Review of Tax Policy in Northern Ireland

Sir David Varney

December 2007

HM Treasury contacts

This document can be found on the Treasury website at:

hm-treasury.gov.uk

For general enquiries about HM Treasury and its work, contact:

Correspondence and Enquiry Unit
HM Treasury
1 Horse Guards Road
London
SW1A 2HQ

Tel: 020 7270 4558
Fax: 020 7270 4861
E-mail: public.enquiries@hm-treasury.gov.uk

ISBN-13: 978-1-84532-350-9

Printed by The Stationery Office 10/07 383686

Printed on at least 75% recycled paper.
When you have finished with it please recycle it again.

PU339

Contents

Foreword by Sir David Varney

December 2007

Dear Chancellor,

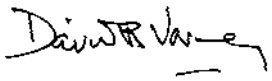
This Review has come at an important time in the history of Northern Ireland. All people of goodwill want to see Northern Ireland prosper in this new era.

I have received a lot of evidence from parties in Northern Ireland and had some engaging and useful discussions in which the need for a reduced corporation tax rate was stressed. The rationale put forward is that a corporation tax rate identical to that in the Republic of Ireland would allow Northern Ireland to replicate the Republic of Ireland growth story. There has been little evidence put forward on other differences between the economies, for example, infrastructure, currency or VAT rates. Almost all parties cite work done by the Economic Research Institute of Northern Ireland (ERINI) as evidence to the economic benefits of reducing the corporation tax rate. The conclusions the ERINI reach are a direct result of their assumption that foreign direct investment will rapidly flow. All econometric modelling such as this is subject to a huge degree of uncertainty which should inform the debate and guard against simplistic conclusions. However, the ERINI's assumption of the rate of flow is not supported by the academic literature on this subject.

We have tested the ERINI conclusions using a range of different approaches to assess key variables. All these results lead to the same conclusion that, on the basis of costs and benefits for Northern Ireland alone, there is no clear and unambiguous case to cut the corporation tax rate. Before turning to the UK issues, I want to dwell on the subject of the corporation tax rate and foreign direct investment. It is often asserted that business will go to the place where the tax rate is lowest. The academic evidence is that skills, rule of law, industrial relations, the potential for innovation and the quality of infrastructure are more important in determining the 'business fit' of potential investment. Indeed, in many of these areas, taxation needs to be raised to fund the delivery of these public goods.

On an assessment of the costs and benefits to the UK, there is not a case for a lower corporation tax rate in Northern Ireland. Such a policy would run the risk of encouraging profit shifting from the rest of the UK to Northern Ireland. To counter this – and only in part – HM Revenue & Customs would have to impose substantial administrative burdens. There could also be a strong reaction from other economies and regions, which, if realised in their own policy changes, would further accentuate the revenue costs for the UK. The UK is successful in attracting cross-border investment, the benefits of which flow back to the Exchequer in tax revenue. The devolved countries share in that success through the 'Barnett' formula, which distributes resources so that the funding can be put to best use by those closest to the policy.

Northern Ireland has received a good settlement in support of devolution and all agreed in their evidence that there is no one 'silver bullet'. Instead, the new administration has the opportunity to use the funding and resources at its command to build a more prosperous future. Today, Northern Ireland's established peace means it has the potential to be an excellent place to do business if the policies of the UK Government, the Northern Ireland Executive and Irish Government continue to be geared towards fostering the right business environment. The Government's financial and economic package of May and the 2007 Comprehensive Spending Review settlement in October in my view create an excellent platform. This report, therefore, offers some areas where I believe the Assembly might wish to consider its options.



Sir David Varney

Executive summary

Terms of reference

On 22 March 2007, following representations from the Northern Ireland political parties, the Chancellor announced a review to report on:

'How current and future tax policy, including the tax changes announced in the Budget 2007, can support the sustainable growth of businesses and long-term investment in Northern Ireland.'

In delivering a report to this terms of reference, the Review examined the case made for a differential rate of corporation tax in Northern Ireland, as well as other business tax issues that were suggested in response to the 'call for evidence' and in meetings. In order to put tax in the context of wider policies to support the sustainable growth of business and long-term investment, the Review considered opportunities and challenges for the restored devolved administration.

Submissions to the Review

The Review conducted meetings in May, June and July with interested parties in Northern Ireland and the Republic of Ireland. This included discussions with: the Northern Ireland Minister of Finance; the Minister for Enterprise, Trade and Investment; the Chairman of the Northern Ireland Industrial Taskforce; the Director of the Economic Research Institute of Northern Ireland; the Northern Ireland Business Alliance; the Federation of Small Businesses; the key Northern Ireland Assembly committees on Finance & Personnel and Enterprise, Trade and Investment; and spokespeople from the main political parties.

In addition, a wider 'call for evidence' was launched on 1 June 2007. A comprehensive list of acknowledgements is at Annex F.

The Review has been grateful for the volume and quality of responses. The vast majority of submissions to the Review, including those by the Northern Ireland Executive and the key committees of the Assembly, have called for a preferential rate of corporation tax in Northern Ireland. Most cited the recent study by the Economic Research Institute of Northern Ireland (ERINI) as evidence to the economic benefits. Respondents have also highlighted wider tax and other issues as key to growth and investment in Northern Ireland.

Assessment

The Review has concerns with the approach taken by the ERINI study. Primarily, the Review believes the study underplays the role of supply-side factors and overestimates, relative to the academic literature, the responsiveness of investment to a change in the rate of corporation tax.

The approach taken by the Review has been to set out the legal and design requirements for a preferential rate of corporation tax in Northern Ireland. Having analysed the Northern Ireland economy and the reasons behind the success of the Republic of Ireland economy, the Review estimates the likely additional investment in Northern Ireland from a move to a 12.5 per cent corporation tax rate. This uses the standard methodologies from the empirical literature to make a

value-for-money assessment in terms of likely tax receipts. Of course, due weight should be given to the generic uncertainties inherent in such economic analysis when formulating policy.

The assessment of the Review is that in considering the costs and benefits for Northern Ireland in isolation, a clear and unambiguous case for a 12.5 per cent rate of corporation tax cannot be made. It is clear from this initial assessment that there would be an up-front cost of near £300 million per annum in lost corporation tax receipts, with no cost recovery in terms of tax receipts in a reasonable period of time.

From a UK-wide perspective, the overall case against a reduction in the corporation tax rate in Northern Ireland is more marked. The likely displacement of both capital and profits from the rest of the UK, and the fact that this would be subject to a lower rate of corporation tax, mean that a reduced rate of corporation tax for Northern Ireland would certainly come at a long-term cost in reduced resources to be shared by the UK regions or in the financing of public services. The policy would result in a net cost of about £2.2 billion over ten years, with no prospect of full cost recovery over the long run.

The Review has looked at other areas of business tax policy, which are set out in Annex D.

Opportunities and challenges

For Northern Ireland, the return of devolution should mark a turning point. During decades of conflict, the Northern Ireland economy suffered from poor private investor confidence and became heavily dependent on public spending. The restoration of devolution is an opportunity to build a successful private sector led economy within a buoyant global environment.

However, this is dependent on the ability and willingness of the public and private sectors to undergo a cultural transformation. The Review has suggested some potential challenges to consider. These include:

- strengthening the skills base and addressing high economic inactivity;
- tackling the size of the public sector and efficiency of the administration;
- fostering innovation through better university and business collaboration; and
- prioritising trade and investment promotion across government, including working links with the Irish Investment & Development Agency and UK Trade & Investment.

Both the UK Government and the Irish Government have an important part to play. However, many of the important levers are in Northern Ireland's hands. Devolution provides the opportunity for the Northern Ireland Executive to determine its own priorities for promoting economic growth.

Report structure

- Chapter 1 outlines the structure and performance of the Northern Ireland and Republic of Ireland economies.
- Chapter 2 accounts the evidence and economic literature on the role of tax and investment.
- Chapter 3 and Annex D examine the specific business tax issues for Northern Ireland and the UK.
- Chapter 4 concludes on the opportunities and challenges facing Northern Ireland.

1 The Ireland economies

Overview

1.1 This chapter outlines the structure and performance of the economies of Northern Ireland and the Republic of Ireland to draw out the key issues in explaining past and future investment growth. The chapter is structured as follows:

- the opportunities from devolution in Northern Ireland;
- the structure and performance of the Northern Ireland economy; and
- the drivers of growth in the Republic of Ireland.

DEVOLUTION IN NORTHERN IRELAND

Funding the devolved regions

1.2 As with all other regions of the UK, Northern Ireland is part of the UK's fiscal framework, whereby public spending and taxes are determined in a coordinated policy to ensure adherence to HM Treasury's fiscal rules. Changes in the budgets[1] of the devolved administrations are determined by the 'Barnett' formula,[2] with the devolved administrations having discretion to meet their own spending priorities.

Recent funding packages

1.3 Changes in spending are not determined by the amount of central government tax receipts raised in Scotland, Wales and Northern Ireland. For Northern Ireland, the Executive estimates that total devolved and reserved public spending in the region is substantially higher than receipts, i.e. there is a large implied fiscal deficit.[3] It is worth noting that the Government has also offered additional funding packages to Northern Ireland in 1998, 2002 and 2007 to underpin the peace process.

Economic support of devolution

1.4 Following the St. Andrews Agreement in October 2006 and the return to devolution on 26 March 2007, the Government announced on 8 May an economic package and guaranteed level of £51.5 billion in funding aimed at boosting investment, competitiveness and employment.[4] This includes:

- £35 billion based on existing spending for 2007-08 together with up-rating by at least inflation over the next three years;
- an £18 billion long-term Investment Strategy for Northern Ireland;
- the retention of asset sales to fund capital investment expected to be over £1 billion, with £500 million over the next four years;
- a package of integrated investment in infrastructure, including a major new roads programme, supported by £400 million made available by the government of the Republic of Ireland;

[1] Departmental Expenditure Limit.
[2] Which provides the devolved administrations with a population-based share of the changes made in comparable spending by UK Government departments. The devolved funding principles are set out in the Statement of Funding Policy, published by the Treasury and updated in each spending review.
[3] The difference between Government expenditure and receipts collected (excluding North Sea oil revenues) for the region. In 2003-04 the estimated net fiscal deficit (or 'subvention') for Northern Ireland was approximately £7 billion.
[4] HM Treasury Press Notice: http://www.hm-treasury.gov.uk/newsroom_and_speeches/press/2007/Press_35_07.cfm

- £200 million per annum borrowing under the Reinvestment and Reform initiative from 2007-08;
- additional spending over the next two years under the End Year Flexibility scheme of £140 million resource spending and £180 million capital spending;
- the provision of additional funding of £400 million including an up-front £100 million in 2007-08 from HM Treasury's reserve to enable an incoming administration to delay the introduction of water charges without affecting existing spending plans in Northern Ireland;
- an innovation fund focusing particularly on levering in private sector investment and promoting collaborative research. This includes matched funding of £36 million from the Irish Government targeted specifically on collaborative research and development (R&D);
- a major conference for prospective investors in the autumn of 2007 to attract foreign direct investment; and
- a new local employment partnership that will help create 5,000 jobs for the unemployed in Northern Ireland.

Institutional ties

1.5 Building on the package outlined above, continued engagement by the Northern Ireland Executive with HM Treasury, as well as deeper North-South collaboration with the Republic of Ireland are the two key relationships which will translate funding into sustainable economic development.

NORTHERN IRELAND ECONOMY

1.6 The Northern Ireland economy has suffered from 30 years of conflict. It is a region which does not share a land border with any other part of the UK. Rather, it borders and has historic and cultural ties with the Republic of Ireland. These twin geographical and historic characteristics pose particular challenges and opportunities in terms of Northern Ireland businesses accessing markets, capital and labour.

Global opportunities and challenges

1.7 The economic issues for the region should be seen in the context of general global opportunities and challenges, which include: the rising flows of goods, services and capital; increased international specialisation; greater rewards from innovation; and higher levels of demand for skills.[5] These trends have significant long-term implications for an economy which has traditionally been dominated by heavy industry – most notably in shipbuilding, rope manufacture and textiles. Over the last 30 years most heavy industry has been replaced by services, including the public sector. Equally, the opportunities from globalisation are evident in the creation of new markets in other sectors such as information and communication technologies (ICT) and financial services.

General economic performance

Growth in employment

1.8 Northern Ireland returned the highest rate of economic growth of all UK regions between 1989 and 2006, with most of this growth attributable to increasing levels of employment.[6] Over the last decade the economy has witnessed significant improvement in employment growth,

[5] HM Treasury, 'Long term Global Economic Challenges and Opportunities for the UK', (Dec 2004).
[6] Review calculation from ONS, 'GVA Statistics', at www.statistics.gov.uk/downloads/theme_economy/NUTS1_Tables_1-8.xls.

enjoying the fastest growth of any UK region outside of London. Consequently, the region now has an unemployment rate of 3.4 per cent, the lowest in the UK and less than half the rate of London.[7] However, much of this recent employment growth is driven by the public sector, with the proportion of public sector employment to total employment actually growing over the last five years by 0.8 percentage points.[8]

Low productivity and participation

1.9 This promising growth masks some significant structural concerns. In terms of living standards, Northern Ireland's gross value added (GVA) per head lags behind the UK average by around 20 per cent. Chart 1.1 decomposes living standards into measures of employment and productivity. It illustrates that much of the lag is accounted for by the region's lower labour productivity and lower working age activity rates, which are 18 and 11 per cent below the UK average, respectively.[9] This is reflected in the fact that Northern Ireland has the highest percentage of households claiming incapacity benefit.[10] In addition, over 300,000 people, or 29 per cent of working age population, are not economically active, the highest proportion in the UK.[11] Therefore, significant numbers of working age people are not active in the labour market, which represents a waste of economic resources through the loss of these skills.

Chart 1.1: Regional GVA per head decomposed

Source: National Statistics, 'Analysing Differences in Regional Economic Performance' (2006).

[7] ONS, 'Labour Market Statistics', (Sept 2007).

[8] Compared to Scotland, which saw a similar rise of 0.9 percentage points and Wales, which saw a 0.5 percentage point fall. ONS, 'Public Sector Employment Trends', (2005).

[9] The percentage of the population that is active or participating in the labour force. Compared to employment, activity rates are more significant in explaining regional income differences.

[10] In 2004-05, nine per cent of Northern Ireland households claimed incapacity benefit, which is significantly above the UK average (six per cent).

[11] ONS, Regional Trends No. 29, (2006), p.127.

Sector make-up

Public sector driven

1.10 Northern Ireland has the highest level of public spending per head in the UK. The combination of this and relatively low tax receipts reflecting low income per head (accounted in Chart 1.1) results in the estimated net fiscal deficit for Northern Ireland of approximately:

- £7 billion; or
- 30 per cent of GVA; or
- £4,000 per head (almost double the equivalent figure for Scotland).[12]

Size of the public sector

1.11 The figures above point to the sprawling size of the Northern Ireland public sector. Overall, over two-thirds of Northern Ireland's gross domestic product (GDP) is accounted for by public expenditure.[13] That compares with the UK and the Republic of Ireland, where public expenditure is equivalent to around 45 per cent and 34 per cent of GDP respectively.[14] And even on a population basis, Northern Ireland receives around a third more in public spending per head than the UK average.[13]

'Crowding out'

1.12 The dominance of the public sector can adversely impact on the prospects of the private sector. The reality of public sector 'crowding out' in Northern Ireland is evidenced by the statistics on comparative wages in the public and private sector. For example, the average private sector wage in the region is 79 per cent of the UK average and the lowest of all UK regions. The public-private sector wage differential is 29.7 per cent compared to the UK equivalent of 3.3 per cent.[15] Thus, it is not surprising that private sector firms and industries tend to be low value-added. By drawing a disproportionate number of graduates and highly skilled people to the public sector, the potential for private sector growth is constrained. In terms of employment, Northern Ireland has the highest percentage of its workforce in the public sector, at 30 per cent compared to the UK average of 20 per cent. This is higher than the other devolved administrations, which stand near 24 per cent.[16]

Under developed private sector

1.13 The economy is principally engaged in traditional manufacturing and agri-food production or retail-related activities, although there are growing financial services and ICT sectors.[17] Nevertheless, these emerging clusters and industries are small. Equally, 90 per cent of Northern Ireland firms employ 10 people or fewer and two-thirds of businesses are family-owned. Although Northern Ireland's proportion of large businesses is similar to the rest of the UK, it has fewer businesses with employment greater than 500 and a much lower proportion of employees working in these firms.[18] In terms of industries, the Northern Ireland business base still has a much greater proportion of businesses within agriculture (15.9 per cent) compared to the UK average (3.8 per cent) and also has a proportionally larger construction sector. In contrast, there are proportionally fewer businesses in financial intermediation and business services activities.[19] Discussion through the Review suggested that the services sector in Northern Ireland is heavily reliant on the public sector, directly through procurement and contracts or indirectly through employment and consumption.

Diversification and

1.14 In fact, Northern Ireland is the most specialised and concentrated region of the UK. It has

[12] Northern Ireland Executive submission to the Review (Jul 2007).
[13] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007), p.24.
[14] OECD, 'Economic Outlook No.81' (May 2007), Annex Table 25.
[15] Northern Ireland Executive submission to the Review (Jul 2007).
[16] Scotland (24 per cent) and Wales (23 per cent) also had higher proportions of their workforce working in the public sector than England (19 per cent). See ONS, 'Public sector employment trends', (2005), p.34.
[17] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007), p.26.
[18] Institute of Chartered Accountants of Ireland submission to the Review (Jul 2007).
[19] Invest NI submission to the Review (Jul 2007).

an over-representation of industries servicing local demand, and eight identified clusters (including, shipbuilding, aerospace, construction, paper and agriculture) employ around a quarter of the Northern Ireland private sector workforce.[20] A key challenge is, therefore, to adjust and diversify from mature and large 'traditional' sectors to knowledge and technology driven industries. Telecoms, software and network services are relatively new, but could grow rapidly on the strength of ICT skills found locally. See Box 1.1.

Legacy: lost jobs and output

1.15 Part of this private sector vulnerability is a result of an historical legacy whereby during the 'Troubles' the private sector was deterred from taking risks in addition to its normal commercial risks. Research to be published by the OFMDFM[21] shows that foreign investment (and undoubtedly some indigenous investment) was deterred from locating in Northern Ireland during much of the 1970s to early 1990s. It has been estimated that civil unrest cost over 27,000 jobs – equivalent to £225 million in lost economic output over the 1983-2000 period.[22]

Tourism

1.16 The same research suggests that the tourism sector lost £1.5 billion in revenues during the period from 1976 to 2005. The sector lost 75 per cent of its global market share of incoming visitors.[23] Therefore, today, the industry starts from a low base, being described by some as a 'Cinderella' sector. Total income generated in 2003 was around £800 million or 3.5 per cent of GVA. With total direct value added of 1.9 per cent, it is on a par with agriculture. However, there are now signs that the sector is seeing growth that should be further encouraged.

Driving productivity growth

Sustaining productivity growth

1.17 The task of raising regional output centres on supporting the private sector to grow and export. Northern Ireland comprises 1.7 million people and given the limited size of that market, it is necessary that businesses access and export to the wider world. However, it is clear that export-led economic growth is not sustainable in the long run without increasing productivity and outward focus as firms compete globally.

The Government's 'five drivers'

1.18 In examining the drivers of potential productivity growth in the region, the policy framework set out by the Government is useful in that it sets 'five drivers' that interact to drive productivity growth: skills; innovation; enterprise; investment; and competition.[24]

No silver bullet?

1.19 Some studies estimate the direct and indirect effects of certain drivers on labour productivity and their inter-relationships. The main finding is that there is no one single driver that can boost regional productivity on its own.[25] Promoting entrepreneurship, spending more on R&D, increasing the ratio of capital to workers in the economy and the percentage of the workforce with higher qualifications all have a significant bearings on regional labour productivity. Equally, any one driver may become a bottleneck for labour productivity growth if it is not nurtured or promoted as much as the rest. For example, it is suggested that having a skilled workforce not only directly affects productivity, but also impacts positively on the levels of enterprise and investment.

[20] DBERR, 'Business Clusters in the UK – a first assessment', (2001).
[21] Office of the First Minister and Deputy First Minister.
[22] Northern Ireland Assembly Committee for Enterprise, Trade and Investment submission to the Review (Jul 2007).
[23] NITB and DETINI, 'Tourism in the NI Economy', (2007), quoted in First Trust Bank, 'Economic Outlook & Business Review', (Sept 2007), p.25.
[24] HM Treasury, 'Productivity in the UK 6: Progress and new evidence', (2006).
[25] Iparraguirre D'Elia, 'The Five Drivers of Productivity – how much does each one contribute? Causal Analysis of Regional Labour Productivity in the UK', Economic Research Institute of Northern Ireland, (Sept 2006).

1.20 The following sub-sections, therefore, account some key points for Northern Ireland in terms of:

- investment;
- skills and education;
- enterprise and innovation; and
- sub-regional issues.

Investment

1.21 Investment in physical capital – particularly in tangible assets such as public infrastructure, consumer and government durables, land, machinery and equipment – is a key input for economic growth. In turn, investment can also affect economic growth through increased productivity, if the added capital raises the marginal product of the existing capital stock and labour force. The role of tax in influencing investment is covered in Chapter 2.

1.22 Investment levels, measured by net capital formation, show that Northern Ireland performs broadly in line with that of the UK average. Over the period 1998 to 2004, net capital expenditure in the region averaged 9.5 per cent of GVA, identical to the UK average. While net capital expenditure has declined as a share of GVA in recent years in Northern Ireland, this is in common with a trend observed across most UK regions.[26]

Skills and education

1.23 Educational attainment is relatively high in the region, although there are pockets of very low attainment and a relatively large proportion of the workforce has no qualifications. For example, in 2003-04, 96 per cent of students achieved two or more A-levels (grades A-E) in comparison to 94 per cent in England and 95 per cent in Wales, and 60 per cent of students received five or more GCSEs (grades A*-C) compared to 54 per cent for England and 51 per cent for Wales.[12]

Basic skills gap

1.24 However, these excellent examination results have not transferred into the workforce. As Table 1.1 illustrates, Northern Ireland has the highest proportion of economically active adults with no qualifications. This points to a need to target basic skills in the existing workforce (see Chapter 4). In addition, the proportion of economically active adults with a high level of qualifications (at least NVQ level four) is lower than would be expected given the strong results at A-level. This is partly explained by emigration.

[26] ONS, 'Annual Business Inquiry', (Jul 2007).

Table 1.1: Qualifications – UK and selected regions

Region	Percentage of economically active adults 2006 (Q4) No qualifications	At least NVQ level 4
UK	8.8	32.7
Northern Ireland	15.2	31.3
Scotland	9	37.1
Wales	10.6	28.8
North East	7.7	28.7

Source: Regional Competitiveness and State of the Regions, May 2007, from Northern Ireland Executive submission to the Review.

Emigration

1.25 While Northern Ireland has high rates of participation in higher education, student migration away from Northern Ireland continues to persist, with nearly 30 per cent of Northern Ireland students moving away to take their degree and not returning.[27] There are a number of reasons for this, including culture, however, the low levels of private sector activity and the fact that the average private sector wage in the region is much lower than the UK average must also be significant.[28]

Box. 1.1: Science, engineering and ICT skills

Discussion through the Review process suggests that the region does not wish to compete for the low-cost ICT market. Instead, many stressed the need to ensure a high quality workforce with the right skills to meet business demands. For example, a short list of well-known firms engaging in software development or high-tech investment in Northern Ireland includes: Nortel Networks; Northbrook Technology; Liberty IT; Abbey; HBOS; British Telecom; Skillsoft; First Derivatives; HCL Technology; Allstate; Seagate Technology (recently re-investing in the region); Wombat; Microsoft and Oracle.

In meeting this demand, there is some evidence that a pipeline of young people with expertise in science, technology, engineering and mathematics is needed, as well as a partnership approach between business, enterprise agencies and the education system to improve take-up in higher education and address the barriers for the economically inactive to gain skills.[29]

- For example, Queen's University Belfast has recently launched a scholarship scheme to help to attract high-quality students through its doors. The scheme, for students entering the university in 2008, offers awards of £1,000 to all students achieving three As at A-level and enrolling on a science, technology, engineering or mathematics subject.
- Equally, outside of higher education, there is evidence of industry working with the Northern Ireland departments to improve the skills of the existing workforce to meet demand. For example, the 'IT Professional Academy' is backed by major ICT companies and the industry trade association to provide a range of tailored training options for IT professionals.[30]

Such schemes play an important part in improving skills in the economy to meet the demands from emerging high value-added sectors.

