concerns by excluding certain elements of the financial services sector in NI from accessing lower Corporation tax. For example there is no case for retail banks enjoying windfall gains to tax and since these banks are a major source of existing Corporation tax payments the option also reduces the revenue losses from introducing a lower tax rate. The banks would, of course, complain but they are already very profitable and would stand to gain even more from additional activity brought about by the lower Corporation tax regime.

A further extension of the idea is to exclude industries with local monopoly positions since they can manipulate profit to some extent and serve essentially the local market. Examples might include electricity and gas companies. In all of these cases a specific derogation would be

required from the European Commission since they discriminate against particular forms of business.

### **DOUBLE JURISDICTION MODELS**

This is a more radical model that would effectively create an 'All Island' Corporation tax regime. The basic idea is that Foreign Direct Investment (FDI) companies locating in NI would be allowed to pay Corporation tax on profits made in the region in the RoI. This would be done by establishing a subsidiary in the RoI and transferring profits to it. The net result is:

- The company pays lower Corporation tax.
- The RoI gets additional Corporation tax revenues even though the profits were not made there.
- The UK exchequer gets additional income tax, national insurance and VAT.
- NI gets additional jobs.

To work this model clearly needs to be able to discriminate against existing companies and only extend the double jurisdiction treatment to new FDI or to genuinely mobile indigenous investment that threatens to move elsewhere. If this is not successful then there would obviously be a mass migration of tax to the RoI and very large losses to the UK.

Compared to the original Corporation tax proposal this is a second best option since NI has no prospect of eventually collecting more Corporation tax. However, this might be countered by the RoI 'recycling' its windfall Corporation tax gains back to NI in the form of higher public expenditure on agreed projects. Precautions would need to be taken to prevent Her Majesty's Treasury (HMT) offsetting this spending by reducing the NI public expenditure block.

This is actually a very complex model with major political implications in RoI, NI, the UK and the European Union. Because of this it might be best taken forward (if at all) through pilots in specific sectors such as business services where there is a clear deficiency in NI.

### **OTHER TAX MEASURES**

The difficulties associated with introducing a differential rate of Corporation tax in NI has led some observers to argue for a greater focus on tax breaks for inputs to the production process. Some breaks such as capital allowances and R&D Tax Credits already exist and these could be enhanced and possibly extended out to cover other activities such as training expenses or marketing costs. This is a legitimate argument though it is sometimes difficult to see what market failure such tax assistance would be helping to correct. However, it is not correct to in some way equate these tax adjustments with the impact of a lower Corporation tax. Adjusting taxes on the factors that go into the production process is not the same thing as altering a tax that influences the strategic location decisions of multinational companies.

### **CONCLUSIONS**

This paper has attempted to give a relatively non technical over view of the issues raised by the proposal to introduce a differential rate of Corporation tax in NI. These issues are undoubtedly complex but they are not insurmountable. Following representations from all the political parties in the new NI Executive the Chancellor of the Exchequer announced in March 2007 that a review of how UK tax policies impact on the NI economy would be undertaken by Sir David Varney, the former Head of Her Majesty's Revenue and Customs. When this review reports later this year it will be closely scrutinised for its assessment of the role of a separate Corporation tax in NI.