[27] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007), p.50.
[28] Northern Ireland Executive submission to the Review, (Jul 2007).
[29] DFPNI, 'Summary of response to the Consultation on the Northern Ireland draft Regional Economic Strategy launched 26 January 2007', p.3.
[30] IT Professional Academy. See www.itpa-ni.org.

Enterprise and innovation

The importance of enterprise and innovation

1.26 The importance of businesses for production activity is that they organise the other factors – bringing together ideas, knowledge and skills and in turn providing incentives for others to innovate by raising competition. Entrepreneurship is sometimes referred to as the process of 'creative destruction'. This occurs when new firms or entrepreneurs enter the market with new technology or working practices and compete with existing firms. Recent economic literature suggests three entrepreneurial roles: the innovator, the opportunity seeker, and the risk taker.[31] From this point of view, the more entrepreneurial a region is, the more likely that it will contain people willing to take risks on uncertain economic ventures and be ready to grab commercial opportunities. Such a region will, therefore, introduce new products and processes in the market, resulting in higher productivity and growth.

Enterprise

1.27 Although Northern Ireland has seen an improvement in its business start-up rate in recent years, it is still ranked ninth out of the 12 UK regions on this measure, at 80 per cent of the UK average. While the island of Ireland has around 324,000 entrepreneurs, of these only 71,000 are in Northern Ireland.[32] In terms of VAT business registrations per 10,000 resident adults, Northern Ireland exhibits a rate above Scotland and Wales, but below the UK average.[33] Moreover, a large proportion of this is in agriculture. Rather, a measure of entrepreneurial activity given by the total entrepreneurial activity (TEA) index, shows that in 2006 the TEA in Northern Ireland was 3.7 per cent. This compared to a TEA in the UK as a whole of 5.8 per cent and in the Republic of Ireland of 7.8 per cent.[32]

R&D spending

1.28 Northern Ireland has performed well by comparison to the other UK regions in higher education R&D, which accounts for 0.6 per cent of regional GVA, as compared to the UK average of 0.4 per cent.[34] In fact, higher education R&D accounted for about half of total R&D in Northern Ireland in 2006.[35] While this is positive, it is a strong and commercially focused R&D base that is central to an innovative economy. In this respect, it does not appear that higher education R&D is reflected in economic outcomes in the private sector. As Table 1.2 sets out, business expenditure on R&D as a proportion of GVA was 37.7 per cent of the UK average in 2004, with the absolute levels declining from 2001 to 2004.[36]

Table 1.2: Levels of business expenditure on R&D in Northern Ireland, the UK and the Republic of Ireland

	2000	2001	2002	2003	2004
Northern Ireland BERD (£ millions)	129	155	157	121	124
UK BERD (£ millions)	11,136	12,068	12,785	13,411	14,370
Republic of Ireland BERD (£ millions)	850	917	988	1,076	1,150
Northern Ireland BERD as a percentage of GVA	0.7	0.8	0.8	0.6	0.5
UK BERD as a percentage of GVA	1.4	1.4	1.4	1.4	1.4
Republic of Ireland BERD as a percentage of GVA	0.9	0.8	0.8	0.9	0.9
NI/UK (UK=100)	50.1	55.9	53.5	39.6	37.7

Source: EDFNI based on DETI, ONS, Eurostat, CSO, Regional Forecasts. Note: business expenditure on R&D (BERD).

[31] Carree and Thurik, 'The Impact of Entrepreneurship on Economic Growth', (2003).
[32] This index measures the proportion of working age adults currently engaged in early stage entrepreneurial activity. See 'Global Entrepreneurship Monitor 2006', (2007).
[33] First Trust Bank, 'Economic Outlook & Business Review', (Jun 2007).
[34] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007), p.59.
[35] Northern Ireland Executive 'Draft Budget 2008-2011', (October 2007), p.8.
[36] EDFNI calculations based on DETI, ONS, Eurostat, CSO, Regional Forecasts. See www.edfni.com/monitoring_ni/innovation_rd/ir1.htm

1.29 It is, therefore, not clear that businesses are making adequate use of R&D being carried out within the higher education sector. Businesses need to become more proactive in exploiting the opportunities offered by the strong R&D base – see Chapter 4.

Sub-regional issues – the 'all-island' economy

'All-island' integration

1.30 Given Northern Ireland's size and unique geographical character, significant cooperation has developed between the North and South of the island of Ireland. An 'all-island' economy is the stated aim of the governments of both Northern Ireland and the Republic of Ireland, to be realised through the building of:[37]

> *'...a world-class all-island economy which manifests itself in comparable levels of economic dynamism and performance in both parts of the island. For Ireland this means consolidating its position as one of the world's most globalised economies. For Northern Ireland it means developing the capability to become more fully integrated into the global economy.'*

1.31 Delivering an 'all-island' economy entails tackling barriers to the achievement of scale efficiencies and integration between the North and South. The need to coordinate infrastructure, planning and the promotion of inward investment and cross-border migration is particularly evident at the border regions of Derry-Donegal and Newry-Dundalk. These have been emphasised in the 'Comprehensive Study on the All-Island Economy' alongside better cooperation on skills, innovation, tourism and business development.[38]

Opening up the North West

1.32 A key area of interest in the 'all-island' study is improving the prospects of the North West region of the island of Ireland and ensuring prosperity is spread more evenly. The North West region includes the council areas of Derry, Strabane, Limavady and Donegal, which fall both sides of the border. In Northern Ireland, two thirds of the population live within 30 miles of Belfast.[39] In 2004, Belfast had the seventh highest GVA per head in the UK on a NUTS3 basis (out of 166 NUTS3 regions), while every other region of Northern Ireland had living standards (in terms of GVA per head) below both the UK and the Northern Ireland average.[40] This mirrors to some extent the situation of London as compared to other regions of the UK. The 'all island' study cites the need for better joined up action in tackling high levels of inactivity, relatively low educational attainment and the legacy of the economic and social problems from the 'Troubles'. The suggestion is that this is holding back growth in these areas and that the natural synergies are not currently being captured.

Cross-border trade

1.33 Part of joining up the island includes the development of cross-border trade. InterTradeIreland, one of the six cross-border bodies set up after the Good Friday Agreement, is trying to foster more trade by providing consultancy expertise and funding support. Indeed, over the past ten years, the value of cross-border trade has doubled in real terms. But, one-third of it consists of food and live animals rather than tradable services and potentially higher value-added manufacturing.[41] Delivering integrated infrastructure, better spatial planning, energy supply and telecoms will foster better trade.

[37] Joint Ministerial Statement (Oct 2006).
[38] British-Irish Inter-Governmental Conference, 'Comprehensive study on the All-Island Economy', (Oct 2006)
[39] Londonderry\Derry Chamber of Commerce submission to the Review (Jul 2007).
[40] ONS, See http://www.statistics.gov.uk/downloads/theme_economy/NUTS3_Tables_1-12.xls. Eurostat, the statistical office of the European Union (EU) defines an administrative division for all European member countries. This division is called the Nomenclature of Territorial Units for Statistics (NUTS).
[41] InterTradeIreland, 'Trade and Production Monitor', Quarterly Report, (2004).

North-South business cost differences

1.34 The ERINI has conducted some cost benchmarking work on doing business in Northern Ireland, which suggests the competitive position of the region lies in lower labour and property costs (though these are rising).[42] Although less significant costs such as energy and insurance may be higher in Northern Ireland, in most respects, costs are broadly similar between Northern Ireland and Great Britain and the Republic of Ireland. In terms of survey evidence, the main problems identified by companies in Northern Ireland appear to be supply-side constraints, or shortages of appropriately trained staff (again, with high insurance costs being mentioned as a concern by a substantial proportion of companies).[43]

Knowledge and culture

1.35 A key barrier to greater North-South business development is a lack of knowledge and personal contacts as well as cultural issues. For example, survey evidence suggests that, of the companies in Northern Ireland that have not expanded links with the South, 38 per cent cite that they are 'not interested in doing so'.[44] This compares to 14 per cent of businesses in the Republic recording a lack of interest. Instead, most businesses in the South cite a lack of business need or that expansion is too complicated for them. There is, therefore, some evidence to suggest that businesses in the North need to widen their lenses and develop better links.

Conclusion

1.36 The performance of the Northern Ireland economy has been much less spectacular than that of the Republic of Ireland (see below), but Northern Ireland in the 1990s and early this decade has been growing faster than many other regions of the UK. The primary agent of change in Northern Ireland over the past 15 years has been the peace process. However, there are significant structural issues that, if not fully addressed, call into question the sustainability of growth.

Addressing structural weaknesses

1.37 Concerns include the comparatively large size of the public sector, high levels of labour force inactivity and poor basic skills in the workforce. These are particularly significant for an economy that has been transforming away from traditional heavy manufacturing[45] and which needs to expand into high technology, high value-added businesses (above all, services) in order to meet global opportunities and challenges.

Tax versus spend

1.38 Theses structural and institutional weaknesses must limit the growth potential of the private sector and they should be the focus of public policy debate and action. Accordingly, the role of tax in contributing to sustainable growth in business is stunted without efforts to address these wider supply-side points. The crux question, however, is whether, as policies which employ public funds, spending money to improve skills, innovation, and/or infrastructure investment are better value-for-money than a specific tax measure in Northern Ireland. The next section examines what lessons can be drawn from the case of the Republic of Ireland ahead of Chapter 2 which tests, in general terms, the role of tax relative to other factors in spurring business growth and Chapter 3 which tests the value-for-money case of a lower corporation tax rate.

[42] ERINI 'Measurement and Benchmarking of Competitiveness - the Cost of Doing Business in Northern Ireland', (Dec 2005).

[43] InterTradeIreland, 'Survey of business links on the Island of Ireland', (2005), pp.27-34. It reports findings from a survey carried out by the ESRI in Dublin. The survey quantified the extent of cross-border links between non-agricultural, private sector companies employing 10 or more persons in each jurisdiction, with plans for expansion between 2003 and 2006.

[44] Ibid. Either through joint purchase of raw materials/services, joint marketing, tendering, staff training, distribution network etc.

[45] Employment in manufacturing has fallen from almost 200,000 two decades ago to under 100,000 now.

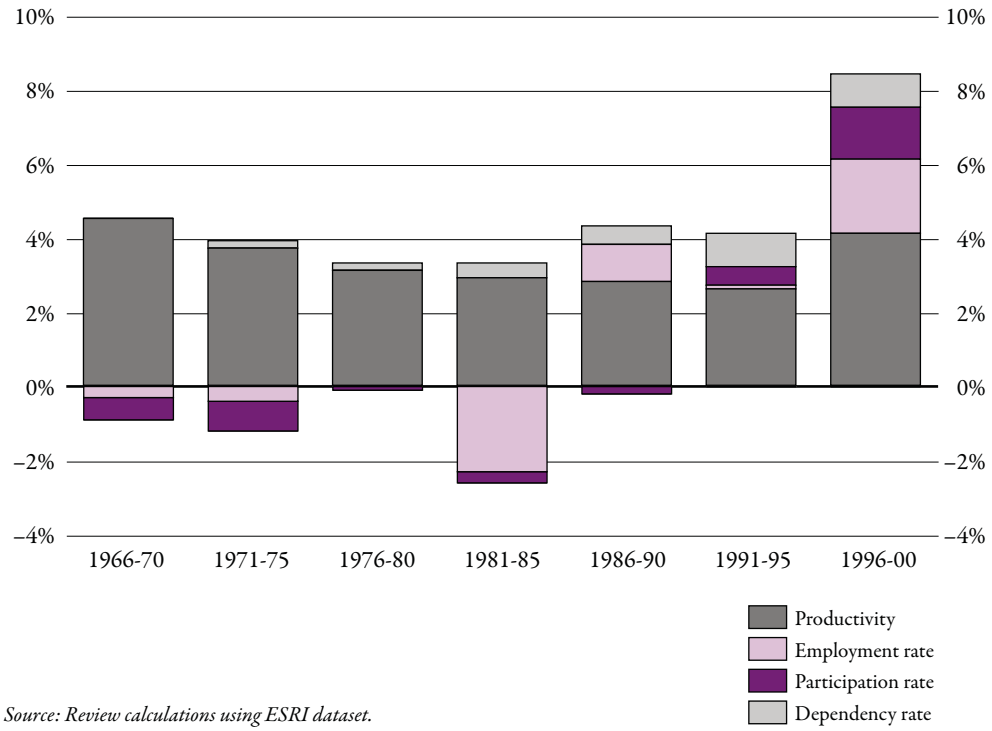
REPUBLIC OF IRELAND GROWTH PERFORMANCE

1.39 The 'call for evidence', which followed discussions with the Northern Ireland Assembly and Executive in the early stages of the Review, pointed to an examination of the Republic of Ireland's growth performance as an appropriate case study on the role of tax policy in Northern Ireland.

Strong economic performance

1.40 Since 2000, the Republic of Ireland's GDP has grown at an average rate of almost six per cent per annum (with gross national product growth being slower, a reflection of profits being repatriated out of the country).[46] Chart 1.2 shows the decomposition of living standards in the Republic of Ireland between 1965 and 2000 in order to place the strong growth from the late 1990s in a broader historic context.

Chart 1.2: Republic of Ireland GDP per head growth decomposed



Source: Review calculations using ESRI dataset.

1.41 It is well recognised that the recent economic performance of the Republic of Ireland has been impressive, with the salient feature being an rapid increase in the proportion of the people at work.

Increased inputs: participation and employment

1.42 As Chart 1.2 shows, the contribution of productivity growth has been positive and relatively stable, but the major factor that has turned from having a negative to a positive contribution to GDP has been growth in employment and participation with a significant increase in female labour force participation.[47] Since the 1970s, there has been a steady rise in the number of women at work due to such factors as the decline in the birth rate, the rise in the part-time and service sector jobs, developments in the education system (discussed below) and changes in cultural attitudes. Thus, the absolute numbers of those in work rose from 1.1 million at the start of the 1990s to 2 million today.[48]

[46] Calculated from OECD, 'Economic Outlook No.81', Annex table 1, (May 2007).
[47] Between 1971 and 1996 the number of women participating in the labour force rose by nearly 90 per cent.
[48] CSO Ireland database. See http://www.cso.ie/statistics/LabourForce.htm.

Demography

1.43 In addition, one of the Republic's distinctive features was its 'unusually favourable demographics', in part due to the late baby boom, which did not reach its peak until 1980.[49] This in turn acted as an exogenous boost to labour supply by increasing the proportion of people of working age, i.e. a fall in the dependency ratio (see Chart 1.2). Indeed, the Irish population has been described as the 'most youthful in the industrial world',[50] with near 40 per cent under the age of 25 (compared to the EU15 average of 17 per cent).[51] Further, the theme of 'Young Europeans' formed part of the Industrial Development Authority (IDA) Ireland's investment promotion in the 1980s.

Catch-up?

1.44 Part of the disparity in growth between the Republic of Ireland and Northern Ireland from the mid-1990s was due to the greater political stability of the Republic, but differences in economic strategy are likely to account for the faster growth enjoyed by the South after 1987. From the economic literature, one could view the strong growth in the Republic of Ireland as 'catch-up', experiencing rapid growth in living standards in order to come into line with the historic levels seen in other OECD countries.[52] Having said that, there is nothing automatic about such progress. As outlined below, catching-up and doing so rapidly, requires a favourable institutional, policy and external environment. The credit in the case of the Irish experience must be shared widely.

Key factors

1.45 Accounted below are the key features of the Irish growth path, some of which are relevant for Northern Ireland today:

- foreign investment;
- execution of industrial strategy;
- skills and education;
- EU subsidies; and
- the role of corporation tax.

Other factors

1.46 Unsurprisingly, the growth of the Republic of Ireland has been analysed by many commentators. Many and sometimes contradictory drivers have been proposed, but what is clear is that there was no single causal factor; it was a confluence of different factors coming together at different times. For example, other issues that have been cited include: favourable industrial relations under a so-called 'social partnership' approach which encouraged employment by seeking to resolve industrial disputes and ensuring wage moderation; the growth in tourism[53] and competitive currency devaluations, for example, in 1986.

Role of foreign direct investment

Overall performance

1.47 The Republic of Ireland's economic development policy increasingly focused on inducing multinational corporations to locate production – and more recently, higher-value added production stages – in the country. The Republic has been very successful at attracting inward foreign direct investment (FDI), of which about half is from the USA. Direct investment per manufacturing worker was in 1996 two to three times as large as such investment in the UK, France, Germany and Spain put together.[52] Today, the Irish level of GVA per employee is more than five times greater in the foreign-owned sector than for indigenous enterprises.[54]

[49] OECD, 'Economic Surveys: Ireland 1999', (1999), p.34.
[50] Coleman, 'Demography and migration in Ireland, North and South', in Heath et al., 'Ireland North and South: Perspectives from Social Science', (1999), p. 71.
[51] European Commission, 50 Years of Figures on Europe (2003), pp.26, 29, 35-37.
[52] Barry, 'From Periphery to Core? Foreign Direct Investment, Cost Competitiveness and the Transformation of the Irish Economy', (Sept 1999).
[53] Tourism contributes less than 4 per cent of GDP in Northern Ireland, compared with about 6 per cent in the Republic of Ireland and 7 per cent in Great Britain.
[54] Forfas, 'International Trade and Investment Report 2002', p.15.

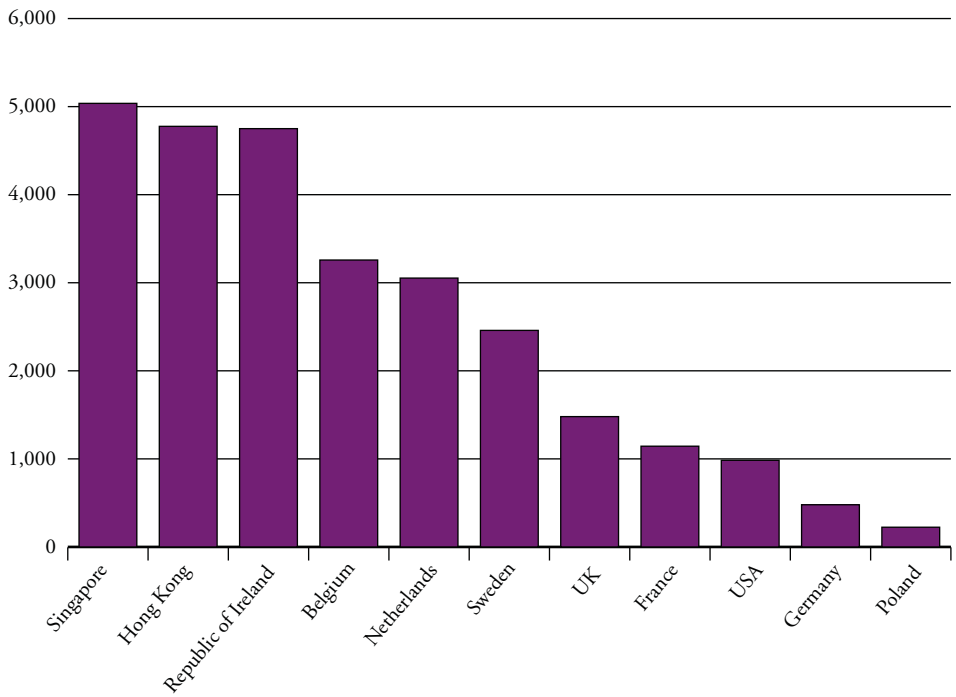
Sectors

1.48 By the mid-1990s, 58 per cent of jobs in foreign-owned companies in the Republic of Ireland were in the more advanced engineering, chemical and metals sectors, with only 27 per cent of such jobs in the traditional sectors of food, clothing and textiles. In Northern Ireland, the numbers were reversed: 51 per cent in food, clothing and textiles; 34 per cent in metals, engineering and chemicals.[55]

'Celtic Tiger'?

1.49 As Chart 1.3 shows, the Republic of Ireland is comparable to economies like Hong Kong and Singapore in terms of forecast FDI flows to GDP (the UK sits just ahead of similar G7 economies). Indeed, much of the literature on the Irish growth story has examined its status as a 'Celtic Tiger' economy comparable to the East Asian 'tigers'.[56] Certainly, Irish growth rates prior to 1995 do not compare favourably with those of the Asian economies, but it was in the latter half of the 1990s that the Republic demonstrated very strong performance (as shown in Chart 1.2 above) driven by increased inputs, in terms of employment and participation. Thus, it is unsurprising, on an examination of the growth and FDI statistics, that the Republic has become an excellent case study in economic growth and for showcasing the trends associated with globalisation and opportunities in attracting international business.

Chart 1.3: Forecast FDI inflows per head (2006-2010)



Source: Economist Intelligence Unit, 2006.

Execution of industrial strategy

1.50 In terms of economic strategy, the Republic of Ireland is particularly interesting as a case study in development policy, because its Industrial Development Authority[57] (IDA) began to pursue a then distinct strategy of attracting foreign multinationals and businessmen to invest on the island from the early 1960s.

[55] Portland Trust, 'Economics in Peacemaking, Lessons from Northern Ireland', p.39.
[56] The four main countries being Hong Kong, Singapore, South Korea, and Taiwan.
[57] Now named the 'Investment and Development Agency'.

Focus and execution

1.51 Where previously the IDA's emphasis had been, as in Northern Ireland, on capital grants, it gradually shifted 'to indigenous development, then to providing business services rather than start-up capital, to strengthening linkages from trans-national corporations'.[58] However, it was not just the establishment of the strategy, but its effective execution that was critical. The IDA focused incessantly on strengthening its links and professional contacts in the USA. Indeed, today, the Republic of Ireland attracts roughly a quarter of all US investment in the EU.[59] While it had traditionally been characterised by a 'scatter-gun' approach to FDI (insofar as it emphasised labour intensive industries across a range of sectors), the IDA increasingly began to move towards a 'rifle-shot' approach during the 1980s which targeted leading multinational enterprises such as Motorola and Intel.[60] Box 1.2 highlights some examples of how this strategy played out successfully in practice.

Shaping wider government agendas

1.52 That is not to say that governments should seek to be 'developmental' in their approach to the economy, but it is clear from meetings in Dublin that the role of investment agencies can be significant if they are focused on relaying investor concerns to other parts of government and influencing industrial policy. An investment promotion agency that commands the support and confidence of the political leaders and government departments, local authorities and higher education sector can generate a responsive policy environment for FDI. See Box 1.2.

Box 1.2: Industrial Development Authority (IDA) Ireland

The work of the IDA included the following types of responsive, supply-side strategies, which complemented the improvements in skills and labour force participation, to attract key FDI projects:[61]

- In 1979, following a negotiation between the IDA and foreign electronics companies, including subsidiaries of General Electric, the Irish government secured projects worth 18,000 jobs – technical and non-technical – over three years. A supply constraint however was that the Republic of Ireland was producing 300 electrical engineers and technicians a year, a quarter of what was needed each year by industry. The IDA discussed and persuaded the Higher Education Authority to convert a number of science graduates to electronics qualifications via one-year conversion courses. The next year there were 14 special conversion courses, and 58 new or expanded courses in electrical engineering were under way, which were viewed as key in securing the inward investors.
- In 1989, in securing investment from Intel, the County Manager of Kildare assured the company that planning permission could be finalised within 21 months. The IDA had already acquired and developed a site five years earlier served by a newly built motorway. Furthermore, when Intel voiced concerns about skilled engineers, the IDA hired a consultancy to locate and interview Irish engineers working abroad with relevant experience in semi-conductor engineering. Within five weeks and following 300 interviews the IDA reported that 80 per cent of the expatriates interviewed would return if given good career opportunities in well-regarded company.

The story of such rapid response by the education authorities to industry's needs was so rare internationally that the IDA relayed it to prospective investors many times.

[58] O'Donnell, 'Ireland's Economic Transformation: Industrial Policy, European Integration and Social Partnership', (Dec 1998).
[59] Sweeney, 'The Celtic Tiger: Ireland's Economic Miracle Explained', (1998).
[60] Mac Sharry and White, 'The Making of the Celtic Tiger', (2000), p. 368.
[61] Mac Sharry and White, 'The Making of the Celtic Tiger', (2000).

First-mover advantage...

1.53 Some commentators cite first-mover advantage as key among reasons for Irish success in attracting FDI. For example, Pfizer and General Electric, two key investments in the 1960s, built on the back of Irish-American connections and acted as credible references in the USA for Ireland as the IDA fought to establish the country's suitability for incoming industry. In hindsight, both companies have been described as founding members of two key sectors – pharmaceuticals and electronics - that have subsequently proven to be outstanding successes in the Republic of Ireland. Therefore, as one of the first agencies to actively and persistently seek out inward investment, the IDA has built up a wealth of experience which has put it (and arguably has kept it) ahead of other similar agencies.

...But looking to the future

1.54 For the future it is clear that the Republic of Ireland needs to continue supporting high value-added investment. The story of Apple Computers is an example of the broad change towards high value-added and away from competitive advantage built on cost. In 1997, the company employed 1,800 people in Cork mostly in manufacturing, but in sustaining investment activity it has moved high valued-added operations, concentrating most European support and research in Cork. It now employs just over 1,400 people, mostly skilled graduates. Only 15 per cent of them are now employed in manufacturing – the rest shifted to the Czech Republic and Taiwan.[62] The aim of attracting high value-added activity applies equally to Northern Ireland and the UK and should be built on a coherent strategy that emphasises and delivers a strong skills base and responsive education system.

Skills and education

1.55 The improvement in skills has been key to establishing sustainable growth in investment and productivity in the Republic by attracting high-value industries and creating high-wage employment. Chart 1.4 illustrates the change in the skills mix of the Republic of Ireland's population from 1971, showing a rapid change in the stock, driven by high-skilled immigration and the improved educational attainment of a growing population.

Education and industrial strategy

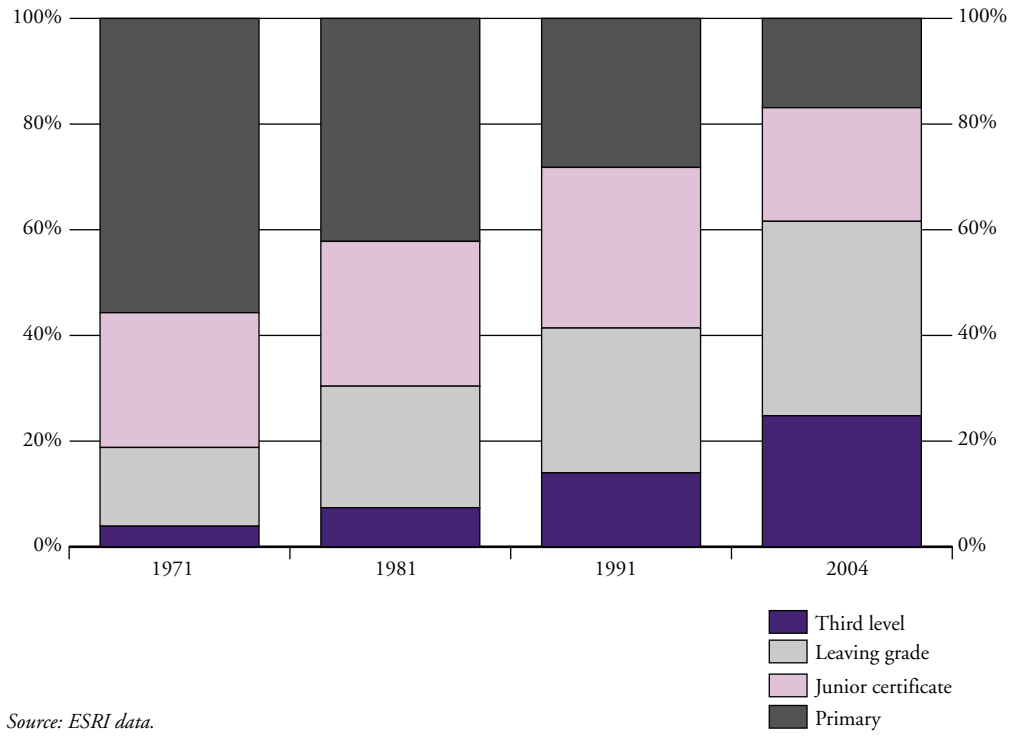
1.56 This rapid improvement has been driven by the establishment of free secondary education in 1967, but also by the investment in technical skills. It is in specific subject areas and professions that the Republic of Ireland scores particularly highly. For example, of all degrees awarded in the Republic, nearly a third are in the area of science and engineering, with the number of science and engineering graduates per 1,000 of the population aged 20-34, more than double the OECD average and higher than France, the USA, and the UK.[63] It ranks first in the European Innovation Scoreboard's innovation index in terms of the output of science and engineering graduates.[64]

Science and engineering

1.57 The main components of the technical education system that developed over the course of the 1970s were the Regional Technical Colleges (now Institutes of Technology) and two National Institutes for Higher Education (now universities). These offered programmes of shorter duration than the universities with a more limited range of subjects on offer, principally in engineering and business studies. In addition, the Irish Higher Education Authority (HEA) was given the powers to monitor higher education and impose decisions under the 1971 HEA Act. These established business-orientated skills within the economy and played an important role in generating improvements in the proportion of the population with tertiary and school-leaving level skills. See Chart 1.4.

[62] The Economist, 'Survey: Ireland', (2004).
[63] NCC Annual Competitiveness Report 2003, p.74.
[64] European Innovation Scoreboard 2006: Comparative Analysis of Innovation Performance, p.13.

Chart 1.4: Changing skills profile of the Republic of Ireland's working age population



Source: ESRI data.

1.58 In addition, Box 1.2 highlighted how the close coordination of the education system and industrial strategy helped secure strategically important investment during the 1970s and 1980s. Today, these links have been cemented through the four universities in the Dublin region, and also those at Cork, Galway and Limerick, which have become crucial to the ICT and pharmaceutical sectors that have invested in those regions.

EU structural funds

A windfall used effectively

1.59 On joining the EU in 1973, the Republic became eligible for greater regional aid through EU structural funding, helping to spur investment in much needed infrastructure. Structural funds increased substantially from 1988 and in the 1994 to 1999 programme – about ten per cent of the funds went to income support, 25 per cent to the private sector in the form of investment aid, 30 per cent to skills, and 35 per cent to physical infrastructure.[65] The bulk of the latter went on road construction, which was designed to offset the significant adverse effects that high transport costs have on the competitiveness of Irish business. The programmes allowed the reinstatement within a couple of years of infrastructure projects which had been postponed as part of the drive to restore order to the public finances in 1987.

[65] Barry, 'Convergence is not Automatic: Lessons from Ireland for Central and Eastern Europe', (Nov 2000).

The role of corporation taxation

The evolution of the Irish regime

1.60 Taxation has formed a key part of the commentary on the Republic's growth performance. From 1956 to 1980, the major concession came in the form of an exemption from corporation tax for profits derived from exports. Thereafter, in order to come into compliance with the EU requirement of non-discrimination, the exemption was replaced by a preferential 10 per cent corporation tax rate applied to manufacturing and certain internationally traded services. In 1996, the corporation tax regime came under pressure from the European Commission on state aids aspects, leading to a phased move to unify by 2003 the corporation tax rate across the economy at 12.5 per cent on all trading income. The manufacturing rate continues to apply to 2010 for existing companies.

More than tax

1.61 While the low corporation tax regime can be seen as attractive to foreign investors, as well as offering profit shifting opportunities (see Chapter 2),[66] it cannot in itself explain Ireland's success. Foreign investment to Ireland has not only increased in quantity, but it has also changed in quality. Prior to the late 1980s, it tended to involve low-skill assembly and packaging work across a wide range of sectors, with few local linkages and high profit repatriation. Since then, however, it has been concentrated in technologically sophisticated sectors such as electronics and pharmaceuticals.[67] The Republic's low corporation tax regime cannot explain these developments, particularly as these taxes have actually risen over time, i.e. from zero in 1958 to 10 per cent in 1981 and 12.5 per cent in 2003.

Moving early

1.62 Rather, the Republic of Ireland moved early in trying to establish a 'unique selling point', particularly to US investors. This combined being the lowest tax environment for manufacturing investment among advanced economies with an educated and young English-speaking population, well marketed to take advantage of its historic ties to the USA.

Conclusion

1.63 The 10 per cent manufacturing regime was an important strategic tool for the Irish government. However, the Republic's proactive inducement of manufacturing FDI included not only the tax regime, but also an element of active grant assistance, freedom to repatriate profits and a well-executed industrial strategy underpinned by the IDA and other agencies. Indeed, the indications are that the Republic of Ireland was already capturing an increased share of the stock of US manufacturing FDI into Europe from the late 1970s, as it joined the EU and ahead of the 10 per cent manufacturing rate announcement in 1980.[68]

[66] O'Grada & O'Rourke, 'Economic growth: performance and explanations', in O'Hagen (ed.) 'The Economy of Ireland: Policy and Performance of a Small European Country', (1995); and O'Hearn, 'Macroeconomic policy in the Celtic tiger', in Coulter and Coleman (eds.), 'The End of Irish History?', (2003). These point to the opportunities the Irish regime has offered businesses to take advantage of legitimate tax management within the standard transfer pricing rules.

[67] Breathnach, 'Exploring the "Celtic Tiger" phenomenon', pp.304-309.

[68] Walsh and Honohan, 'Catching up with the leaders: the Irish Hare', (Apr 2002).

CONCLUSION: THE IRELAND ECONOMIES

Lessons from the Republic of Ireland...

1.64 There are many causal factors at play in explaining the Republic of Ireland's economic growth performance to date. As the OECD states, there has been 'no "silver bullet" – no single, overriding policy that could be adopted elsewhere in order to emulate the Irish experience'.[69] Some of the factors that contributed to increased output were a result of improved inputs (e.g. increased female participation, turning demographics) and better organisation of government policy (e.g. between industrial strategy and skills). Here, there are lessons for Northern Ireland, which are detailed in Chapter 4. In addition, it should be noted that some factors were also 'one-offs', unique to the Republic of Ireland. These included both policies and external trends, for example, the late baby boom and improving demographics, exchange rate devaluation in 1986 and EU subsidies from the late 1980s.

...For Northern Ireland

1.65 What is clear is that the credit in the case of the Irish experience must be shared widely and the lessons for Northern Ireland, therefore, rest wider than corporation tax policy. For Northern Ireland, there are lessons in terms of improving labour force participation, basic skills, and efficiency and organisation in the public sector. Northern Ireland needs to move towards the execution of a strategy focused on business and economic development. Indeed, fostering greater trade with the Republic of Ireland will contribute to economic success by deepening links with a potential source of, and markets for, goods, investment and skills.

1.66 The role of tax policy needs to be examined within this wider policy whole. The next chapter outlines briefly the principles underlying the UK tax system, and the literature on the role of tax and investment as a precursor to the analysis in Chapter 3 on the costs and benefits of a lower rate of corporation tax in Northern Ireland.

[69] OECD, 'Economic Surveys: Ireland', (1999), p.10.

2 Tax and investment

Overview

2.1 This chapter outlines observations from the empirical literature on tax and investment to establish the key points for business tax policy in Northern Ireland, including the case for a differential rate of corporation tax, examined in Chapter 3 and Annex D.

2.2 Most of this chapter focuses on the role of tax on cross-border business activity and foreign direct investment (FDI), since these flows are established in Chapter 1 as key drivers of the Republic of Ireland's recent economic performance. Indeed, attracting cross-border investment into Northern Ireland is a central objective underpinning the majority of submissions to the Review. This chapter covers:

- the principles underpinning the Government's approach to tax policy;
- the extent to which tax affects investment decisions;
- the importance of other factors in affecting investment; and
- the extent to which tax affects other cross-border flows, including profit shifting.

TAX PRINCIPLES

Wider policy

2.3 This chapter examines how tax can affect investment and other business activity. Firstly, it should be noted that tax policy must complement the wider set of measures used to support business growth and investment. These are framed by the Government's 'five drivers' of productivity highlighted in Chapter 1 and include measures to improve skills, innovation, enterprise, competition and investment.

Tax policy

2.4 On taxation, the aim for consistency and certainty makes it desirable that policy making is underpinned by a set of general principles. Competitiveness and fairness are the Government's principles for business tax policy.[1]

Competitiveness

2.5 Supporting competitiveness means removing distortions created by the tax system so as to facilitate decision making that is driven by commercial factors, rather than by tax considerations. It has also means promoting productivity by tackling 'market failures' that ultimately undermine growth. In this respect, under-investment in research and development (R&D) is often cited as a key focus for government policy, including tax policy.

Fairness

2.6 Equally, competitiveness should be balanced by the aim of ensuring fairness. In other words, individual businesses should pay their perceived fair share of tax in relation to their commercial profits and compete on a level playing field with others. Furthermore, if the tax system is the best policy instrument, it should be used to correct 'market failures' that impose wider costs on society.

Implications for regional policy

2.7 It is clear that in reflecting the two principles outlined above, tax policy must both consider the possible effects on the level of investment as well as the distribution or redistribution of investment within the economy. Currently, the economic success resulting from inward investment

[1] See HM Treasury and Inland Revenue, 'Large Business Strategy: The Government's Strategy and Corporate Tax Reforms', (2001).

into the UK is redistributed through a system of fiscal transfers – central government finances Regional Development Agencies and the devolved administrations (through the 'Barnett' formula), which in turn seek to improve their regional economic competitiveness. Of course, since the Government operates a UK-wide tax policy, there is a potential trade-off between its two tax principles. The creation of any regional differentials would naturally change the playing field or commercial environment for businesses operating in different parts of the UK.

Taxation and spending

2.8 Moreover, corporation tax (which contributed £42 billion in 2005-06)[2] raises the revenues needed to fund public services, which in turn contribute to the environment for business. Therefore, there is a basic revenue trade-off for governments to make in assessing tax against other policies to support business. Chapter 3 makes this assessment in the case of corporation tax rates in Northern Ireland.

ROLE OF TAX IN AFFECTING INVESTMENT

Investment and long-term growth

2.9 There is an extensive body of literature on the role of investment in driving productivity and long-term economic growth.[3] Capital accumulation raises labour productivity both through direct and indirect effects.[4] The direct impact is the increase in capital intensity; this means that labour is more productive, because it has more capital to work with. The indirect productivity effect of capital investment is felt when new investment helps labour to gain new skills and becomes more efficient at using that capital.

Types of investment

2.10 The causal relationship between increased investment and increased skills or greater technology progress is by no means simple. Rather, the literature generally argues that investment and technology progress can be self-reinforcing and complementary.[5] It is, however, clear that the type of investment is important to long-term growth. Key among these investments are, for example:

- physical capital – which directly influences how much a unit of labour can produce;
- information and communication technologies (ICT) – a specific component of physical capital and the most recent example of technological change with a pervasive influence on production processes across a wide range of sectors of the economy;[6]
- intangible capital – the application of ideas and information that have commercial value, including intellectual capital (patent formulas, product designs, and process technology), goodwill, and human capital;

[2] HM Treasury, 'The Financial Statement and Budget Report', (2007) – 2005-06 figures.
[3] HM Treasury, 'Productivity in the UK: 7 – securing long-term prosperity', (2007) provides a summary of the UK Government's approach to productivity and the evidence on investment as a key factor for the UK.
[4] Mankiw, Romer and Weil, 'A Contribution to the Empirics of Economic Growth', (1992) suggests that capital accounts for one-third of the level of output per head.
[5] Baumol, Blackman, and Wolf, 'Productivity and Leadership: The Long View', (1989) found a high correlation between TFP growth and growth in the capital-labour ratio for seven OECD countries over the period 1880 to 1979. Grossman and Helpman, 'Endogenous Innovation in the Theory of Growth', (1994) found a positive correlation between the investment-to-GDP ratio and TFP growth in a sample of 22 countries between 1970 and 1988.
[6] Jorgenson, 'Information Technology and the U.S. Economy', (2001); Oliner and Sichel, 'Information Technology and Productivity: Where Are We Now and Where Are We Going?', (2002); and Stiroh, 'Information Technology and the US productivity Revival: What do the Industry Data Say?', (2002).

- infrastructure – providing a base for other economic activities with significant positive effects on the profitability of business investment by reducing production costs and improved time efficiencies in transit and travel;[7] and
- cross-border investment – which can increase average productivity since there is considerable evidence that multinational firms are generally more productive than domestically owned firms.[8] They, therefore, improve competition and contribute to domestic firms' productivity through 'spillovers', such as the spread of best-practice, knowledge, techniques and technology.[9] These studies imply that, cross-border foreign investment can be desirable even if it does not increase the total stock of physical capital (first bullet above).

2.11 Tax may have an influence, to varying degrees, on all these types of investment, as well as where companies simply seek to 'book' profits. There is a large and growing body of empirical literature on the role of tax on these flows and on comparisons of 'effective tax rates' between countries competing for these flows. In addition, the majority of submissions to the Review have emphasised cross-border foreign investment (as well as foreign and domestic ICT investment) as the core foundations to improved productivity in Northern Ireland.

Effective tax rates

2.12 The basic link between tax on corporate profits and investment, both by domestic firms and by overseas investors, is that a higher level of corporate taxation reduces the post-tax rate of return[10] on an investment.[11] This generally reduces the level of investment or, viewed slightly differently, reduces the attractiveness of the tax area to the location of investment. The open question is the extent to which changes in the level of tax has an effect on investment behaviour, and where tax sits relative to other factors.

UK Corporation Tax

2.13 Gross trading profits in the UK make up 19 per cent of gross domestic product (GDP). Corporation Tax revenue accounted for £42 billion[2], or around eight per cent of total UK tax revenue and three per cent of UK GDP.[12]

Tax rates and bases

2.14 There are in general two aspects of corporation tax that determine the tax burden for a firm: the tax rate and the tax base. The former determines the level at which company profits are taxed and the latter determines the definition of what constitutes taxable profits. Gross trading profits constitute the maximum theoretical tax base for corporation tax. However, the tax base is generally narrowed through interest deductions, general depreciation allowances, enhanced allowances or R&D tax credits.

[7] Aschauer, 'Is Public Expenditure Productive?', (1989).

[8] Griffith, Redding, & Simpson (2004) found that foreign-owned multinationals are on average 25 per cent more productive (value-added per worker) and invest more per worker than both British-owned multinationals and domestic firms, in both the manufacturing and service sectors. Criscuolo and Martin (2003) show that foreign-owned firms in the UK are roughly twice as productive (output per worker) as domestic firms.

[9] Gorg and Hijzen, 'Multinationals Enterprises and Spillovers' in Horg, Greenaway and Kneller (eds.), 'Globalisation and Productivity Growth – Theory and Evidence', (2005). For the UK, Haskel et al. (2002) found a positive correlation between the productivity of domestic plants and the foreign-affiliate share of that industry. Overall evidence is however mixed. See e.g. Aitken and Harrison (1999) or Jovorcik (2004).

[10] Equivalently, an increase in the corporation tax rate increases the required pre-tax rate of return from an investment to maintain an expected post-tax outcome dictated by an internationally competitive global investment market.

[11] For a survey of recent literature on tax and FDI, see Hines (1997; 1999), Devereux and Griffith (2004), De Mooij and Ederveen (2005), and Devereux (2004). For evidence on the relationship between tax and domestic investment, see Schaller (2005) and Perotti (2004),

[12] Figures for 2005-06.

Rate reduction and base broadening

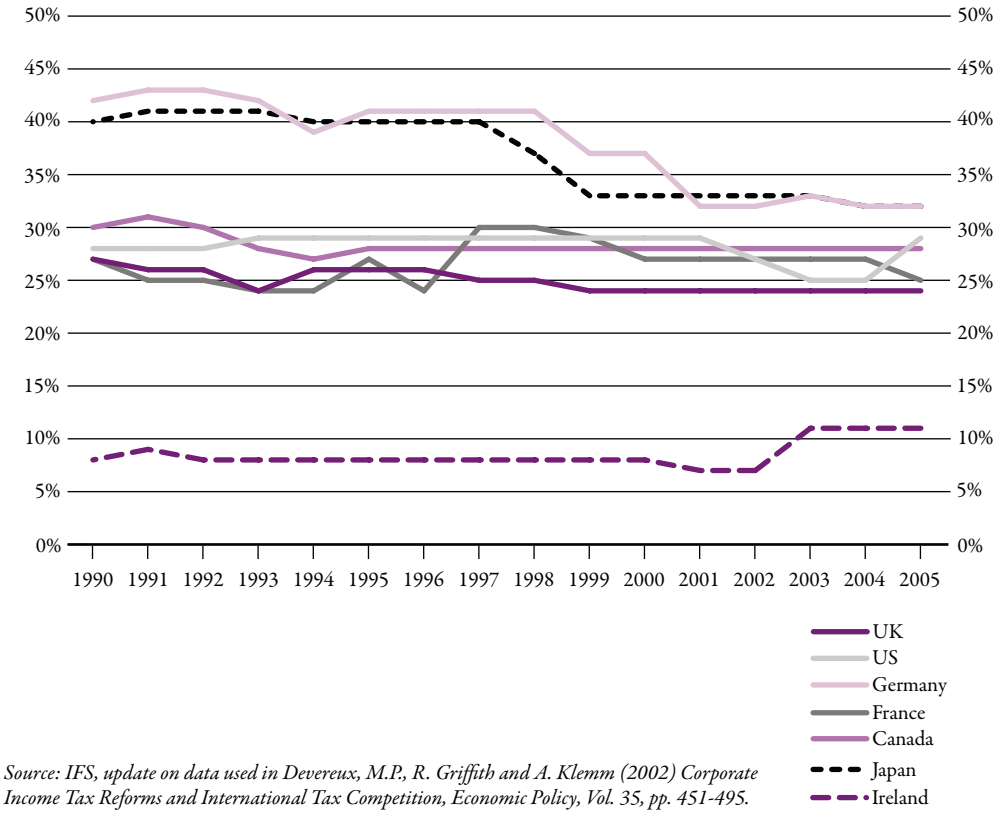
2.15 Devereux, Griffith and Klemm (2002) find that for a sample of industrialised countries, statutory corporate tax rates decreased in most countries over the period 1982 to 2001, while tax bases appear to have broadened. A lower tax rate is, of course, beneficial to firms, while a broadening of the tax base works in the opposite direction. In order to arrive at an overall assessment of the effect on a firm, a measure of the effective tax rate is widely used in the academic literature to combine both the tax rate and the definition of the tax base.

2.16 The literature sets out two different concepts of the effective tax rate: the effective average and effective marginal tax rate. It is important to distinguish between these two effective tax rates. Generally, the effective average tax rate is shown to be the relevant tax rate determining the discrete investment choice (i.e. whether to invest or not) as the average return to capital is what matters for the decision. By contrast, the effective marginal tax rate is relevant for firms' decisions about the level of investment, as it affects the net return to capital on the marginal (or 'break-even') investment project.

Effective average tax rates

2.17 The effective average tax rate (EATR) reflects the percentage reduction of the net present value of a profitable investment that is caused by taxation. When choosing between two or more mutually exclusive profitable investments a company will favour the alternative with the highest post-tax net present value, other things being equal. Therefore, assuming other strategic business and country specific factors are equal, the effective average tax rate is the more useful indicator (as compared to the effective marginal tax rate) of the potential tax burden faced by a multinational firm choosing to locate capital. Charts 2.1 illustrates movements in EATR's in selected countries over recent years. The UK sits in the pack with its G7 partners with regards to its effective average tax rate.

Chart 2.1: Effective Average Tax Rates (selected countries)



Source: IFS, update on data used in Devereux, M.P., R. Griffith and A. Klemm (2002) Corporate Income Tax Reforms and International Tax Competition, Economic Policy, Vol. 35, pp. 451-495.

Effective marginal tax rates

2.18 The effective marginal tax rate (EMTR) indicates the tax burden on an investment that is marginal in an economic sense, i.e. an investment that earns a net present value of zero. The EMTR represents the wedge between the required pre-tax rate of return on an investment and the post-tax rate of return dictated by prevailing market conditions. The lower the EMTR at the corporate level the larger is the theoretical optimal level of investment. Compared to the EATR, the measured EMTR is more sensitive to those factors which affect the tax base, such as the level of capital allowances.

2.19 In comparison with other major economies, the UK has both a relatively low EATR and EMTR.[13] In 2005, companies in the UK faced an effective average tax rate below that of any other G7 economy, and an effective marginal tax rate joint lowest in the G7 with that of France. The Republic of Ireland had significantly lower effective average and marginal rates than any of the major economies. Although the capital allowances regime in the Republic of Ireland provides a lower allowance for capital expenditure than that of the UK, this is offset by the Republic of Ireland's low statutory rate. Box 2.1 compares other aspects of the Republic and the UK's business tax environment.

Why might tax influence investment?

2.20 Of course, simply describing the differences in 'effective tax rates' does not establish the extent to which tax influences the location of investment, nor tax revenues. In terms of the role of tax, neoclassical economic models calculate the demand for capital assuming that firms will be seeking to maximise value, in particular the present value of the future net cash flow. The two most conventional models are based on the 'user cost of capital' and Tobin's q-theory.[14] Both of these models have been widely used in empirical studies. However, the results are ambiguous. Although more recent research suggests that taxes have a negative effect on investment, claiming a consensus in the size of the effect would be misleading.[15] This is examined further below.

Actual tax bills

2.21 It is important to note that the concepts of 'effective tax rates' and the 'user cost of capital' used in the empirical literature do not necessarily represent the true rate of tax paid by a business. Indeed, this can vary substantially across businesses. In reality, the rate of tax borne by a company will vary depending upon factors such as levels of capital expenditure, expenditure on research and development and expenditure on interest payments, as well as their industry and individual trading conditions. In addition, the possibility of shifting profits abroad means that multinational companies can reduce their domestic taxable profits further. Depending on the type of business, the tax bill can be much less than that implied by headline effective tax rates. For example, a recent National Audit Office report found that, in 2005-06, one-third of the UK's 700 largest businesses paid less than £500,000 each in corporation tax, while another third paid less than £10 million each.[16] This shows a large skew in the distribution of the total £24 billion corporation tax paid by these 700 companies.

[13] Devereux, Griffith and Klemm, 'Corporate income tax reforms and international tax competition', (2002).
[14] Jorgenson, 'Capital Theory and Investment Behaviour', (1963) and Tobin, 'A general equilibrium approach to monetary theory', (1969).
[15] See, for example, Cummins and Bond (2001) for a q-model estimation and Hassett and Hubbard (1997) for an overview of q-theory based earlier studies. For SVAR models see Alesina et al. (2002) and Perotti (2004). For a study on the effectiveness of tax credit, see Desai and Goolsbee (2004) who find the effects minimal and similarly Goolsbee (1998) who concludes that tax credits rather affect the prices for capital goods than investment. In contrast, Schaller (2005) argues the tax incentives will be most efficient if they are targeted and that an investment tax credit or accelerated depreciation for equipment will be more efficient than a general reduction in the corporate tax rate.
[16] National Audit Office, 'HM Revenue & Customs: Management of large business Corporation Tax', (2007).

International trends

Growth of low-tax jurisdictions

2.22 Chart 2.1 show that the UK sits in comparable terms with its G7 partners in terms of corporate tax levels defined by the EATR. Although the Republic of Ireland stands out among developed economies in the low level of its statutory tax rate, recent years have seen a significant increase in the number of countries offering relatively low corporation tax rates. These countries are typically small, ex-communist states which began their economic reform process with initially small tax bases, so limiting the revenue cost of offering a low corporation tax rate. Latvia, Lithuania, Bulgaria, Hungary, Poland and Slovakia all offer statutory corporation tax rates of less than 20 per cent.

Box 2.1: Tax comparison between UK and Republic of Ireland

The attractiveness of the investment environment is influenced by both tax and other factors. In terms of the tax system, corporation tax is only one of several taxes relevant to business decisions. Other relevant taxes include income tax (influencing the attractiveness of a location for employees), VAT (which can affect the level of domestic demand) and capital gains tax (which affects the return on investment).

The headline corporation tax rate in the UK is currently 30 per cent, which is being lowered to 28 per cent as of April 2008. However, the existence of the small companies rate, set at 19 per cent and rising to 22 per cent by 2010, means that only 4 per cent of companies in Northern Ireland pay this headline rate. The Republic of Ireland has a 12.5 per cent corporation tax rate that applies to trading income. So-called 'passive' income (mainly Irish rental and investment income) along with income from certain land dealings, mining and petroleum activities is subject to a 25 per cent rate. Taking into account reliefs as well as rates, Chart 2.1 compares the evolution of effective average tax rates in both countries.

Both the UK and the Republic of Ireland offer tax credits on research and development. However, the UK scheme has been assessed as more generous by the OECD.[17]

In both countries, personal taxes account for a significantly larger share of tax revenues than corporation tax (29 per cent of total revenue in the UK and 27 per cent in the Republic). Both countries have basic rates of income tax of 20 per cent (from April 2008), while the Republic's top rate is currently 41 per cent, higher than the UK rate of 40 per cent. The Republic of Ireland's top rate threshold is between £21,000 and £27,000 (depending on family circumstances) compared to £33,300 in the UK as of 2006-07.

The Republic of Ireland is one of only three OECD countries which does not offer tax relief on dividends. In contrast, in the UK individual shareholders liable at the lower or basic income tax rate pay no additional tax on their dividends.

In the case of Capital Gains Tax (CGT), the 2007 Pre-Budget Report announced that from April 2008, all taxpayers and assets will be subject to a 18 per cent rate of CGT. CGT in the Republic of Ireland is chargeable at a rate of 20 per cent.

Taxes on consumption are the largest source of tax revenue in both the UK and the Republic (38 per cent of total revenue in the Republic and 30 per cent in the UK).[18] The Republic of Ireland's standard rate of VAT is 21 per cent, higher than the UK's 17.5 per cent.

[17] Warda, 'Measuring the value of R&D Tax Treatment in OECD Countries', (2001).
[18] 2005 figures. See OECD 'Revenue Statistics 2007', (2007).

Tax competition

2.23 It may be attractive to think that if tax has an effect on cross-border investment then countries would compete on tax rates in a 'race to the bottom.' There is a body of literature on the subject, which argues against a 'race to bottom' for a number of reasons. See Annex A for an expanded account of the literature. Firstly, the cost benefit analysis for a large country is different to a small country simply because the immediate revenue cost stacks up relatively differently to the potential revenue gains from increased investment. It does not follow by analogy that the lower average tax rate in countries with smaller tax bases is an appropriate strategy for larger economies with larger tax bases. Secondly, there are many factors that affect cross-border investment, profits and revenues (examined below). Thirdly, the market place in global FDI is not shrinking. If it were, this could imply greater merit in tax-cutting strategy to attract taxable income from other countries. Rather, forecasts indicate that between 2007 and 2010 global FDI flows are projected to grow at an average annual rate of around 4.8 per cent.[19]

Capital flows in the EU

2.24 The high level of investment into the central and eastern European countries which joined the EU in May 2004 is likely to be linked to the initially low levels of capital in those countries. Economic theory suggests a link between capital-to-labour ratios and capital inflows. All else equal, countries with low levels of capital per worker will offer higher returns and are therefore more likely to attract large capital inflows compared to more capital 'rich' countries. Such flows should continue into capital 'poor' countries until post-tax returns on capital equalise. Following this standard economic relationship and in the interests of taking a broad approach to the issue of tax and investment, Chapter 3 outlines a set of 'stylised examples' illustrating the effects of a corporation tax rate cut in Northern Ireland. This is based on different assumptions about the extent of equalisation of capital-to-labour ratios between the Republic of Ireland and Northern Ireland.

Tax and cross-border investment

2.25 Of the all the types of investment accounted above, the need for Northern Ireland to attract cross-border investment has loomed large in most of the submissions to the Review. Increasing mobility of capital means that policy makers should be interested in the effects of tax policy on cross-border foreign investment. This is because of the increasing share of foreign investment in total investment and the expected higher sensitivity of foreign investment to tax policy parameters.

Foreign direct investment

2.26 Foreign direct investment (FDI) is commonly used as a measure of mobile cross-border investment. Box 2.2 outlines methodological problems in using FDI data as a proxy for cross-border investment. However, it is well known that the growth in multinational enterprise activity in the form of FDI has been faster than most other international transactions, particularly trade flows between countries. Indeed, almost half of all trade flows between the USA and other countries is accounted as intra-firm trade.[20] Multinational enterprises therefore act as the hubs for the large flows of transactions internationally. A focus on FDI also reflects the common view that it implies a technology transfer with positive 'spillovers' on the domestic economy, which in turn positively affects long-run productivity growth.

2.27 There is a substantial body of literature which finds a relationship between levels of FDI and corporate tax rates (see below). The influence of tax on inward investment is akin to that on domestic investment, via its effect on the post-tax rate of return. Where the impact of tax on FDI differs from domestic investment is in the relative importance of the EATR and EMTR. Evidence shows that multinational investors obtain higher returns than domestic companies. Therefore, the

[19] EIU, 'World Investment Prospects to 2010 – Boom or Backlash?', (2006).
[20] US Census (2001) cited in Blonigen, 'A Review of the Empirical Literature on FDI Determinants', (2005).

EATR is of more importance to inward investors.[21] As with domestic investment, the EMTR will influence the level of inward investment, once the location decision has been made.

Tax and uncertainty

2.28 Taxation can also affect investment if tax policy is uncertain; if firms are frequently subject to tax reforms, then they may change their investment behaviour. This can be the case if investment is irreversible or firms have an 'option to wait'.[22] In this case, taxation not only raises the cost of investing but also places a value on firms delaying critical investment decisions; up to the point of investing, a firm has leverage, but thereafter it is hostage to its sunk costs. Thus, an uncertain business environment can constrain the responsiveness of investment to tax. The implications are that policy makers need to achieve consistency and continuity in economic policy to foster a business environment that attracts sustained investment.

Box 2.2: Distinguishing between FDI and mobile capital

To evaluate the role of tax policy on cross-border investment it is necessary to gain an understanding of the impact of taxes on aggregate investment and on the activities of domestic and foreign multinationals. This means being careful in distinguishing investment from wider capital movements. The empirical literature typically examines flows of Foreign Direct Investment (FDI). FDI is a measure of financial flows from a company to invest in or acquire a foreign subsidiary, affiliate or branch. While FDI can therefore be seen as an indicator for mobile capital, it is only a proxy since it does not fully account for changes in the ownership of capital, nor changes in the level of the aggregate capital stock.

1. Capital ownership – foreign owned companies can raise capital in the domestic market to invest locally. This implies an increase in the foreign owned capital stock, which is not reflected in total inward flows of FDI. Conversely, a domestic firm can raise capital on a foreign market to invest domestically which increases FDI flows but leaves the foreign owned capital stock unchanged.
2. Aggregate capital stock – FDI flows do not necessarily imply changes in the aggregate capital stock. Instead, to a large extent, FDI flows represent mergers and acquisitions (M&A) which change the capital ownership structure, but leave the level of the capital stock unchanged. Hence, from a policy perspective, FDI is of interest only to the extent to which M&A has positive 'spillover' effects on the domestic economy.

These issues suggest the need for caution in interpreting and drawing policy conclusions from FDI data.

Influence of foreign tax regimes

2.29 In principle, an important issue in assessing the impact of tax on FDI is that multinational companies can face tax both in the country receiving inward investment and in the multinational company's home country. This depends on how countries mitigate the 'double taxation' of profits on cross-border investment. Although many countries choose to exempt foreign earned income from tax, others, including the USA, which accounts for about half of reported FDI into Northern Ireland, continue to operate credit regimes. Such regimes offer a deduction for any foreign tax paid by the subsidiary (e.g. in Northern Ireland) of a multinational company ahead of the dividend being taxed in its 'home' country (in this case the USA). A credit regime in the 'home' country might therefore make inward investment less sensitive to tax rates in recipient countries.

[21] As the level of profits increases, the EATR approaches the statutory rate and the relevance of allowances, which are important in determining the EMTR, diminishes.

[22] That is, asymmetric adjustment costs in contrast to convex adjustment costs in the neoclassical models. See Dixit and Pindyck, 'Investment under Uncertainty', (1994).

2.30 In practice, however, US multinationals pay a relatively small amount of tax on foreign dividends.[23] In part, this is because they are often able to defer, in effect indefinitely, repatriating their foreign profits (typically the tax liability only arises when profits are repatriated). Recently the 2004 'American Jobs Creation Act' enabled these accumulated foreign profits to be repatriated at a much reduced tax rate. Deferring repatriation might be discouraged by the US's 'Subpart F' regime (broadly the equivalent of the UK's Controlled Foreign Companies rules) which taxes some profits accruing in foreign subsidiaries of US multinationals, such as some interest receipts, on an arising basis. However, the US tax system, in particular the 1997 'check-the-box' regulations, has limited the effect of Subpart F.[24] This suggests that in practice the US credit regime should have only a limited effect on the sensitivity of inward investment to tax in recipient countries. This is consistent with recent surveys of the empirical literature on the sensitivity of inward investment to tax.[25]

Other tax factors

2.31 Using survey evidence across a range of FTSE100, FTSE250 and large, foreign-owned subsidiaries, KPMG's most recent analysis of the UK's tax competitiveness found that a low tax rate was considered the second most important of five tax factors in assessing the benefits of a particular country for investment.[26] This, of course, did not consider other non-tax factors. 'Clarity on interpretation' was ranked most important by 88 per cent of respondents, a 'low tax rate' and 'consistency' by 84 per cent, 'stability' by 82 per cent and 'advance warning of major changes' by 72 per cent.

Summary

2.32 The evidence points towards taxes negatively affecting the location of investment.[27] However, the literature suffers from a number of limitations, especially related to analysing the capital stock (see Box 2.2) and interpreting tax data. These problems include circularity,[28] the difficulty of separating location and ownership advantages, and the different impacts of territorial and residence based tax systems. Empirical studies therefore differ substantially in their concepts of foreign capital data, tax rates, and in their methodologies, making it difficult for policy makers to draw conclusions regarding the size of the effect of taxation on FDI.

TAX RELATIVE TO OTHER FACTORS

Location-specific factors

2.33 Having examined how tax regimes and types of investment are described in the economic literature, this section draws on a range of evidence as to the importance of tax relative to other factors in affecting investment. It is hard to be specific for an economy, since even if tax has a negative impact on investment location, at the margin, additional tax revenues still contribute to a fiscal policy that can generate greater amounts of public goods which benefit and attract business. Thus, there are various factors that imply that FDI may not be responsive to taxation simply because other factors are at play, for example: the size of the market; the rule of law; infrastructure; access to labour and other factors of production; or economic integration represented by the intensity of trade between regions.

2.34 Potentially, these location-specific factors allow governments to tax profits without inducing immediate outflows of capital. And in practice, tax rates are generally higher in large core economies with better access to markets and larger pools of labour, than in smaller and peripheral

[23] Grubert and Altshuler, 'Corporate Taxes in the World Economy: Reforming the Taxation of Cross-Border Income', (2006).
[24] Grubert and Altshuler, 'Government and Multinational Corporations in the Race to the Bottom', (2006).
[25] De Mooij and Ederveen, 'How Does Foreign Direct Investment Respond to Taxes?", (2005).
[26] KPMG, 'UK Tax Competitiveness Where are we now?', (Jul 2007).
[27] See Hines (1997; 1999), Devereux and Griffith (2004), De Mooij and Ederveen (2005), Devereux (2004), Schaller (2005), Perotti (2004).
[28] Strictly, this is referred to at the 'endogeneity' of effective tax rates. In other words, the tax rate faced by a firm will influence the type of investment undertaken, which in turn will affect the amount of tax paid.

economies.[29] Key, of course, to businesses seeking to locate high value-added investments (and therefore contribute to sustained increases in productivity and technological progress) is skilled labour.

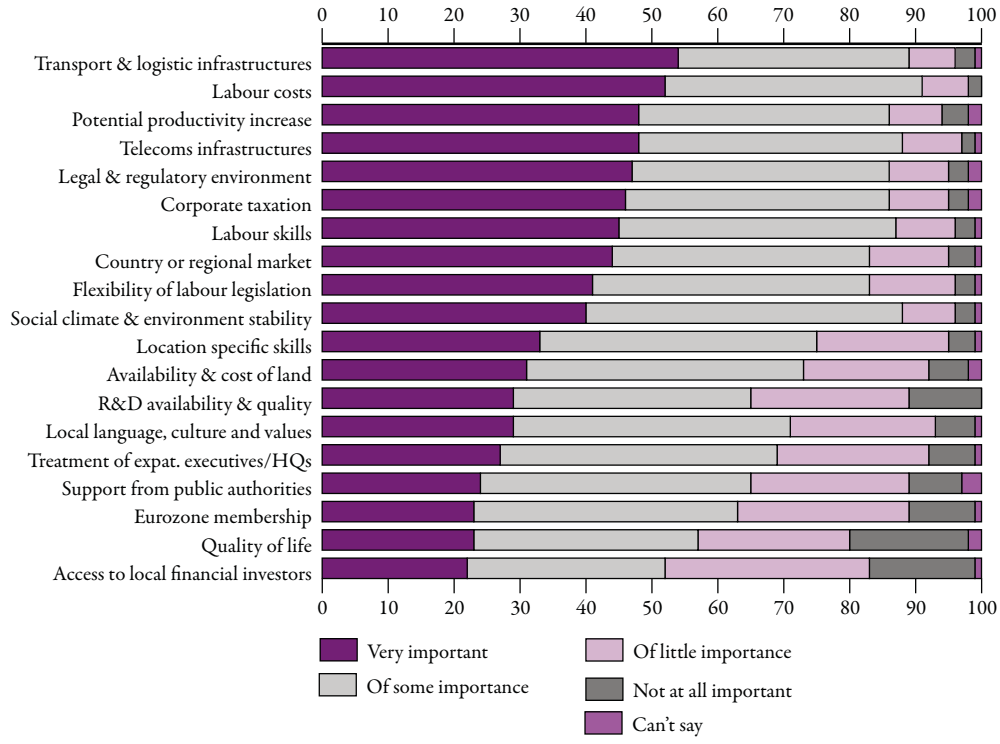
2.35 In determining what role tax plays in business decisions, we can draw on a number of sources:

- evidence from surveys of business;
- examining where tax sits in the investment appraisal process;
- appraising the size of tax bills to other financial costs for business; and
- the econometric evidence.

Survey evidence

2.36 Survey evidence such as Ernst & Young's annual 'European Attractiveness Survey' provides an indication of the relative importance of factors in influencing investment location. This gauges the opinion of international business executives across a range of industries, regions and business models. In the most recent survey, the level of corporate taxation was ranked sixth in importance as a criteria for investment location, behind transport and logistic infrastructure, labour costs, telecoms infrastructure, potential productivity increase and the legislative and regulatory environment.[30] As Chart 2.2 shows a range of ten or so factors rank closely alongside the corporation tax rate.

Chart 2.2: Ranking of investment decision criteria



Source: Ernst & Young, 'European Attractiveness Survey' (2007), p.9.

[29] Baldwin and Krugman, 'Agglomeration, integration and tax harmonization', (2004).
[30] Ernst & Young, 'European Attractiveness Survey 2007', (Jun 2007).

2.37 Steinmo (2002) argues that the benefits of being in a high-cost location can 'far outweigh the costs'.[31] After conducting more than 50 interviews with corporate executives in the USA and EU, he finds that factors such as wage rates, quality of workforce, access to markets, quality of infrastructure and political stability – which can all be positively affected by high taxes – were generally considered more important than low taxes. On these grounds, the there is little evidence of a 'race to the bottom' in terms of taxation or other costs. Indeed, Smith (2005) argues that global business rewards 'coherent' strategies, not merely low tax environments.[32]

Tax in investment appraisal process

2.38 The Review received evidence on the role tax plays in the investment appraisal process for multinational enterprises. This provides a practical counterpoint to the econometric studies below as it offers a framework as to the decisions made, when tax issues come into the business decision making and at which level of management. In making investment decisions, a three-stage, sequential process can be distinguished by multinational enterprises.

- Stage 1 involves determining the countries viewed as having the required level of political and economic credibility. Eligibility will be influenced by the image and reputation of a country as a location for FDI and the effectiveness of a country's FDI promotion agency.
- Stage 2 requires assessing the efficiency of a country for the company's planned facility and comparing this measure with that of other listed locations. Measuring efficiency will involve an assessment of the availability and cost of inputs – labour, transport, energy, supply chain and distribution (access to buyers and sellers) etc.
- Stage 3 involves a financial appraisal of countries which have passed stage two. This is the stage at which tax comes into play as an influencing factor. The financial appraisal entails working out the pre-tax profits of investing in a country and then focusing on two parameters – the return on investment after-tax and the capital funding required by the investment.

2.39 Within this framework, tax seems a stage three issue, which is relevant only after a location has been assessed in terms of its potential capabilities for a business, for example: whether skills; transport; or infrastructure provide the right strategic fit and how these impact upon cashflow. It is key, therefore, that locations seeking to attract investment ensure they score well enough on the stage 1 and 2 tests, as the appraisal process narrows. Chapter 4 outlines the potential attractions of Northern Ireland as a place to do business.

Financial appraisal

2.40 Another means of assessing the importance of tax as a location driver is to compare the financial cost of tax paid against other business costs. The KPMG 'Competitiveness Alternatives' survey analyses which cost factors are most important to businesses when choosing where to invest. Table 2.1 shows the relative importance of key location sensitivity cost factors. Labour costs play a substantially more important role than any other cost factor. This finding is particularly pronounced in the non-manufacturing sector, with tax only accounting for between three and seven per cent of total costs. Labour and financing costs are the most prominent factors from the analysis.

[31] Steinmo, 'Globalisation and taxation: challenges to the Swedish welfare state', (2002), p.857.
[32] Smith, 'Showcasing globalisation? The Political Economy of the Irish Republic', (2005), p.21.

Table 2.1: Relative importance of factors affecting decisions on location

	Manufacturing	Non-manufacturing
Total labour cost	55%–73%	76%–87%
Transportation	1%–15%	0%–1%
Utility cost	2%–9%	2%–8%
Financing and depreciation	10%–22%	5%–18%
Taxes	7%–13%	3%–7%
Of which:		
Property taxes	2%–3%	n/a
Other	0%–1%	n/a
Income taxes	5%–10%	3%–7%

Source: KPMG, 'Competitive Alternatives' survey (2006).

Econometric studies

2.41 The academic literature examining the relationship between tax and FDI can also be drawn upon. There is a significant body of empirical research which seeks to estimate the significance of tax econometrically. In common with most of the analysis in this area, some of the most recent research examines the impact of corporation tax on the investment behaviour of US multinationals (Devereux and Lockwood, 2006). This study finds that taxation has an impact. Specifically, they find that a 10 percentage point fall in the effective average corporation tax rate in a host country (such as the UK) could increase inward investment by US multinationals by 60 per cent in the short run. Ultimately, this could increase the capital stock owned by US multinationals in the host country by 15 per cent.[33]

2.42 As has been explained above, a single estimate for the relationship between tax and FDI may be misleading since the effects can vary substantially by type of taxes, measurement of FDI activity, and tax treatment in the host and parent countries. De Mooij and Ederveen (2005)[34] provide a comprehensive meta-analysis of the empirical literature on taxes and FDI. While they produce elasticities for a variety of measures, their estimate for the mean semi-elasticity for the effective average tax rate (EATR) is 5.9. That is, a 1 percentage point reduction in the EATR might be expected to generate a 5.9 per cent increase in FDI. This is higher than the elasticity for the statutory corporation tax rate, estimated by De Mooj and Ederveen to be 2.1. Since the EATR is the key corporate tax rate in influencing the location of inward investment, for the purposes of the analysis presented in Chapter 3, it is the mean semi-elasticity of investment with respect to the EATR that is used.

2.43 Typically, economists use regression analysis to determine the effect that taxes have on FDI. In order to isolate (and not overstate) the effects of taxes, so-called 'control variables' are used. These variables consist of other factors, such as market size, labour costs and skills. To assess the importance of tax relative to the other factors, ten typical studies[35] have been selected, including 70

[33] Devereux and Lockwood, 'Taxes and the Size of the Foreign-Owned Capital Stock: Which Tax Rates Matter?', (2006).

[34] De Mooij and Ederveen, 'How Does Foreign Direct Invest Respond To Taxes', (2005).

[35] Bellak and Leibrecht (2005), Benassy-Quere et al. (2005), Billington (1999), Buettner (2004), Cassou (1997), Devereux and Freeman (1995), Devereux and Lockwood (2006), Jun (1994), Stowhase (2005), and Swenson (1994).

regressions (all with some measure of FDI as an independent variable). Consistent with the type of approach in De Mooj and Ederveen, the following issues have been considered in the studies:

1. how often certain variables are used. This gives us some intuition on which variables researchers see as important determinants of FDI (the second and third column in Table 2.2 below);
2. how often the estimated coefficients show the expected positive or negative effect on FDI (the fourth column.);
3. whether the estimated effect is statistically significant (the fifth column); and
4. how other (non-tax) variables compare to tax variables[36] (all columns, but in particular the last).

2.44 Table 2.2 summarises the results. Some non-tax variables show stronger results than the tax rate. That is, the estimated effect is statistically significant and shows the expected sign more often for some non-tax variables than for the tax variables. The most common control variable was an indicator of the market size. Market size, distance and factor prices (e.g. wages) appear to be more significant than tax rates in influencing inward investment.

Table 2.2: Significance of tax and other variables in FDI regressions

Variable	Number of papers (Total: 10)	Number of observations (Total: 70)	Expected sign	Number of observations with expected sign	Number of observations where the coefficient is significant	Percentage of observation with expected sign and significant coefficient
Tax in host	**9**	**58**	**–**	**56**	**44**	**75.9**
Tax in home	4	22	+	17	9	40.1
Market size	7	**44**	**+**	**44**	**42**	**95.5**
Factor prices	4	32	–	27	21	65.6
Exchange rate	4	19	–	16	12	63.2
Trade	**4**	**19**	**+**	**18**	**16**	**84.2**
Distance	**2**	**15**	**–**	**15**	**15**	**100**
Unemployment	3	11	+	7	7	63.6
Infrastructure	1	7	+	7	1	14.3
R&D	1	5	+	5	2	40
Interest rate	2	4	–	3	0	0

Table based on Bellak and Leibrecht (2005), Benassy-Quere et al. (2005), Billington (1999), Buettner (2004), Cassou (1997), Devereux and Freeman (1995), Devereux and Lockwood (2006), Jun (1994), Stowhase (2005), and Swenson (1994). Other variables used include privatisation, political risk, common border, common language and capacity utilisation.

2.45 These results are generally consistent with the survey results above. Most research seems to suggest gravitational variables (i.e. distance and market size) as the main determinants of FDI and of more significance than tax. This is consistent with the findings of business surveys showing that the prime motivation for FDI is easy market access with low costs, as well as skills, infrastructure and telecommunications.

[36] Nine of the ten studies use the host country tax rates as their main tax variable, while one uses the home country tax rate. Although all studies refer to corporate tax rate, the precise tax measure differs between statutory and various measures of effective tax rates.

CROSS-BORDER FLOWS AND PROFIT SHIFTING

2.46 The chapter up to now has looked at the impact tax has on investment. However, mobility includes both relocation of capital and economic activity (as examined above), and the artificial shifting of profits.

Channels for profit shifting

2.47 In contrast to attracting cross-border investment, the capturing of profits by a tax jurisdiction may contribute to its exchequer, but it would not generally contribute to the type of knowledge transfer, technological progress and high value production that is associated with sustainable high skilled job creation, labour productivity and long-term economic growth.

2.48 Profits are generally more mobile than capital, as capital investment is usually associated with some degree of irreversibility. Companies use profit shifting as a tax minimisation strategy. It can be achieved in a number of ways but generally involves the arrangement of a group's internal transactions so that as much income as possible is declared in low tax regimes. The literature provides evidence on particular channels of profit shifting.[37] Table 2.3 outlines the various strategies used to shift profits between different jurisdictions, some of which are examined further below.

Table 2.3: Types of profit shifting

Transfer pricing	Financial policy	Assignment of common expenses
Goods and services	Debt shifting	R&D expenses
Intangibles and firm-specific goods	Repatriation of profits	Headquarters expenses

Transfer pricing

2.49 Transfer pricing refers to inter-company pricing arrangements, particularly in cross-border transactions. This includes transfers of intellectual property, tangible goods, services and loans and other financing transactions. For example, goods from the production division may be sold to the marketing division, or goods from a parent company may be sold to a foreign subsidiary, with the choice of the transfer price affecting the division of the total profit among the companies involved. There is clearly potential for abuse with firms pricing transactions explicitly to lower their worldwide tax exposure. This has led to the rise of transfer pricing rules as governments seek to stem the flow of taxation revenue overseas.

Transfer pricing rules

2.50 Virtually all countries now apply transfer pricing rules that follow the 'arms length' principle recommended by the OECD. These require transactions between connected parties to be treated for tax purposes as though they were transactions between independent parties. Thus, the purpose of transfer pricing rules is to ensure a fair division of taxable profits between related parties and to prevent businesses that are liable to tax in a jurisdiction from reducing their taxable profits by artificial manipulation of pricing. Nevertheless, the enforcement of these rules requires considerable specialised expertise and imposes significant compliance burdens[38] both for the companies involved and for the relevant tax administrations, in particular when pricing issues concern differentiated (e.g. firm-specific) or propriety (e.g. patents) goods. Also, as the evidence below suggests, transfer pricing rules are not perfect and do not wholly prevent companies from engaging in profit shifting.

[37] For a survey, see Devereux (2005) and Huizinga et al. (2006).
[38] For example, see Desai, Foley and Hines, 'The demand for tax haven operations', (2006).

Debt shifting

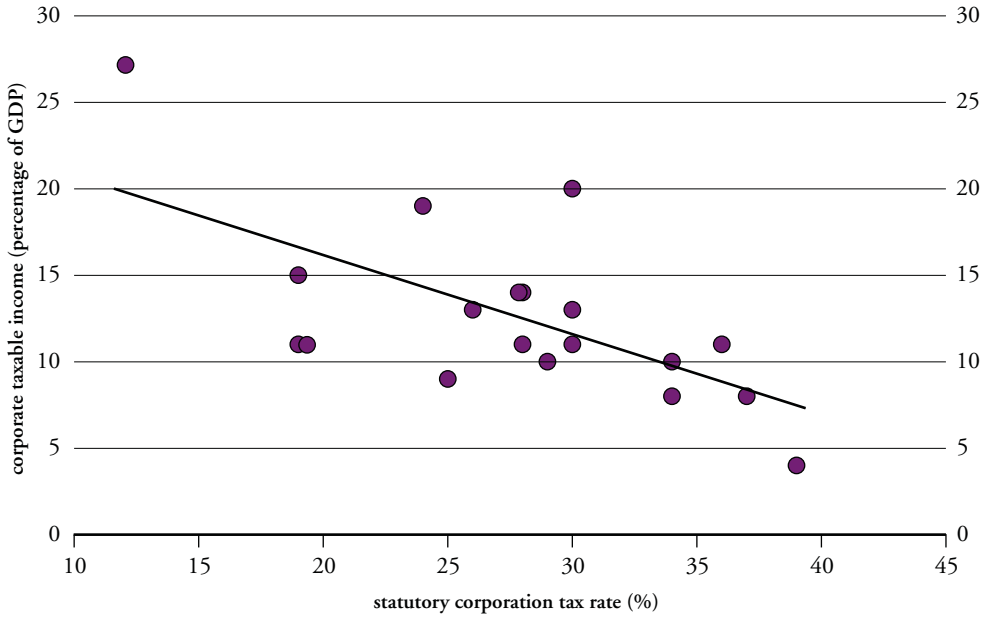
2.51 An alternative strategy is to manipulate internal financing transactions. The most common method is to place an excessive amount of intra-group debt in group members in countries with higher tax rates so the interest is deductible there. Countries have developed 'thin capitalisation' rules to deal with this, which again aim to establish what would have happened in an 'arms length' situation.

Evidence on profit shifting

Profits and the statutory rate

2.52 Chart 2.3 illustrates the basic correlation between the statutory corporate tax rate and the share of taxable corporate profits in the economy for EU and other major economies. This shows that a high statutory rate is, at the very least, associated with a low share of taxable corporate profits.

Chart 2.3: Statutory corporate tax rates and taxable profits (EU19, 2005)



Source: OECD Revenue Statistics 2007.
Note: EU19: EU members in OECD.

Econometric studies

2.53 More significantly, there is evidence within the econometric literature that a large degree of profit shifting does take place.[39] Annex A provides a detailed account of 22 studies that were considered by the Review. From these studies, one can calculate a central estimate for the responsiveness of the corporate tax base to changes in the corporation tax rate. Excluding the outlying studies, the mean and median values of the semi-elasticities are in the range 1.8 to 2.5 and 2.2 to 2.3, respectively. This suggests a rounded figure of 2.0. In other words, a one percentage point change in the corporation tax rate would be expected to result in a two per cent change in the tax base. This elasticity is of a similar size to that estimated for FDI with respect to the statutory corporation tax rate.[40]

[39] For example, see Clausing (2003), Collins, Kemsley and Lang (1998), Grubert (2003), Huizinga and Laeven (2005).

[40] See section above on 'econometric studies' in relation to FDI and tax.

2.54 The estimated elasticity of 2.0 reflects the likelihood of profit shifting between countries. In the context of Northern Ireland enjoying a lower rate of corporation tax than the rest of the UK it is also necessary to consider likely movements in the corporate tax base within a country – namely, between Great Britain and Northern Ireland. Intuitively, one would expect in-country profit shifting to be more sensitive to the corporation tax rate than profit shifting between countries. Administratively, it is likely to be easier to establish the necessary structures to facilitate profit shifting within the same jurisdiction, than to do so in another country. Evidence on in-country profit shifting is limited. Mintz and Smart (2004) look at the degree of profit shifting between provinces in Canada.[41] For large companies, a one per cent increase in the corporation tax rate is estimated to lead to an 8.5 per cent reduction in their reported taxable income. Since this study does not relate to the UK, and in the interests of caution, the analysis presented in Chapter 3 assumes a conservative elasticity of 4.0 with respect to the movement of profits from Great Britain to Northern Ireland.

The Republic of Ireland

2.55 As Chapter 1 accounts, the influx of corporate profits has contributed substantially to the Republic of Ireland's rapid GDP growth. Some critics of the 'Celtic Tiger' thesis have pointed to a high degree of profit shifting taking place into the Irish economy.[42] For example, one study shows the very high profit rates achieved by some US firms in the Republic of Ireland with one company claiming to have pre-tax profits of £5.8 million on a turnover of £6 million.[43] Transfer pricing strategies can serve to inflate GDP figures, by under-pricing imports and over-pricing exports, thus affecting how profits are accounted across jurisdictions. In fact, profits repatriated out of the Republic of Ireland are reflected in the large difference between its GNP and GDP levels and growth rates. For example, in 1980, GDP was just 3.8 per cent higher than GNP, but in 2005 this gap had risen to 16.8 per cent.[44] It is now widely recognised in the Republic of Ireland that GDP figures provide a distorted image of the Republic's true wealth, with official statistics now routinely using GNP figures to measure Irish growth rates.

CONCLUSION: TAX AND INVESTMENT

More than tax

2.56 It is clear that tax regimes affect cross-border investment behaviour and by the same token the incentives for multinational enterprises to engage in profit shifting strategies (with the latter possibly more sensitive to the tax rate). The important question is one of the magnitude of the various induced effects, but answering this with a single number would be misleading. Moreover, the literature on economic growth argues that sustained improvements in productivity and prosperity can only occur if higher investment spearheads increased technological progress. This, in turn, must relate to issues other than tax – such as skills, infrastructure, and the R&D base.

2.57 Given the potential for cross-border investment and profit shifting examined in this chapter, the value-for-money assessment of a differential tax policy in Northern Ireland should consider:

- the responsiveness of cross-border investment flows from both Great Britain and other countries;
- the responsiveness of profits from both Great Britain and other countries; and
- the revenue impact of those flows on the UK Exchequer.

[41] Mintz and Smart, 'Profit shifting, Investment, and Tax Competition: Theory and Evidence from Provincial Taxation in Canada', (2004).
[42] Murphy, 'The "Celtic Tiger" – an analysis of Ireland's economic growth performance', (2000), p.18.
[43] O'Grada and O'Rourke, 'Economic growth: performance and explanations', in O'Hagen (ed.), 'The Economy of Ireland: Policy and Performance of a Small European Country', (1995), p.214.
[44] Department of Finance, Republic of Ireland, 'Budgetary and Economic Statistics: March 2007', p.12.

2.58 The analysis of Chapter 3 on the case for a differential rate of corporation tax in Northern Ireland uses the various elasticities cited from the empirical literature in this chapter to model those likely flows.

2.59 In summary, there is a great deal of complexity to the relationship between tax and investment. This points immediately to the pitfalls of claiming by analogy that, as the corollary of a single policy move, the successes of one economy can be repeated by another. It is in guarding against this risk that Chapter 1 drew out the unique and multi-faceted aspects of the Republic of Ireland's economic performance and that this chapter outlined the body of literature that argues against short and simple conclusions on tax and investment.

3 Tax and Northern Ireland

Overview 3.1 The vast majority of submissions made to the Review, including those by the Northern Ireland Executive and the key committees of the Assembly, have argued that the corporation tax rate in Northern Ireland should be decoupled from the rest of the UK and aligned with that of the Republic of Ireland. This chapter will examine the case for a differential rate of corporation tax in Northern Ireland in order to assess whether a case can be made. This includes consideration of:

- legal issues;
- implementation issues;
- the value-for-money assessment for Northern Ireland; and
- implications for the UK as a whole.

3.2 The legal and implementation issues are considered ahead of the economic issues simply because they provide an insight as to the size of the economic costs and benefits of a differential rate and as to which UK institutions should bear them.[1]

3.3 Other areas of business tax policy have been considered as part of the Review, set out at Annex D.

LEGAL ISSUES

3.5 European law limits what is possible in terms of regional policy. If the UK Government were to introduce a differential regime for Northern Ireland, there would be certain constraints in terms of the way it would have to be designed so as to satisfy European Community (EC) law on regional aid.

3.6 There are two key areas to explore:

- whether it would be possible for a differential tax policy to meet the requirements of EC law (notification route); or alternatively
- whether it would be possible to devolve responsibility for the policy so as to avoid EC regional aid rules (presented through the 'Azores' judgment).

3.7 It would also need to be compliant with other aspects of EC law concerning the 'fundamental freedoms'.

[1] For example, were the implementation of a differential rate to be accompanied by administrative measures to discourage profit shifting from Great Britain to Northern Ireland, this would affect both the magnitude of the benefits of a lower rate to Northern Ireland, as well as imposing administrative burdens on companies and on HM Revenue & Customs.

Notification route

3.8 Some submissions have suggested that the simplest legal route to achieve a differential corporation tax would be to notify the European Commission of the proposed policy and obtain its approval. This route is, of course, available, but it is the assessment of the Review that such an approach would have a low chance of success.

3.9 A low rate can be seen as 'operating aid',[2] in other words aid that reduces firms' normal operating expenses. The Commission's 1998 notice on the application of state aid rules to direct business tax measures explains that a measure constitutes operating aid if it confers continuous tax relief not linked to the carrying out of projects - for example, specific investments. The Commission's regional aid guidelines make clear that this kind of aid is normally prohibited, and is only exceptionally approved even in 87(3)(a) territories, which Northern Ireland is not.[3]

Discounted base model

3.10 It has been suggested in some submissions that the chance of success through the notification route could be improved by amending the policy design. For example, rather than reducing the corporation tax rate for Northern Ireland, an alternative would be to narrow the base that is taxed at the UK statutory rate by offering a 'Northern Ireland allowance'. Specifically, the suggestion was for a deduction from taxable profits after which the full appropriate UK tax rate would apply. If the Northern Ireland allowance was set at 55 per cent then the effective tax rate for large companies would be 45 per cent x 28 per cent = 12.6 per cent, thus near equalising with the 12.5 per cent rate available on trading income in the Republic of Ireland.[4] This design would, therefore, achieve the same result in substance - a reduction in the effective average and marginal tax rates for a region.[5] However, it is precisely because the same substance would be achieved that this design suggestion seems unlikely to have a higher chance of success. There would certainly be a need for notification and a high likelihood that it would not be approved simply because the design would not mask the substance of the policy and its intention with respect to reducing a firm's normal operating expenses.

'Azores' judgment

3.11 There is, however, another route which would mean that the change would not involve regional aid and, therefore, would not need to be notified to the Commission. This would entail devolving responsibility for setting the corporation tax rate to the Northern Ireland Assembly.

3.12 The European Court of Justice (ECJ) decision of the Portuguese Republic v The Commission of the European Communities, the 'Azores' case,[6] has received considerable attention since it laid down the principles under which it is possible for more than one corporation tax rate to be applicable within the territories of a Member State without such a regime necessarily constituting an illegal state aid.

Three criteria

3.13 The court described the criteria under which regional differences in corporation tax rates within a Member State would be in compliance with EC law. These criteria can be paraphrased as follows:[7]

[2] See Official Journal of the EU, 'Guidelines on national regional aid for 2007-2013', C 54, 04.03.2006, pp.13-45.
[3] Ibid, paragraph 76.
[4] Economic Research Institute of Northern Ireland submission to the Review (Jul 2007).
[5] See Chapter 2 for a discussion of effective tax rates.
[6] Case C-88/03.
[7] The relevant paragraphs are 56, 57, 63, 64, 65 and 68 of Case C-88/03.

- the region must have the political and administrative authority to introduce its own tax rate;
- 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 rate and in particular must not be compensated by the national authorities for a loss of tax revenue.

Constitutional criteria

3.14 Therefore, for Northern Ireland to enjoy a preferential corporation tax rate that was compliant with EU law, the Northern Ireland Assembly would have to be given competence to set the corporation tax rate in Northern Ireland. This would involve a change to the devolution settlement.

Financing criterion

3.15 The third 'Azores' criterion implies that the financial consequences of such a cut in the corporation tax rate should be borne by the region. The UK would therefore have to satisfy the Commission, and if need be the ECJ, that a lower rate of corporation tax adopted autonomously by the Northern Ireland Assembly was not offset by a countervailing cross-subsidy from central UK funds. In other words, it would not be sufficient in meeting this criterion that HM Treasury subsidise a corporation tax measure in the short term with an expectation that it would recover tax yield in later years.

Implications for allocating funding

3.16 Furthermore, the onus would be on the UK to show, in a transparent way, that there was no subsidy. The UK would need to be able to demonstrate at European level that the allocation did not involve any element of fiscal transfer mitigating the effect of the lower rate. This would entail the deduction of the likely loss of corporation tax revenues associated with a rate cut in Northern Ireland from the Assembly's block grant. There is, of course, the practical difficulty of calculating what this immediate loss would be given current corporation tax receipts are not assigned on a regional basis. Administrative issues are discussed further below.

Dealing with additional tax receipts

3.17 The approach taken by the Review in its assessment (set out below) is to assume that the Northern Ireland Assembly's budget would benefit from any additional receipts from increased investment. The argument would have to be that these additional receipts had been 'earned' by Northern Ireland. It is not clear, however, that the courts would take into account those receipts additional to corporation tax (e.g. income tax, VAT etc.) when determining whether Northern Ireland bore the full fiscal consequences of introducing the lower rate. This could be because the receipts from these 'other' taxes were not seen as the direct consequence of the lower tax rate itself. Therefore, it would be safer to assume that the Assembly's block grant should be progressively increased only by any increase in corporation tax receipts. However, for the purposes of the economic assessments later in this chapter, this interpretation is discarded. In other words, the approach taken is that Northern Ireland would benefit if there were any additional receipts from 'other' taxes.

3.18 As part of the evidence gathering of the Review, a number of different ways of achieving a differential corporation tax rate have been put forward. The efficacy of those proposals is examined in Annex D.

EC treaty – the fundamental freedoms

3.19 An important additional hurdle for a regional differential rate of corporation tax to pass would be the laws set out in the EC treaty on the fundamental freedoms. Essentially they guarantee 'free' movement of persons, capital, establishment and services.[8] Changes to the corporation tax regime for Northern Ireland would have to be assessed very carefully to ensure compatibility with these wider EC Treaty obligations. The existence of different corporation tax rules within the UK would add an extra layer of complexity to the exercise of Treaty rights and there would be difficulty in ensuring that they did not result in discrimination.

Conclusion

3.20 A move to a differential corporation tax rate for Northern Ireland would be possible in principle. However, it would involve legislative changes and legal issues would affect the design of such a scheme. Also, the fiscal consequences of such a move would have to be borne immediately by the Northern Ireland Assembly.

IMPLEMENTATION ISSUES

3.21 In considering the implementation of a differential corporation tax rate in Northern Ireland, it is necessary to outline:

- the legal requirements necessary to design a system that is not open to abuse;
- the burden on business to comply and on HM Revenue & Customs to administer such a system; and
- the implications for the UK's relationships with its tax treaty partners.

3.22 These issues should be viewed in the context of wider calls from business to ensure the UK tax system is simplified.

Legal requirements and design

3.23 The way to design a differential rate of corporation tax in Northern Ireland would be to apply a different rate to profits that were connected in some way with Northern Ireland. Equally, it is a reasonable requirement that such a rate would also be applied to the relief for losses connected to Northern Ireland. The connection might be, for example, that the profits and losses are associated with activities carried on in Northern Ireland or tangible assets situated in Northern Ireland. The alternative would be to attempt to assess whether an entity (i.e. a company) was resident in Northern Ireland. However, this would be a difficult assessment to make since the concept of residency currently has no meaning at sub-national level.

3.24 This could be delivered through the normal self-assessment machinery. A company would compute its tax for a period, including tax charged at the differential rate, and include the details in its return for that period. No new procedures would be required, although the design of the tax return would need to be amended.

Legislation and tax rules

3.25 Without effective rules, a significant proportion of the UK corporation tax base would be at risk.[9] The introduction of these rules would require new sections of legislation. Even with rules, the protection against abuse would not be complete and would rest on them being well drafted, understood, complied

[8] Articles 39, 43, 49 and 56 of the Treaty establishing the European Community.
[9] The argumentation here flows from the analysis of Chapter 2 on cross-border investment and profit shifting.

with and enforced. That is to say there would be an associated burden on businesses and HM Revenue & Customs to manage the risks of abuse, examined in the next section. It is reasonable to assume that the legislation would be complex.

3.26 For example, new rules would be required to define the profits that would be subject to the Northern Ireland rate. The Government could only apply that rate to income that was related to genuine economic activity or to substance in Northern Ireland. Submissions to the Review have suggested that the Irish 'Commensurate Activity test' would be an appropriate model. The UK of course also has equivalents as part of its controlled foreign companies rules that could form the basis of such a test.

3.27 Rules would be required to prevent amounts being artificially diverted from non-qualifying activities or assets to qualifying activities or assets (essentially, profit shifting). As Chapter 2 outlines, tax jurisdictions manage the risk of profit shifting through the application and enforcement of transfer pricing rules. The existing UK transfer pricing and thin capitalisation rules already apply in UK-to-UK situations. As discussed in Chapter 2 they would not provide complete protection. Also, HM Revenue & Customs would need to review the potential for abuse from small and medium sized companies, which are currently exempt from transfer pricing and thin capitalisation rules. This is examined further below.

Tax motivated incorporation

3.28 The regime put forward for Northern Ireland would apply as a single rate to all companies in Northern Ireland, including small and medium sized ones. Therefore, the difference between the rate for incorporated and unincorporated businesses in the region would substantially widen. This would create a significant incentive for unincorporated businesses in both Northern Ireland and Great Britain to avoid tax by incorporating as companies in Northern Ireland (so-called 'tax motivated incorporation'). Such a development would run counter to recent moves by the Government to tackle tax-motivated incorporation across the UK. At Budget 2007, in order to address concerns about tax motivated incorporation, the Government announced that it would refocus incentives for small businesses, including raising the small companies' rate from 19 per cent to 22 per cent by 2010.

The incentive to incorporate

3.29 As of 2006-07, the self-employed basic rate taxpayer incurs income tax at 22 per cent and national insurance at eight per cent. After paying 12.5 per cent at the corporate level, the formerly self-employed would have the discretion to extract a high proportion of their personal income as dividends, which attract no national insurance charge and have an effective income tax rate of zero for a basic rate taxpayer. For example, the Review estimates that a self-employed businessman earning £30,000 per year could reduce his/her tax and national insurance bill by up to £4,200 per year by incorporating and extracting profits in the form of dividends under a 12.5 per cent corporation tax rate. The Exchequer cost of such arbitrage behaviour could run into billions of pounds per year and as such represents a significant fiscal risk.

Suggestions to the Review

3.30 Certain submissions have suggested that a way to tackle the problem would be to levy tax on declared personal dividends at a rate equivalent to that applied to earned income. Firstly, this would negate the incentive for moving income producing assets or activities there in the first place. Moreover, such a proposal would be a fundamental change to the UK tax code, effectively moving towards a classical system of taxation, with business income taxed in full at both the corporate and shareholder levels. If the legislation for such a move were drafted widely it would mean a higher tax bill, for over six million taxpayers who receive dividend income, at a cost to them of almost £4 billion.[10] If it were more targeted it would open significant avoidance opportunities. Thus, there would be an element of reshaping the entire UK tax system to facilitate a reduction in tax rates purely for Northern Ireland.

[10] Forecast for 2008-09.

3.31 Therefore, in the event of a significantly lower corporation tax rate in Northern Ireland, there would seem no obviously fair and proportionate way to level the playing field between incorporated and incorporated businesses. The cost of the additional tax motivated incorporations would have to be considered as part of the broader cost of implementing a preferential rate. Given the innate uncertainty, this additional cost has not been added into the economic analysis later in the chapter. If it were, this would obviously increase the revenue cost of a differential rate.

Other design points

3.32 As discussed above, designing a regime that supported a differential corporation tax rate in Northern Ireland would be complicated. There would therefore be other knock-on areas that are not considered here that would potentially have to be changed. Examples include the policy on taxation of intra-corporate dividends and the corporate exit charge.

Burden on HM Revenue & Customs and on business

3.33 The rules required to design and protect a preferential rate of corporation tax for Northern Ireland would be likely to impose a considerable compliance burden on companies and HM Revenue & Customs (HMRC).

Burdens on business

3.34 Companies benefiting from the preferential rate would have an additional administrative burden in relation to the rules defining what income would be subject to the preferential rate. In the absence of an exact design for these rules it is not possible to estimate the precise administrative burden. However, they could involve considerable information requirements. This would be principally compiling evidence related to the nature of their activities and assets. Compiling that evidence would be expensive, especially where it involved evidence that would not be required for other management, accounting or tax purpose and where it involved obtaining specialist professional help. Indeed, the necessary business systems would need to be set up. Namely, companies might need to split their operations into separate 'Great Britain' and 'Northern Ireland' companies or set up a separate management accounting system.

Managing the burdens

3.35 Under current UK transfer pricing and thin capitalisation rules, there are two main ways in which the administrative burden on HMRC and business are managed down:

- a risk-based approach to administration by HMRC and businesses; and
- an exemption for small and medium-sized enterprises.

Risk-based approach

3.36 Under a risk-based approach, HMRC and businesses seek to reach a common view on what are high risks and what are low risks. This helps both HMRC, as it can concentrate its scarce investigative resources on specific areas of high risk where the most tax is at stake, and businesses, as they can reduce compliance costs on the areas of low risk.

3.37 One area of agreed low risk is transactions involving jurisdictions where the tax rate is the same or similar. This includes transactions between two related UK businesses. The introduction of a preferential tax rate for Northern Ireland would mean that there would no longer be a single rate of corporation tax for a group of companies within the UK. Transactions involving the attribution of profits between those charged at the general rate and those charged at the preferential rate would be likely to become high, or at least higher, risk. The consequences would be:

- HMRC would have to divert scarce and highly specialised investigative resources into policing the boundaries of the new preferential rate; and
- businesses would have to incur substantial compliance costs in compiling evidence to show that the attribution of profits to qualifying activities and/or assets had been done on an arm's length basis.

3.38 These consequences are not theoretical since there can be considerable disagreement over the application of transfer pricing rules and numbers can remain unresolved for many years. For example, during 2006-07, HMRC resolved about 1,000 transfer pricing issues arising from enquiries into returns and at the end of the year there were about 580 open transfer pricing enquiry issues in the Large Business Service and more again in HMRC's Local Compliance. Indeed, the inherent uncertainty of applying transfer pricing rules was one of main concerns from business as part to the 'Review of Links' consultation.[11]

The exemption for SMEs

3.39 A preferential rate for Northern Ireland would require the transfer pricing and thin capitalisation exemption for small and medium-sized enterprises to be changed. The potential for abuse by such companies would be significant. If applied only to Northern Ireland, there would be a risk that it would be found discriminatory under EC law. Given that approximately 98 per cent of all businesses in the UK are small or medium-sized enterprises, if applied across the UK, this would represent a considerable additional burden on business.

Tax treaties

3.40 As Chapter 2 outlines, the way in which multinational groups are taxed in both their 'host' and 'parent' countries has a bearing on their incentive to invest. The way countries deal with the potential for double taxation is therefore an issue. To minimise this, countries negotiate bilateral tax treaties.

3.41 The UK would not automatically have to renegotiate its double taxation treaties if it were to introduce a preferential corporation tax rate in Northern Ireland. However, it is likely that there would be a range of reactions from treaty partners. Some might wish to review some of the preferential terms that the UK has negotiated in established treaties. Equally, a preferential Northern Ireland rate changes the terms of negotiations for the UK in current and future negotiations. Indeed, there is a larger point about the potential for retaliation that is covered later in the chapter.

Conclusion

3.42 The design of a differential corporation tax rate for Northern Ireland would entail substantial new legislation to specify the scheme and to protect this rate from abuse in, for example, the form of tax motivated incorporation and artificial profit shifting. However, it would not be possible to completely protect such a scheme from abuse. The additional risk would also come at a cost to HMRC, as it diverts resources to policing this regime and its border with the rest of the UK corporation tax system.

3.43 There would also be a significant cost to business in terms of compliance and administrative burdens. It could be argued that the majority of any additional administrative burden would fall on companies looking to benefit from the preferential Northern Ireland rate, but this is only partially true since any removal of the transfer pricing small and medium-sized enterprise exemption would potentially have to apply across the UK. There would thus be an element of increasing the burden for businesses on a UK-wide basis to facilitate a reduction in tax rates purely for Northern Ireland.

[11] HMRC, '2006 Review of Links with Large Business', (Nov 2006).

ECONOMIC COSTS & BENEFITS FOR NORTHERN IRELAND

Export-led growth

3.44 In the majority of submissions to the Review, the rationale for a differential corporation tax rate in Northern Ireland has been couched in terms of tax cuts potentially being able to spur export-led growth. That is, for small economies, whose domestic market is too small to support a rapid accumulation of labour and capital, a key strategy is to focus on connecting to a wider world market through the promotion of exports and foreign investment which has an export bias.

The role of tax

3.45 In providing evidence for this argument, some submissions have pointed to the Republic of Ireland's recent growth performance, and the role of tax policy. As Chapter 2 outlines, there is a great deal of complexity to the relationship between tax and investment. This points immediately to the pitfalls of claiming by analogy that Northern Ireland could repeat the successes of the Republic of Ireland by a single policy move. In guarding against this risk, Chapter 1 drew out the unique and multi-faceted aspects of the Republic of Ireland's economic performance, and Chapter 2 outlined the body of literature that argues against short and simple conclusions on tax and investment. In addition, many agreed in the submissions and discussions of the Review that there is no one 'silver bullet'.

Testing the case

3.46 This section, therefore, tests whether a preferential corporation tax policy could represent good value-for-money for Northern Ireland by:

- evaluating the existing analysis in the area, namely by the Economic Research Institute of Northern Ireland (ERINI);[12]
- offering a set of 'stylised examples' to illustrate that the issue can be looked at through a number of approaches; and
- presenting an analysis conducted by the Review based in the observations from the empirical literature.

3.47 The approach here is quite apart from an assessment of the economic implications for the rest of the UK. This is a concluding assessment that must follow from the notion that one would expect a degree of cross-border activity between mainland Britain and Northern Ireland arising from having different tax rates within the UK. This is covered in the last section of the chapter.

Evaluating the case made by the ERINI

3.48 Hitherto, the principal assessment made on the economic costs and benefits of a low rate of corporation tax in Northern Ireland has been by the Economic Research Institute of Northern Ireland (ERINI). This ERINI study has been cited by the vast majority of submissions to the Review.

ERINI's conclusions

3.49 The study provides an analysis of the likely economic impact of a reduced 12.5 per cent corporation tax rate. The rationale for this rate is that it would enable Northern Ireland to replicate the rapid growth experienced by the Republic of Ireland. The report concludes that if this rate were implemented the underlying economic expansion associated with an influx of FDI would: create 184,000 additional jobs by 2030; double the economic growth rate of the region; and eliminate the productivity gap with the UK in a decade.

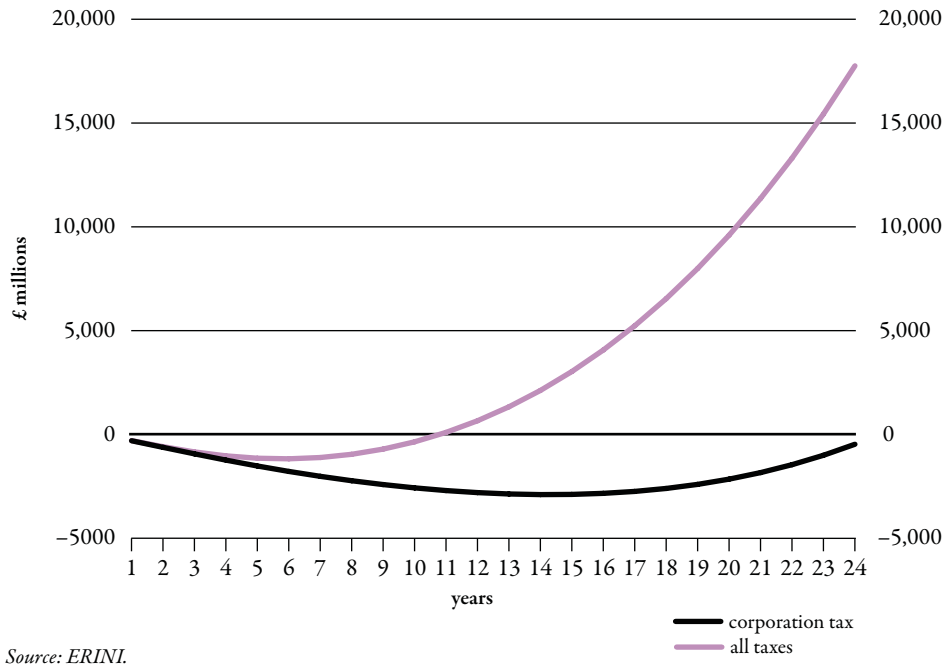
[12] Economic Research Institute of Northern Ireland, 'Assessing the Case for a Differential Rate of Corporation Tax in Northern Ireland', (Nov 2006).

3.50 While there would be a shortfall in corporation tax receipts in the first years of the policy move, in ten years it would have made up for the initial shortfall in receipts (as the result of growth in both corporation and other tax receipts).[13]

3.51 This study provokes a general question as to whether tax cuts can pay for themselves. The literature on the dynamic impacts of tax cuts is examined Annex A. Broadly, the literature suggests that the effect of a tax cut on capital income is that only around half is recovered through overall tax receipts arising from increased capital income, and growth in the economy over the long run.

3.52 Chart 3.1 illustrates the conclusions arrived by the ERINI report in terms of net cumulative tax receipts. As noted above, the cumulative 'break even' on all taxes is within ten years.

Chart 3.1: The case made by the ERINI – net cumulative tax receipts



Source: ERINI.

Structure of the ERINI's analysis

3.53 The ERINI report uses an eight stage process to assess the impact of the corporation tax reduction on the Northern Ireland economy. These stages are duplicated from the report and set out below for clarity:

- Stage 1: Estimate FDI flows
- Stage 2: Additional tax from FDI flows
- Stage 3: Reduced tax from existing firms
- Stage 4: Additional tax from induced domestic demand
- Stage 5: Additional tax from 'knock-on' jobs
- Stage 6: Benefits savings
- Stage 7: Additional tax from income and production taxes
- Stage 8: Additional public expenditure costs

[13] Ibid. Table 5.18, p.70.

3.54 This analysis has been widely cited by submissions to the Review. However, the ERINI report also cites some important assumptions and caveats to its analysis. Some of the more significant ones are considered further below and others in Box 3.1.

ERINI's estimate of FDI

3.55 The first premise of the ERINI argumentation concerns an estimate of FDI flows. This is a critical stage in the analysis because the implications for revenues in terms of corporation tax and other taxes (e.g. income tax and NICs receipts) flow sequentially from this initial stage.

3.56 Future FDI inflows into Northern Ireland are estimated in two parts:

1. Jobs promoted by FDI in the Republic of Ireland are forecast for 2007.[14] From 2007, the Republic of Ireland's FDI forecast is estimated as a linear projection of its 2007 levels.

2. Northern Ireland's projected level of FDI job creation is then assumed to be a pro-rata share of the Republic of Ireland's on working age population.

Predicting FDI flows difficult

3.57 This approach is inherently uncertain. Firstly, predicting global FDI levels is an extremely difficult exercise. Location decisions will undoubtedly be more complex than the method assumed by ERINI. Box 2.2 in Chapter 2 accounts the caution needed in using FDI estimates as a proxy for cross-border investment and particularly when forecasting future trends. For example, sectoral patterns are subject to sharp changes – as witnessed during the high tech boom and subsequent bust in the early years of the current decade. Equally, FDI flows can represent a large proportion of mergers and acquisitions activity which may change the ownership and the productivity of capital within a country, but not necessarily the level of the capital stock.

3.58 Indeed, these issues are recognised in the ERINI study. The ERINI report acknowledges that FDI flows, the primary source of increased revenues, have not been estimated in detail.[15] The limitation of a linear approach (bullet 1 above) to forecasting FDI flows is that it does not recognise the potential for change in the wide range of important supply-side variables which influence the attractiveness of locations competing for inward investment. There are a significant number of such factors, including:

- market demand and how this changes and evolves;
- the level of competitiveness of a country or region and how this changes over time;
- differences in the quality of factors available in a country or region, making it more attractive for some type of projects and less attractive for others;
- the development of new technologies, approval of patents, approval of drug trials, etc. can all influence FDI; and
- a change in market conditions, restructuring, acquisitions, and mergers will also influence investment in new locations or decisions to relocate from one location to another.

3.59 The key importance of these factors (and by implication, changes in these factors) relative to tax is outlined in Chapter 2.

[14] This is done as a share of jobs promoted in developed European countries, using an average of sector share in the previous four years. This includes all sectors except agriculture, utilities, construction, hotels and distribution and public sector which are assumed not to be sensitive to changes in the tax regime and have no FDI.
[15] ERINI, 'Assessing the Case for a Differential Rate of Corporation Tax in Northern Ireland', (Nov 2006), p. 76.

Fundamental concern

3.60 The larger point, however, is that the approach taken by the ERINI report is based wholly on an analogy with the Republic of Ireland (bullet 2 above, paragraph 3.56). The analysis assumes that Northern Ireland will achieve FDI flows equivalent to a pro-rata share of the Republic of Ireland's FDI flows. There are obvious points of similarity between the two economies on the island of Ireland, but this approach used to forecast new FDI flows does not take any account of the current structure of the Northern Ireland economy or of the current FDI flows into Northern Ireland. The assumption implicit in 'stage one' of the ERINI study is that corporation tax is the sole influence on cross-border investment decisions. In other words, the ERINI report is assuming that the two economies are currently identical to a potential investor bar their corporation tax rates.

Analogy with the Republic

3.61 On the contrary, Chapter 1 accounts the differences between the structure and performance of the two economies and Chapter 2 summarises what the empirical literature can tell us about the many influences on investors and business. Stark structural differences between Northern Ireland and the Republic of Ireland (including, for example, skills levels in the labour force, distinct monetary policy regimes and currencies as well as fundamentally different tax regimes) call into question the fully settled and sustainable convergence in FDI flows claimed by the ERINI analysis.

3.62 Thus, a fundamental concern in the ERINI work is that it imposes a pre-defined FDI inflow into Northern Ireland near-equivalent[16] to that of the Republic of Ireland. In consequence, it does not define an economic relationship between a policy variable (i.e. the corporation tax rate) and an outcome (e.g. FDI job creation). Instead, it assumes an outcome and then elaborates on its consequences. Such an approach in no way puts to work the large body of econometric literature described in Chapter 2.

Alternative approach

3.63 An alternative approach would be to test how FDI flows or the level of the capital stock would respond to a corporation tax cut on the basis of an economic relationship. The question should be: how much FDI would Northern Ireland expect to obtain if the corporation tax rate were cut. Related to that, one should ask under what conditions the region would expect to strengthen its attractiveness for FDI. However, by imposing a pre-defined trend for FDI into Northern Ireland these fundamental questions are ignored. This concern with the starting premise of the analysis must, in turn, call into question the ultimate conclusion.

3.64 So as to provide a counterpoint to the ERINI work the Review has set out a set of 'stylised examples' below to illustrate how the issue of corporation tax can be explored in different ways.

[16] That is, with necessary adjustments in terms of population and private sector size.

Box 3.1: Other caveats to the ERINI work

The ERINI analysis naturally accounts some of its assumptions, which will have an effect on the conclusions and which should be drawn out. Equally, the caveats to the Review's approach are accounted in Box 3.2.

- **The size of other taxes receipts is questionable ('Stage 5').** A key characteristic of the ERINI analysis is that it focuses on how increased FDI will lead to more jobs (which will be subject to income tax and NICs) and increased consumption (subject to VAT). The ERINI predict 184,000 additional jobs by 2020. There are currently about 750,000 economically active people in Northern Ireland.[17] Given the low rate of unemployment, the ERINI assumes that: some of the economically inactive return to work; and that there is significant immigration (thus, limiting possible wage inflation) to fill additional jobs. It is difficult to be precise on the scale and unreasonable to assume that there would be no barriers in terms of skills in the economically inactive and preferences of immigrants. More generally, Annex A illustrates the uncertainties around incorporating and citing with confidence the secondary effects of policy change, in terms of consumption and other taxes, given the added assumptions and data limitations that need to be made.
- **Displacement from GB not considered** (profit shifting and capital movement). The ERINI has assumed that UK firms in other UK regions cannot redistribute their production to enjoy a lower corporation tax rate in Northern Ireland. Profit shifting is assumed to be possible only in new FDI flows, all of which are assumed to be net gains to the UK. This limitation to the ERINI work is all the more pertinent given that profit shifting has been a relevant issue in the Republic of Ireland's growth experience (see Chapter 2), upon which the ERINI study bases its FDI projections. Profit shifting and capital movement from mainland Britain will of course come at a net cost to the UK, as it will be taxed at a lower corporation tax rate (as well as potentially being economically inefficient).
- **Other caveats** include, for example, the difficulty in estimating the Northern Ireland tax base or the productivity of the induced jobs. In fact, in the latter case the approach taken by the ERINI may understate the effect as the money may be reinvested in equipment which could boost productivity. However, in many respects the limitations of the ERINI analysis here cannot be fully addressed since they are generic – economic modelling is necessarily a reductionist exercise.

Capital accumulation as set of 'stylised examples'

Capital accumulation as a 'first principles' illustration

3.65 As Chapter 2 demonstrates, a cut in the corporation tax rate is likely to influence national income to the extent that it encourages investment. In understanding this relationship, the key variables of interest are the aggregate capital stock and the profitability of capital. Economic theory suggests a link between capital-to-labour ratios and capital inflows – all else equal, countries with low levels of capital per worker will offer higher returns and are therefore more likely to attract capital inflows compared to more capital 'rich' countries. Such flows should continue into capital 'poor' countries until returns on capital equalise. An illustration based on the 'first principles' idea of convergence of capital-to-labour ratios between two countries is examined below. This approach, while conceptually very different from an approach based on FDI flows, does provide a complementary way of assessing the potential impact of a lower corporation tax rate, drawing on standard macroeconomic concepts.

[17] ONS, Regional Trends No. 39, (2006).

Methodology

3.66 The simplistic starting point is that identical countries using the same technology (production function) should have the same capital-to-labour ratio. Under the assumption of perfect capital mobility, capital will flow from low-return to high-return countries, until a point is reached where post-tax returns on capital in both countries are the same. Hence, if tax rates differ between countries, the low tax country will have a higher capital-to-labour ratio than the high-tax country. The higher capital-to-labour ratio is associated with higher returns on capital but lower (pre-tax) marginal returns. To maintain post-tax returns, a tax cut in the high-tax country to the low-tax country's level leads, therefore, to an increased rate of capital accumulation (and capital inflows) and a convergence in capital-to-labour ratios, productivity and pre-tax returns on capital. Details of this approach and the outcomes are set out in Annex B.

The degree of convergence

3.67 However, if countries differ with respect to their technology, skills or the quality of the capital stock, then the dynamic adjustment will be different. In particular, if the high-tax country is worse off in other areas, then the tax cut will only lead to partial 'catch-up'. This is likely to be the case if we compare the endowments of Northern Ireland with those of the Republic of Ireland. Partial convergence can be reflected in various aspects of capital accumulation like the growth rate, productivity or the returns to capital.

'Stylised examples'

3.68 As the results in Annex B show, even under the optimistic assumption that Northern Ireland can narrow the gap between its capital stock growth rate with the Republic of Ireland's current rate by half immediately after a corporation tax cut, it is still likely to require 24 years before the net annual corporate tax revenue effect of the reform becomes positive compared to the base case of the current rate of capital accumulation and the current UK tax rate.[18] If Northern Ireland could close the gap by just 25 per cent then the net annual corporation tax revenues would become positive in 40 years; and if 75 per cent of the gap were eliminated then it would take 16 years. It should be noted that the examples do not consider other possible tax revenues that might be drawn in by increased investment. They should, therefore, be compared to the 'break even' period of 14 years cited by the ERINI study.[19]

Conclusion

3.69 It should be emphasised that this is a set of 'stylised examples', intended to demonstrate that the revenue impact of a lower corporation tax rate in Northern Ireland is highly dependent on the assumptions made about the potential for the region to 'converge' with the Republic of Ireland. Even under fairly optimistic assumptions, this process takes a substantial length of time.

Applying the econometric literature: approach of the Review – Part 1

3.70 A fundamental limitation of the ERINI work is that it does not define an economic relationship between a policy variable (i.e. the corporation tax rate) and an outcome (e.g. FDI). Such an approach in no way puts to work the large body of econometric literature accounted in Chapter 2.

[18] Over this period, a total cost of around 25 per cent of Northern Ireland's current GVA could have been incurred. Consequently, the cumulative cost of the reform would take almost 40 years to 'break even'. It should be clearly noted that this approach does not consider other possible tax revenues that might be drawn in by increased investment.

[19] Which is on a net annual corporation tax receipts only basis.

Induced flows

3.71 The Review's approach is to use the widely cited 'effective tax rates' methodology to estimate the likely responsiveness of the following flows to a corporation tax cut in order to assess the value-for-money case for Northern Ireland:

- domestic investment in Northern Ireland;
- foreign direct investment into Northern Ireland; and
- cross-border profits shifting from other countries (excluding Great Britain).

Only an initial assessment

3.72 It should be noted that this approach represents only the first part of the assessment since it only considers some of the flows into Northern Ireland and their benefits. This is an unrealistic assumption since some of those flows would come at a cost to the UK – primarily the proportion of FDI that would have gone to mainland Britain, but which moves into Northern Ireland because of tax; and profits shifted from Britain to Northern Ireland. Therefore, the second part of the approach, set out below, folds in the revenue implications of these additional flows, thus providing the complete UK assessment.

3.73 The detailed methodology, assumptions and outcomes are set out in Annex C. Naturally, the assumptions are critical to the approach and there are a number of caveats to the findings, set out in Box 3.2. However, if nothing else, this approach provides an analysis more in keeping with the empirical literature.

Northern Ireland corporation tax receipts

3.74 The first stage is to assess the size of the Northern Ireland corporation tax base. This is important as it represents the up-front cost of changing the corporation tax rate from 30 per cent to 12.5 per cent. It is estimated that the corporation tax yield currently received from Northern Ireland companies is in the region of £500 million to £600 million. This is around 1 to 1.5 per cent of the total UK base. This is less than the proportion of Northern Ireland gross value added (GVA) to UK GVA, which is around 2 to 2.5 percent of the UK total. GVA, however, is not an ideal proxy, since profits are only one of its components, the other being labour costs. It would be possible, for example, for a public body to generate sizeable GVA without corresponding profits or tax revenue. A better indicator would be the degree of private sector activity which is low in Northern Ireland. Therefore, the lower figure seems reasonable.

Reduction in yield

3.75 Allowing for the split between companies currently paying the headline rate and companies paying the small companies' rate, this suggests that a 12.5 per cent rate in Northern Ireland would mean a year-on-year reduction of some £278 million in Northern Ireland corporation tax receipts.

Induced domestic investment

3.76 The second stage is to estimate the additional tax from induced domestic investment. This stage of the analysis calculates the changes in the user cost of capital due to the tax change for a variety of investments and employs a 'user cost of capital' elasticity estimate of 0.4. Using this estimate, it is possible to calculate the likely additional domestic investment and therefore the additional corporation tax yield using the methodology set out in Annex C.

Induced foreign investment

3.77 The third stage is to estimate the additional tax on induced foreign investment. The analysis here is based on modelling the pre-policy and post-policy levels of the effective average tax rate (EATR) for investments into Northern Ireland from all OECD countries. The change in the various EATRs for each country can be weighted according to each country's relative current levels of FDI. Drawing on the literature, the Review uses a central estimate of the semi-elasticity[20] for EATR of 5.9. That is, a 1 percentage point reduction in the EATR might be expected to generate a 5.9 per cent increase in FDI, as explained in Annex C. Using this semi-elasticity it is possible to calculate the likely additional FDI and therefore the additional corporation tax yield.

'Other' tax revenues

3.78 There is an important issue as to the extent to which this additional FDI would lead to increased receipts in other taxes (e.g. income tax, NICs, VAT). This could be limited, particularly given Northern Ireland's low unemployment rate. So, any additional income tax would largely depend on higher paid jobs or additional jobs resulting from migration. The ERINI analysis implies an additional 184,000 jobs by 2020 and that broadly for every pound of corporation tax revenue, three pounds of 'other' tax revenue would be generated.[21] This is a simplistic interpretation of the ERINI's modelling (which runs though a series of effects as set out above). However, it brings out that the ERINI work is underpinned by an ambitious judgment about the responsiveness of other taxes.

Government scoring

3.79 For policy appraisal and for HM Treasury's budgeting and scorecard purposes, it is generally the case that one would take a prudent assessment of a policy measure by accounting effects which are quantifiable and relatively certain. This would imply scoring the corporation tax revenue implications of a corporation tax cut. However, there would be a judgment call to be made in relation to the revenue from 'other' taxes, given the general uncertainty in quantifying indirect or secondary tax effects as established in Annex A.

Presenting a range

3.80 The analysis of the Review, therefore, sets out the corporation tax revenue effects and adjusts for other tax revenues using a simplistic multiplier. The Review assumes that for every pound in additional corporation tax from FDI and domestic investment, there would be an additional three pounds in other tax revenues. This effectively applies the same basic relationship between the 'corporation tax' forecast and the 'all taxes' forecast of the ERINI analysis presented in Chart 3.1. This is a simplistic approach, but it is transparent and intuitively attractive. Realising the total tax implications depends on the possible secondary effects of a corporation tax cut in terms of increased income, consumption and job creation. Implicitly, this would need the sort of action examined in other chapters, e.g. sufficient labour market flexibility, skills, infrastructure, migration and innovation.

Induced profit shifting

3.81 The fourth stage is to estimate the additional tax from induced profit shifting into Northern Ireland. Chapter 2 provides a summary of studies on the responsiveness of profits to corporation tax rate. The literature on this subject provides a central estimate of the semi-elasticity of around 2.0. That is, a 1 percentage point change in the corporation tax rate will elicit a 2 per cent shift in the mobile portion of the tax base. Full details are outlined in Annex C. Using this semi-elasticity it is possible to estimate the additional profits into Northern Ireland and, therefore, the additional corporation tax yield. In contrast to the additional investment, it is fair to assume here that there would not be any additional yield from other taxes, as profit shifting does not generally generate additional jobs or higher productivity.

The initial modelling work shows that the policy would result in an up-front cost of about £300 million per annum. Induced investment would be insufficient to raise revenue such that there would be a net cumulative cost to the Northern Ireland Assembly of about £1 billion over ten years. The cumulative cost of the policy would not be recovered within a reasonable period time. See Table C.10

[20] The semi-elasticity measures the percentage change in FDI in response to a 1 percentage point change in the tax rate, e.g. a decline in the corporation tax rate from 30 to 29 per cent. It is defined as ln(FDI)/t. It differs from a simple elasticity, which measures the percentage change in FDI in response to a percentage change in tax, e.g. a decline in the corporation tax rate from 30 to 29.7 per cent.

[21] The average relationship over 20 years of the ERINI projections for revenues is that 'other' revenues relate to corporation tax revenues on a 3:1 basis.

Conclusion

3.82 On the basis of the initial analysis above, the Review considers that there is not a clear and unambiguous case for a preferential rate of corporation tax in Northern Ireland, even on an assessment of the benefits for Northern Ireland. Implicit in such an analysis is that the stream of tax revenues would flow to Northern Ireland's budget. If this were not the case, or the 'Azores' judgment limited the fiscal transfers that could accrue to the region, the long-run cost of the policy would be higher since the revenues that could be accounted would be lower. The 'corporation tax only' and the 'all tax' revenue results are presented in Table C.10 in Annex C. The next section makes a full assessment of the costs and benefits to the UK.

ECONOMIC COSTS AND BENEFITS FOR THE UK

Completing the assessment

3.83 The section above considered the costs and benefits for Northern Ireland alone of a reduction in the corporation tax rate for the region. Completing the economic analysis, however, requires a consideration of the costs and benefits to the rest of the UK. The absence of a UK assessment is recognised by the ERINI as a significant gap in its own analysis.

3.84 This section will therefore consider:

- the cross-border flows of investment and profits between Great Britain and Northern Ireland – a point resulting from the conclusion of Chapter 2;
- the effect on the UK economy as a whole of a preferential corporation tax rate for Northern Ireland;
- the policy ramifications of such a move in terms of the UK's international standing; and
- the wider ramifications in terms of other UK regional policy.

3.85 It should be noted that the latter two areas of examination are too wide and complex to be considered as part of a formal economic assessment. However, they are significant points of contention that should be considered by policy makers.

Effect on the UK economy as a whole

UK tax base

3.86 In the UK, the following tax bases are potentially mobile:

- the financial sector, of which roughly 30 per cent is foreign owned, and therefore subject to both relocation and profit shifting. However, large parts of financial services, especially the domestic banking sector, are unlikely to be as mobile;[22]
- the private equity industry;
- non-financial foreign owned groups; and,
- non-financial UK owned multinationals.

Theoretical mobility of the tax base

3.87 Taking those elements, the Review estimates that about 50 per cent of the total UK corporate tax base is theoretically mobile. This rough estimate should be considered as the upper limit of mobility, since certain core businesses of theoretically mobile sectors are genuine domestic economic activity (commercial banking, retailing, etc.) with a lower potential of relocation and profit shifting opportunities. This is used as part of the methodology for calculating the potential size of profit shifting into Northern Ireland, detailed in Annex C.

[22] Although, the industry is increasingly using outsourcing where it can reduce variable costs or access external capabilities.

Policy implications

3.88 Following the introduction of a Northern Ireland rate, it is reasonable to expect a degree of cross-border displacement (of both capital and profits) occurring between Northern Ireland and Great Britain. The ERINI analysis does not consider these issues. Indeed, flows from Great Britain into Northern Ireland have the potential to be significantly larger than those from the rest of the world simply because Northern Ireland is a region of the UK, thus sharing, for example, the same currency, legal system, accounting rules, company reporting rules, financial regulation, and, of course, language and proximity. If it were a low-tax location within the UK, first and foremost it would become attractive to UK businesses, not just for investment, but also as a location to divert profits.

Applying the econometric literature: approach of the Review – Part 2

Completing the economic assessment

3.89 Part 1 of the modelling work done by the Review looked at the theoretical business case for Northern Ireland in isolation. It counted every flow into the regions and its associated tax revenues as a benefit. This is an incomplete assessment: where the flows originate is important, particularly if they come from, or would otherwise go to, other parts of the UK.

3.90 While it is a moot point, legally speaking, as to whether the Northern Ireland Assembly would have to bear the cost of displacement from the rest of the UK, it is clear that some foreign investment and profit shifting into Northern Ireland would not be additional to the UK.[23] This section completes the economic assessment.

Induced capital displacement

3.91 Some of the inward foreign investment flowing into Northern Ireland accounted in the first part of the analysis above would represent flows that would have gone to the rest of the UK, but were attracted to Northern Ireland because of taxation. One could speculate that these future flows would be displaced from regions which are already successful in attracting FDI or which have higher productivity growth such as the South East. However, it is reasonable to assume that these flows would actually be displaced from regions (and cities) with which Northern Ireland (and Belfast) already sits on a par and competes. The analysis has not sought to differentiate between different parts of mainland Britain.

Induced profit shifting and accounting for transfer pricing rules

3.92 As Chapter 2 described, profit shifting would be a likely outcome of a reduced corporation tax rate in Northern Ireland. It should be noted that the literature on in-country profit shifting is limited, but suggests that the responsiveness of profits to tax is greater within a country than between countries. For example, it would be administrativly easier to shift profits between regions within the UK.[24] However, it seems reasonable to assume that HMRC would be able to police profit shifting between mainland Britain and Northern Ireland to some extent (though there would be an administrative burden to this). Taking this into account, a conservative semi-elasticity of 4.0 is applied for profit shifting between Britain and Northern Ireland. In other words, a 1 percentage point reduction in the corporation tax rate in Northern Ireland will elicit a 4 per cent increase in the mobile portion of the tax base. It should be noted that the semi-elasticity has been applied to the, relatively small, Northern Ireland mobile corporation tax base, rather than the much larger UK mobile base. See Box 3.2 and Annex C.

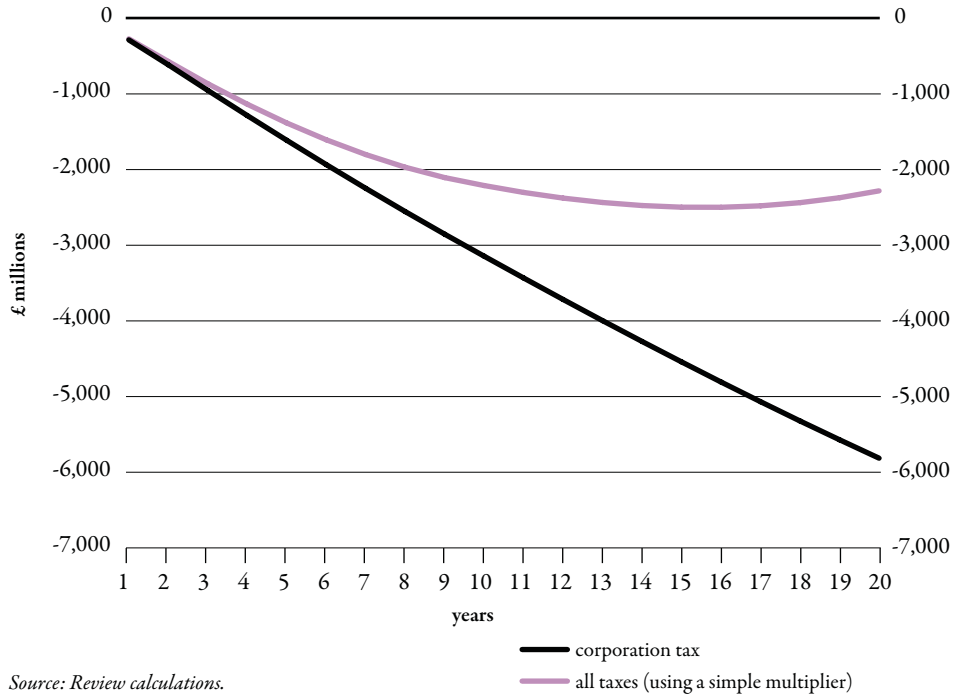
[23] The third 'Azores' criterion on financial impacts sets out that a region must bear immediately the full fiscal consequences of a rate cut.

[24] A survey of profit shifting between Canadian provinces took this approach and estimated a semi-elasticity several times higher than the typical elasticites for between country profit shifting. Mintz and Smart, 'Profit shifting, Investment, and Tax Competition: Theory and Evidence from Provincial Taxation in Canada', (2004).

Conclusion **3.93** Chart 3.2 below sets out the cumulative position for the UK Exchequer of a 12.5 per cent corporation tax rate in Northern Ireland.

The policy would result in an up-front cost of about £300 million per annum. Induced additional investment would be insufficient to raise revenue such that the policy would result in a net cost to the UK Exchequer of about £2.2 billion over ten years, with no prospect of cost recovery over the long run. See Table C.10. This is under an assumption of limited profit shifting within the UK. Of course, as with the ERINI work, such an economic assessment is subject to caveats; these are set out in Box 3.2 and Annex C.

Chart 3.2: Complete assessment – net cumulative tax receipts



Source: Review calculations.

Box 3.2: Caveats to the Review's analysis

The caveats to the economic analysis are set out in Annex C and these include:

- The **estimated corporation tax yield,** from which the static cost of a corporation tax cut is derived, is based on Northern Ireland registered companies. However, being registered in one country does not guarantee that the profits made by that company have necessarily been generated in Northern Ireland.
- **Discounted rates:** as with the ERINI work, the flows of tax revenues are not discounted in net present value terms. Doing so would push back the 'break even' points presented by the Review's approach and by the ERINI.
- The **current level of FDI** into Northern Ireland has had to be estimated. As well as the general estimation problems of using FDI data, outlined in Box 2.2, another difficulty is that the FDI base for Northern Ireland has been growing rapidly in recent years from a relatively low base. That means that the latest data, from 2005, has had to be projected forward at an assumed, although sensible, rate.
- The **current sources of FDI** into Northern Ireland has also had to be estimated. No official data is available so it has been assumed that the range would be reflected by current FDI flows into the UK and the Republic of Ireland.
- **The profit shifting results rely on semi-elasticities derived mostly from non-UK studies.** Most studies focus on US multinationals although there has been an increase in Europe-based studies in recent years.
- The **estimate used for the semi-elasticity of profit shifting** between Great Britain and Northern Ireland is derived from one study. The absence of additional studies relating to in-country profit shifting and covering the UK inevitably increases the level of uncertainty over the estimate for profit shifting between Britain and Northern Ireland. To compensate for this, only a lower estimate from the study is used in the analysis.
- Lastly, **in applying the semi-elasticity for profit shifting,** this has been applied to the, relatively small, mobile Northern Ireland corporation tax base rather, than the much larger mobile UK base, which potentially results in an under-estimate of the scope for profit shifting.

International political issues

International context

3.94 The economic analysis has not considered the international context in which the UK applies its policies. The UK is the world's fifth largest economy and consistently one of the largest recipients of inward investment in the world. The UK also plays an important role as an international leader in the European Union, the G7 and the OECD. These fora all consider international financial stability and the issue of tax competition, for example, the EU Code of Conduct group and the OECD group on 'harmful tax practices'.

Possible reaction?

3.94 A move to a lower corporation tax rate in a region would not be defined as harmful tax competition,[25] but it could be interpreted, within the international context described above, as a manifestly aggressive move towards attracting cross-border activity by an already successful country. This is a judgment for officials and diplomats engaged in international tax issues. As stated above, this might also have implications for the UK's negotiations on double tax treaties.

[25] Definitions of 'harmful tax practices' usually involve providing more favourable tax treatment for non-residents than for residents.

Implications for the assessment

3.96 The Review's analysis does not consider the likelihood that other tax jurisdictions would react. It is counter-intuitive to think that if tax had a significant effect on investment and profit into a particular economy[26], that the closest neighbouring 'losers' would not re-evaluate their own policy. This in turn could change the cost-benefit assessment presented above in a way that would heighten the costs relative to the benefits for Northern Ireland and the UK.

Fairness in relation to other UK regions

Regional context

3.97 A related point to international reaction is that of potential regional reaction from within the UK. There is a significant question as to what differentiates Northern Ireland from the other devolved administrations and from other UK regions.

Policy context in Northern Ireland

3.98 Northern Ireland has come out of a period of conflict which had a material cost in terms of investment (see Chapter 1). In addition, Northern Ireland is unique insofar as it does not share a land border with the other UK regions. These twin historic and geographical issues emphasise the need for effective policy measures in the region, for example, through continued cooperation with the Republic of Ireland in delivering much needed infrastructure on an 'all-island' basis.

3.99 To date, Northern Ireland has received three additional funding packages to underpin the peace process. In addition, the recent package outlined in Chapter 1 has the potential to transform the fortunes of the Northern Ireland if the policy it seeks to finance is delivered effectively and swiftly. While a case can be made that Northern Ireland is different to other regions of the UK, the efficacy of handing a corporation tax lever (with all the potential costs and benefits that that would entail for the UK) is weakened when one considers the overall level of funding and institutional freedom already afforded the region.

Possible reaction?

3.100 Potential investment lost from other parts of the UK, because of a lower tax rate in Northern Ireland is estimated to be around £440 million over 10 years.[27] This would be likely to come from comparable regions in economic terms. As Chapter 1 describes, Wales and the North East stand in a marginally better though comparable situation to Northern Ireland in terms of average GVA per head and labour productivity. Indeed, this Review comes at a time when there has been intense interest in tax policy in Scotland and Wales.[28]

Implications for the assessment

3.101 The possibility that a case could be made by analogy for other regions if a differential tax policy were implemented for Northern Ireland implies that the assessment made by the Review only provides a partial picture of the costs and benefits to the UK. Likely cross-border flows into Northern Ireland would change markedly if a differential corporation tax policy is applied wider than Northern Ireland. This in turn would change the cost-benefit assessment in a way that would heighten the costs relative to the benefits for Northern Ireland. The effect on the UK as a whole is ambiguous without a detailed understanding of such a wider policy. An assessment of regional tax policy is outside the terms of reference of this Review.

[26] And, of course, even if the overall impact on the region in question were at a net cost.

[27] See Annex C, Table C.6 and C.7.

[28] For example, the Welsh Assembly Government has recently set up an Independent Assembly Funding and Finance Commission to review the 'Barnett' formula, tax varying powers including borrowing and corporation tax.

Conclusion

3.102 The analysis of the Review is presented as a range, highlighting the natural uncertainty inherent in predicting the outcome of a policy measure over a long time frame of ten to twenty years. Overall, the analysis considers that a low rate of corporation tax in Northern Ireland would represent a net cost to the Exchequer of about £2.2 billion over ten years, with no prospect of cost recovery over the long run.

3.103 While the net cost of the policy proposal makes it unattractive for the UK and Northern Ireland, the policy would not necessarily deter reactions that could further increase the costs on Northern Ireland and the UK in the future. These reactions could possibly result from other countries and/or the possible successful case of other regions put to HM Treasury. The Review has not been able to incorporate these effects into the economic analysis made. As possibilities that depend on a great deal of political judgment, negotiation and lobbying, they do not lend themselves to a formal economic analysis that could be used with confidence. Nevertheless, it would be counter-intuitive to ignore them.

CONCLUSION: TAX AND NORTHERN IRELAND

Legal and administrative issues

3.104 This chapter has set out that, both in terms of legal and design requirements, it would be possible to establish a regime which delivered a preferential corporation tax rate for Northern Ireland. However, this would require substantial legislative changes and would place a significant additional burden on UK business and HM Revenue & Customs.

What the economic analysis can tell us...

3.105 Having established the difficulties in interpreting and making strategic choices on the basis of the ERINI's analysis, the Review has set out an alternative approach. The Review has used the standard econometric literature on responsiveness of investment to tax to assess the extent to which a corporation tax cut would induce increases in foreign and domestic investment, as well as profit shifting. Due weight should be given to the uncertainties inherent in such economic analysis when formulating policy.

For Northern Ireland

3.106 Consequently, the Review considers that there is not a clear and unambiguous case for a preferential rate of corporation tax in Northern Ireland based on an assessment of the costs and benefits for Northern Ireland.

For the UK

3.107 This partial assessment is quite apart from the UK wide costs associated with profit shifting and the displacement of capital, as well as the indirect costs on competition associated with these flows.

Overall assessment

3.108 Overall, the net cost of the policy to the UK Exchequer is estimated to be in the order of £2.2 billion over ten years, with no prospect of cost recovery over the long run. This does not include the implications of possible international or regional reactions. Other areas of business tax policy have been considered as part of the Review, accounted at Annex D.

3.109 On this overall assessment, the policy would result in a net cost for the UK and for Northern Ireland. Indeed, the policy does not represent good value-for-money when considering the up-front cost of near £300 million per annum to the Northern Ireland Assembly's block grant. These funds would be better directed towards improvements in the region's business environment, which Chapter 4 examines.

4 Future opportunities and challenges

Overview

4.1 Chapter 3 concludes that a clear and unambiguous case for a lower rate of corporation tax rate in Northern Ireland cannot be made. It is unlikely that such a policy choice would deliver a net revenue gain for the UK Exchequer in the foreseeable future to compensate for an estimated up-front cost of about £300 million per annum to the Northern Ireland Assembly's block grant.

4.2 In considering how public funds can be used to support economic growth, the devolved administration is well equipped to make the necessary strategic choices. Submissions made to the Review have suggested policies to support growth and investment alongside recommendations made on tax policy – some of which are being pursued by the Northern Ireland Executive. The purpose of this chapter is to explore these areas and to offer some suggestions for the key actors.

OPPORTUNITIES

Delivering the opportunities of devolution

4.3 There is currently an overriding desire by all parts of the community and social partners to realise the growth potential of Northern Ireland. Businesses both in Northern Ireland and abroad were a key lobby for peace. Following the St. Andrews Agreement, this has now been delivered with an economic package. Indeed, continued economic progress and political progress are intertwined – this is largely reflected in the increased importance of economic development in the Northern Ireland Executive and Assembly's policy agendas.

Closing the productivity gap

4.4 As Chapter 1 describes, Northern Ireland's gross value added (GVA) per head lags behind the UK average by around 20 per cent. The GVA gap has been persistent and there is a belief that it will remain so.[1] However, Northern Ireland has the potential to grow faster, given that over the last 15 years the region's living standards have risen faster than any other UK region. Indeed, presuming that production and employment adjust successfully, some commentators have estimated that Northern Ireland could have the third highest percentage rise in economic output over the next twenty years compared to other UK regions, behind only London and the South West.[2]

Supporting business growth and productivity

4.5 Submissions have argued that general economic optimism will help to underpin demand, in particular over the next 18 months. This spirit must be exploited to achieve real economic progress and for public funding to deliver material improvements in the environment for business. In turn, the new institutions need the support of business to develop strategies to secure sustainable economic growth, focusing on the key drivers of productivity and competitiveness. The majority of submissions received by the Review have suggested that the next five years is a critical period for Northern Ireland. Therefore, this section sets out some of the opportunities for business growth arising from:

- global markets, including the UK, the Republic of Ireland and the USA;
- Northern Ireland's established competitive advantages;
- emerging industries and latent potential arising from legacy; and
- its territorial links with the Republic of Ireland.

[1] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007) concludes that from a baseline of Northern Ireland GVA per capita 20 per cent below the UK average, Northern Ireland will close the gap to 19.5 per cent by 2015, p.114.

[2] Deloitte, 'Economic Review: the regional outlook of the UK economy', (Q3, 2007), pp.5-11.

Global markets

Long-run global trends

4.6 A number of trends have been identified by the Government as shaping global economic development: the rising flows of goods; services and capital; increased international specialisation; greater rewards from innovation; and higher levels of demand for skills.[3] These trends will have significant long-term implications for Northern Ireland – this is apparent in the decline of the textile industry and manufacturing in general in recent years.

Inward investment flows

4.7 In developing new industries, all agreed in submissions to the Review that Northern Ireland needs to look outwards, attracting investment and developing its export base. Through successive rounds of expansion in the EU, Europe has become the most integrated region in the world with respect to foreign direct investment (FDI).[4] Some studies suggest that global FDI flows are projected to grow at an average annual rate of around 4.8 per cent up to 2010.[5] Growth in most emerging countries remains solid, with the activity in from China, India, and Russia particularly striking.[6] It is within this context that Northern Ireland needs to capture the benefits from global demand over the long term. Of course, as many East Asian countries exhibit low labour costs, the challenge for Northern Ireland and many European economies is to move up the value chain, in terms of improving skills, innovation and technology, examined later.

Emerging economies

4.8 In addition, while emerging economies have been major destinations of FDI for many years, they are also becoming significant outward investors. For example, China and India contributed 40 per cent of global growth between 2001 and 2004.[7] FDI from India into the UK increased by 111 per cent in 2005, making India the UK's third largest investor.[8] Information and communication technologies (ICT) is the dominant sector for these projects, as well as engineering. An ability to position itself and work well with businesses from emerging economies like India and China would be productive, particularly since Northern Ireland has already begun to build a platform in these key sectors.

Building relationships and positioning

4.9 Submissions to the Review have suggested that Northern Ireland is in a uniquely disadvantaged position, being part of the UK and so unable to wholly control its own fiscal policy, but also sharing a land border with the Republic of Ireland. However, this unique position offers opportunities. Northern Ireland has strong historical and cultural links with the rest of the UK, the Republic of Ireland and the USA, which can be strengthened. These economies represent a potential pool of investors, importers and business partners, as well as offering significant public and private sector expertise.

4.10 Northern Ireland has the twin advantage of being able to market itself as a part of the UK as well as being able to market its links with the Republic of Ireland. This advantage is particularly marked in relation to potential investors from the UK, the Republic of Ireland and the USA. Indeed, Northern Ireland receives a larger proportion of investment from the USA than that into the UK on average.

[3] HM Treasury, 'Long-term Global Economic Challenges and Opportunities for the UK', (Dec 2004).
[4] The EU has an inward foreign capital stock of about 32 per cent in 2004 (compared to 22 per cent for total world GDP, 20 per cent for all developed countries and only 14 per cent for North America). UNCTAD, 'World Investment Report', (2005).
[5] The Economist Intelligence Unit (EIU) has recently conducted an in-depth analysis into global FDI flows, which indicated a significant increase after 2006. EIU, 'World Investment Prospects to 2010 - Boom or Backlash?', (2006), p.6.
[6] IMF, 'WEO Database', (Apr 2006).
[7] HM Treasury, 'Globalisation and the UK: strengths and opportunities to meet the economic challenge', (Dec 2005).
[8] UK Trade & Investment, 'UK Inward Investment Report 2005-06'.

UK market and as an investment destination

4.11 The UK is the world's fifth largest economy and holds the second largest stock of FDI in the world.[9] It attracted more foreign investment in 2005 than any other economy, being particularly successful in attracting projects in business services, financial services and software.[10] Approximately half of all FDI inflows into the UK originates from Europe, with Germany investing the most of any European nation, followed by France and the Netherlands. The USA is the biggest single investor in the UK, accounting for nearly a third of all investment.[11]

4.12 Survey evidence supports the view that the UK continues to be a top attraction for investment. For example, the World Bank's study of 145 countries placed the UK sixth in the world for ease of doing business.[12] The only major economy ranked ahead of the UK was the USA. The World Economic Forum's 'Global Competitiveness Report 2006' ranked the UK tenth out of 125 countries in its index of international business competitiveness.[13]

Republic of Ireland market

4.13 The Republic of Ireland has had a period of economic success, driven by attracting FDI. On a year-on-year basis GDP and GNP in the Republic grew by 7.5 per cent and 6.4 per cent in the first quarter of 2007, respectively.[14] It has now established a track record of successfully employing the close links with the United States to attract investors. Also, indications that the Republic of Ireland market is 'overheating' suggest opportunities for both Northern Ireland and the Republic to meet excess demand in the labour market. Examples of this are: the high house price inflation that has occurred in the Republic and Dublin in recent years; rapid tightening in the labour market with declining unemployment; and inflation forecast to run at near five per cent in 2007.[15] In particular, service sector inflation stood at nine per cent over the first seven months of 2007.

Joining up the 'all island' labour market

4.14 Joining up the labour market on the island of Ireland, particularly in meeting excess service sector demand, will depend upon improving access to cross-border job opportunities through employment services. In addition, the Comprehensive study by both governments identified the need for cooperation on vocational education and training between Institutes of Technology and Further Education colleges in border areas.[16]

4.15 The high-level commitment to establishing a stronger 'all-island' economy, if delivered in policy measures, may well be extremely attractive to potential investors, both domestic and foreign over the medium term. This is key for the future development of business clusters in Northern Ireland, allowing them to achieve scale economies.

USA market

4.16 The Republic of Ireland's performance on inward investment, described in Chapter 1, highlights the importance of the USA as both a market for exports and a source of potential investors. This was borne out by a strategy to attract key investments which in turn brought about yet more investment in related sectors. The same links exist for Northern Ireland to exploit. Following the 1998 Agreement, direct investment from the USA into Northern Ireland increased significantly and came to account for about 10 per cent of jobs in Northern Ireland.[17] As described above, today, about half of all planned investment through Invest NI originates from the USA.

[9] United Nations Conference on Trade and Investment, 'World Investment Report 2005'.
[10] Ernst & Young, 'European Attractiveness Survey', (2006).
[11] ONS, 'UK Balance of Payments – the Pink Book', (2007).
[12] World Bank, 'Doing Business in 2008', (Sept 2007).
[13] World Economic Forum, 'Global Competitiveness Report', (Sept 2006).
[14] CSO data from First Trust Bank, 'Economic Outlook & Business Review', (Sept 2007), p.4.
[15] First Trust Bank, 'Economic Outlook & Business Review', (Sept 2007), p.6.
[16] British-Irish Inter-Governmental Conference, 'Comprehensive study on the All-Island Economy', (Oct 2006).
[17] Morrissey, 'Northern Ireland: Developing a Post-Conflict Economy' in A Farewell to Arms?', in Cox et al. (eds.), 'Long War to Long Peace in Northern Ireland', (2000).

US investors conference

4.17 There is, therefore, massive potential to build on this base. In particular, with the restoration of devolution and the US investors conference, there is the opportunity to realise that potential for further US investment. This requires government effort in trade promotion, as examined below.

Northern Ireland's competitive advantages

4.18 As Chapter 1 highlighted, there are reasons for the region to be optimistic about current performance. Indeed, the devolved Northern Ireland Assembly has an advantage over other UK regions in attracting FDI insofar as it is in control of many of the levers that affect the business environment for potential investors. In consequence, it is less encumbered by the diseconomies of scale felt at the UK level. Areas of competitive advantage include telecoms infrastructure, school attainment (though, with a need to translate this into the workforce) and generous financial support to business. Northern Ireland also has relatively low operating costs for business and a growing record in attracting FDI. These areas are outlined below, and form part of Invest NI's marketing efforts.

Operating costs

4.19 Northern Ireland's operating costs are highly competitive and lower than the rest of the UK and Republic of Ireland on average.[18] A wide variety of business facilities are available at highly competitive costs with prime office rents among the lowest in the world. In the Greater Belfast area the cost per square foot is as little as £13, compared to £49 in Dublin and £23 in Washington DC.[18]

Telecoms infrastructure

4.20 Northern Ireland was the first region in Europe to have 100 per cent access to broadband. In addition, British Telecom is developing the 21st Century Network (21 CN), a new global IP network that will carry voice, data and internet services on a single network. The high speed network, coupled with a more resilient telecoms infrastructure and lower telecoms costs will have important benefits for businesses in the region. When completed, Northern Ireland will be the first region in the UK to have completed the 21 CN migration.

Skills

4.21 The region has one of the youngest populations in Europe and educational achievements are high, with students consistently performing well at GCSE and A-Level, compared to other UK regions. There is still a need to improve basic and work-based skills – examined further below.

Financial support to business

4.22 Northern Ireland offers an attractive package of financial incentives for recruitment and training, research and development (R&D) and other development support tailored to each company's needs. For example, since its establishment in April 2002, Invest NI has offered assistance totalling almost £636 million, contributing towards projects which plan to invest over £2.6 billion.[19] Survey evidence suggests Belfast ranks first among UK cities in terms of perceived financial incentives.[20]

[18] Invest NI submission to the Review (Jul 2007).
[19] Northern Ireland continues to benefit from an ability to provide regional aid in accordance with the European Commission's Regional Aid Guidelines. However, the aid ceilings afforded the region will be reduced progressively in stages up to 2013.
[20] Cushman & Wakefield, 'UK City Monitor 2006', (Sept 2006), p.28.

Emerging industries and legacy

Emerging track record

4.23 In recent years, Northern Ireland has become increasingly successful in attracting FDI. Two sectors that stand out in this regard, experiencing the fastest growth, are ICT, which includes software development (see Box 1.1) and financial services. Key investors include multinational groups such as Seagate Technology, Fujitsu, Caterpillar, Polaris Software Lab, Citi and Microsoft. A testament to the success of these investments is the fact that nearly three-quarters of these companies have already reinvested in Northern Ireland or are gearing up to invest more.[21] Belfast has recently been ranked as the top location in the British Isles for customer call and contact-centre based activities and Northern Ireland also boasts world-class companies in the aerospace, engineering and life sciences sectors.

Increasing value-added

4.24 Between 2002-03 and 2005-06, Invest NI has been able to secure employment growth in computer services and although the investments have been initially based on relatively low wage costs, the majority of the labour is above the Northern Ireland private sector median wage. Furthermore, recent research illustrates that the level of innovation within computer services in Northern Ireland is above the levels prevailing in other parts of the UK.[22] Although positive, the overall impact of FDI on the economy has been modest, since these sectors are emerging.

4.25 The opportunities for increasing productivity rely on better support for these sectors and sustaining their relatively strong exports performance.[23] More generally, forecasts suggest that tradable services could generate up to 54,000 additional jobs over the next decade – the challenge is to ensure that the relative performance of this sector is supported by government policy.[24] In addition, there is scope for increasing the level of collaboration with Republic of Ireland and UK counterparts, particularly with those firms located within the international financial services centres in Dublin and London. The recent investment by Citibank in Belfast underlines the potential for Belfast to develop its financial centre.

Legacy: spurring tourism

4.26 As discussed in Chapter 1, tourism has a potentially significant role for the economy. Today, tourism in Northern Ireland starts from a low base, contributing a similar level of direct value added as agriculture. Nevertheless, it supports about 28,700 jobs and contributes £800 million. Recent research suggests that there is substantial unfulfilled potential in tourism, reflected in the fact that it lost 75 per cent of its global market share of incoming visitors at the start of the 'Troubles'. Northern Ireland currently gains 20 per cent of the out of state visitors to the island of Ireland, whereas before the 'Troubles' it reached almost 40 per cent of all-island inbound tourism. If Northern Ireland had matched external visitor trends in the Republic of Ireland since 1969, tourism income would be expected to be worth an additional £270 million in 2006, or more than 11,000 jobs, and the extra sales to generate this would be of the order of £400 million.[25] There is thus plenty of potential for growth if the quality of tourism products and services are supported and promoted.

[21] Invest Northern Ireland submission to the Review (Jul 2007).
[22] InnovationLab, 'Innovation in Northern Ireland Tradable Services', unpublished research commissioned by the DETINI. (Draft Final Report, Jun 2007).
[23] 60.4 per cent of tradable services exports in Northern Ireland stem from computer services – although the absolute level of tradable service exports remains extremely small at 0.6 per cent of total output. Northern Ireland Executive submission to the Review (Jul 2007).
[24] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007) p.42.
[25] NITB and DETINI, 'Tourism in the NI Economy', (2007), quoted in First Trust Bank, 'Economic Outlook & Business Review', (Sept 2007), p25.

Box 4.1: Productivity and Belfast

Internationally, cities' contribution to national income is greater than their share of national population, and the contribution of larger urban centres is proportionately greater.[26] Prosperity in Northern Ireland is skewed towards Belfast with its living standards ranked seventh in the UK as a whole, with every other sub-region of Northern Ireland below the regional average. In sustaining productivity in Belfast, there is a general debate about the merits of diversification versus specialisation:[27]

- Larger and more diverse cities, which are least dependent on a single sector, may be better placed than specialised cities to provide the flexibility in reacting to changing global demand.
- In contrast, specialised cities can also bring significant value to those industries that benefit from 'localisation economies' or clustering with firms in the same industry or business.

The Northern Ireland private sector is the most specialised and concentrated within the UK (see Chapter 1). Thus, for Belfast as the key driver of living standards in the region, it needs to continue to restructure from its 'traditional' specialisms to higher value-added production, including ICT, and services, including business and financial services.

What is clear for Belfast is that in an increasingly integrated global economy it is more crucial to encourage the flexibility to adapt. Appropriate work based skills are a significant factor in diversifying into high value-added industries. Telecoms, software and network services are relatively new, but they could grow rapidly on the strength of ICT skills found locally. In addition, retaining skilled individuals is dependent on making key cities such as Belfast attractive as places to live and work, tackling social exclusion and public service issues within the city and the areas that serve it. Lastly, joining up Belfast to the rest of the region, particularly the North West, is needed to spread economic benefits to poorer neighbourhoods and communities.

Territorial potential

'All island' cooperation

4.27 The economic dimension of the peace process, underpinned by the St. Andrews Agreement, will be partly delivered through better collaboration both north and south of the border. This should aim to bring about economies of scale in public investment, harness unexploited sources of competitive advantage and deliver better public services on the island of Ireland. The £400 million package announced by the Irish Minister of Finance in March 2007 is rooted in the mutual desire of the North and the South to establish better 'all island' collaboration on infrastructure. For example, the proposed cross-border roads development serving the North West and the Eastern seaboard corridor from Belfast to Larne will help realise the economic potential of those areas (as described in Chapter 1).

4.28 In going further, it is important to acknowledge the potential contribution of the Republic of Ireland's current National Development Plan 2007-2013 in changing the fortunes of Northern Ireland and delivering an 'all-island' economy in key areas.[28] These areas include, for example, working towards an integrated bus and rail network throughout the island, the development of all-

[26] Urban Studies, 'Cities and national economic growth: a reappraisal', (2005).
[27] HM Treasury, 'Devolving decision making: 3 – meeting the regional economic challenge: The importance of cities to regional growth', (Mar 2006).
[28] EPSON, 'Ireland: National Development Plan 2007-2013, Transforming Ireland – A Better Quality of Life for All', (2007).

island business networks and clusters, jointly improving access to health services in border areas and closer cooperation in tackling poverty and social exclusion.

Cultural shift

4.29 Such issues span longstanding policy boundaries, since economic and social development on the island has progressed separately and at markedly different speeds. Addressing them, therefore, requires concerted effort and cultural transformation by the public administration on both sides of the border if coordinated policy is to be delivered at the working level.

Conclusion

4.30 While global FDI flows are increasing, economic activities are increasingly dispersed across continents, and subject to finer degrees of specialisation. More countries are opening up their economies and seizing the opportunities that come from closer integration into the global economy. For Northern Ireland, this means building on its close links with the UK, the Republic of Ireland and the USA to deliver better policy cooperation.

DELIVERY CHALLENGES

4.31 The established peace and the restoration of devolution have vastly improved the prospects for Northern Ireland to exploit global investment opportunities. However, as seen in the section on the Republic of Ireland's growth performance in Chapter 1, it is the effective and continuous delivery of a coherent economic policy that will be crucial in developing the region's business environment. More than most other regions, Northern Ireland faces the challenge of combining economic growth with increased social cohesion - increasing the levels of prosperity and sharing them across all areas of the community.

Managing change

4.32 Although Northern Ireland has historically competed on the basis of low costs, it is no longer sustainable for the region to seek a competitive advantage solely on this basis. Rather, it is imperative that the economy competes on a basis of higher value-added products and services. Managing this economic transition will involve a shift in culture at all levels, in the public and private sector.

Delivery challenges

4.33 The section below sets out the key delivery challenges for Northern Ireland going forward, including:

- reforming the public sector;
- reprioritising public spending;
- promoting innovation and R&D;
- strengthening the skills base and addressing high economic inactivity; and
- promoting exports and foreign investment.

The Northern Ireland Executive has recognised the importance of tackling these challenges in its recent draft Programme for Government and draft Budget.

Responsiveness

4.34 A key theme that draws these issues together is that of achieving a policy environment responsive to changing business needs. As global and indigenous business needs evolve in ways that are difficult to predict, the ability of the public and private sector to respond quickly will be key to the success of the economy.

Public sector reform

Public administration

4.35 As Chapter 1 set out, the Northern Ireland economy is heavily reliant on public sector activity. Given that private sector employment would need to grow by about 350,000 to achieve the same public-to-private sector split as the UK average, it may be unrealistic to expect private sector growth, on its own, to rebalance the economy.[29] The Northern Ireland Executive is building on a major programme of public sector reform, which should deliver better public services.

4.36 The improving security situation is building private sector investor confidence, with falling crime rates and rising confidence in the police and criminal justice system. However, there is a large illegal economy and the authorities will need to continue to work closely to reduce cross-border smuggling and financial crime.

4.37 As part of the 'Review of Public Administration' there was a commitment to reduce the number of local councils from 26 to seven by 2009, prior to the restoration of devolution – in fact, this review commits to local government reforms, education, health and social services restructuring and reducing the number of public bodies.[30] The Bain review of education and the Appleby review of health provide opportunities to improve public sector productivity as do the value-for-money savings which will come from the Northern Ireland Executive's spending review. Delivering the Northern Ireland Executive's plans, and tackling this legacy will be politically challenging. Indeed, that task applies to the overall public administration, including the central departments.

Public sector assets

4.38 Additionally, as part of the Northern Ireland Executive's spending review, and in light of the large Northern Ireland asset base, there may be scope to transfer assets to the private sector and, furthermore, this would provide funding to support public sector investment. The Review welcomes the continued efforts of the Northern Ireland Executive to develop its asset management strategy. The delivery of this will be crucial.

'Crowding out'

4.39 Submissions to the Review have suggested areas where public sector activity may be 'crowding out' the private sector. Examples have included hospital cleaning, MOTs and car parks. Also, the public sector has been described to the Review as the 'employer of first resort' for graduates, drawing a disproportionate number of graduates and highly skilled people. Addressing these concerns – in terms of procurement and employment – will be key. This should include encouraging cost effective use of public-private partnerships (PPPs), drawing on the expertise of the Strategic Investment Board.

4.40 The Northern Ireland Executive's spending review should provide the means to accelerate the pace of public sector reform and achieve the kind of rebalancing of the economy set out in the regional economic strategy.

Public spending

Prioritisation of public spending

4.41 A comparison of the Investment Strategy for Northern Ireland 2005 to 2015 and the National Development plan for the Republic of Ireland, suggests that comparatively greater attention is given to health, education and housing in Northern Ireland, as compared to transport and the productive sector in the Republic of Ireland. This is set out in Table 4.1, which shows the allocation of investment within each budget.

[29] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007).
[30] RPANI, 'Better Government for Northern Ireland: Final decisions on the Review of Public Administration', (Mar 2006).

Table 4.1: Allocation of investment, percentage of total (2006)

	Republic of Ireland	Northern Ireland
Transport	38.1	15.7
Health	7.6	18.2
Education	8.8	26.1
Public administration	12.3	7.1
Productive Sector	7.4	2.6
Agriculture	2.9	2.5
Housing	7.6	12.7
Environment	15.2	15.1
Total	100	100

Source: British-Irish Inter-Governmental Conference, 'Comprehensive study on the All-Island Economy' (October 2006).

4.42 This pattern is reinforced by the figures on a per head comparison with the other devolved administrations. These show that infrastructure investment in Northern Ireland has been comparatively low. Over the six years up to 2006-07:[31]

- Northern Ireland's capital expenditure on transport was £324 per head;
- Wales was £557 per head; while
- England and Scotland each spent in excess of £600 per head.

Transport infrastructure

4.43 Inadequate transport infrastructure reduces productivity, constrains markets and increases costs. This not only affects existing firms, but also affects the attractiveness of the region as an investment location. The pace and scale of infrastructure investment in Northern Ireland is accelerating, built in part by the 'Investment Strategy for Northern Ireland' launched in 2005. The Executive has recognised this, committing £18 billion. The delivery of this strategy is critical and will depend on joined-up policy – for example, the Strategic Investment Board plays a pivotal role in acting as a bridge between the public, private and 'third sector' to ensure that each understands their mutual objectives and concerns. In the Executive's spending review the challenge will be to focus spending and investment priorities and ensure they are geared to promoting economic growth.

Innovation

4.44 The 'Regional Innovation Strategy' sets out a vision: *'to create a culture and environment within which Northern Ireland will prosper by using its knowledge, skills and capacity to innovate.'*[32] The strategy identifies eight priority aims, with actions to achieve them.[33]

[31] Northern Ireland Executive submission to the Review (Jul 2007).
[32] DETINI, 'The Regional Innovation Strategy for Northern Ireland', (Jun 2003).
[33] To be updated in a 'New Regional Innovation strategic action plan'.

Higher education R&D

4.45 As Chapter 1 established, Northern Ireland has relatively high levels of higher education R&D underpinned by the universities of Queen's and Ulster. More widely, UK universities enjoy an excellent reputation for the quality of their research and teaching, but it is an open question as to how well they transfer their intellectual output into economic impact, specifically in supporting the generation of high-tech clusters. Chapter 1 outlines the current gap between higher education and business R&D spending in the region. This gap could be addressed through links between the higher education sector and business.

Knowledge Transfer

4.46 There may be scope for Northern Ireland universities to improve the transfer of knowledge and technology between the research base and industry to support a sharper focus on commercially viable research. Part of this challenge is the efficiency of universities in spinning out companies. Specifically, the Northern Ireland Executive could look to improve collaboration between universities and the high-tech ICT cluster, including the funding of post-graduates in this emerging cluster. The Executive's proposed programme to increase the commercialisation of University research is welcome in this respect.

Prioritisation of STEM

4.47 The prioritisation of science, technology, engineering and maths (STEM) skills is a key issue that will support the aim for a knowledge-driven economy based on higher value-added sectors and has been the subject of a number of national reviews. Skills more generally is examined below.

4.48 Box 1.1 set out the examples of recent university scholarship schemes and professional training, which look to address skills shortages in the ICT sector. Additionally, Queen's and Ulster plan to increase the number of PhDs in STEM subjects (80 PhDs at a cost of £10 million).[34] Some submissions to the Review have expressed concern at the decline in government funding in these areas.[35] Northern Ireland exhibits the lowest spending on STEM subjects relative to other UK regions – approximately 60 per cent below the UK average.[36] The Northern Ireland Executive's commitment to increase by 300 the number of PhD students at local universities by 2010 will provide an opportunity for it to promote spending on STEM areas.

Business expenditure on R&D

4.49 The challenge also lies with businesses improving R&D activity, which is a wider issue for the UK and particularly stretching for Northern Ireland given its starting levels. The UK has a challenging ambition to increase business expenditure on R&D to 2.5 per cent of national GDP. As part of this, all regions need to increase their investment. For Northern Ireland, some submissions to the Review have suggested that this would imply an increase in the annual investment in R&D of £300 million (£180 million to reach the current UK average and a further £120 million to reach the 2.5 per cent ambition).[37]

Culture

4.50 A key policy to promote business expenditure on R&D is the R&D tax credit, which has been enhanced in Budget 2007. Annex D concludes that the case for a further enhancement for Northern Ireland is not overwhelming. At the level of individual firms, the fundamental problem for Northern Ireland business is not a 'resource-gap', but a 'capabilities-gap'.[38] The lack of a 'culture' of undertaking R&D (and the over-emphasis on producing goods and services that compete more on costs than quality) has to be tackled.

NI corporation tax office

4.51 There is low take-up of R&D tax credits in Northern Ireland.[38] This could be tackled by raising awareness of the R&D tax credit in the region. As part of this, the new Northern Ireland Corporation Tax Office will be working closely with Invest NI and other bodies with the aim of promoting indigenous and inward investment in the region. It will also be responsible for promoting and providing advice on R&D tax credits in Northern Ireland.

[34] Northern Ireland Assembly's Committee for Employment and Learning submission to the Review (Jul 2007).
[35] Northern Ireland Assembly's Committee for Employment and Learning submission to the Review (Jul 2007).
[36] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007), p.79.
[37] Queen's University submission to the Review (Jul 2007).
[38] Harris, Cher Li and Trainor, 'Assessing the Case for a Higher Rate of R&D Tax Credit in Northern Ireland', ERINI Monograph No10, (Jan 2006).

Science cities

4.52 Most regions in England have developed 'science cities' (for example, Newcastle) based on the concept that the development of clusters of knowledge intensive firms tend to develop around large research universities. This allows cities to build on these assets by joining up local policies to create an innovation ecosystem, which makes the cities an attractive location for business investment.[39]

4.53 There could be scope for creating science cities in Northern Ireland, for example, Belfast and Derry. These could bring together interested parties in these city regions and maximise the agglomeration benefits outlined in Box 4.1. Such a strategy could be attractive to potential foreign investors. For Northern Ireland, in particular, there is the opportunity of joining up innovation policy with the Republic of Ireland to create a coherent overall strategy that maximises agglomeration effects on an 'all island' basis.

Innovation fund

4.54 On this last point, as part of the May package, an innovation fund has been set up to lever in private sector investment. This has been supported by matched funding of £36 million from the Republic of Ireland targeted specifically at collaborative R&D across the island of Ireland.

Skills and participation

Challenges

4.55 For Northern Ireland, a highly skilled and flexible workforce is the key to high economic growth and restructuring. While the demand for high-level skills continues to rise, responding quickly to changing business demand also requires a strong base of intermediate and basic transferable skills.

NI's strategy

4.56 Northern Ireland's skills strategy sets out four broad themes: understanding the demand for skills; improving the skills levels of the workforce; improving the quality and relevance of education and training; and tackling the skills barriers to employment and employability.[40] The Review supports these aims.

Basic skills

4.57 A solid foundation of literacy and numeracy as a part of primary education, as well as ensuring these essential skills are held by those entering and re-entering the workforce, is crucial. The Leitch Review of Skills ambition is that by 2020 only 5 per cent of adults in the UK lack functional literacy, down from 15 per cent in 2005.[41] This ambition is particularly challenging for Northern Ireland, since 24 per cent of its working age population (250,000 people) lack basic literacy,[42] and Northern Ireland has the highest proportion of working age population in the UK without qualifications. In meeting this challenge, the 'Essential Skills' programme (aiming to improve adult literacy and numeracy) is performing well – over 21,000 'Essential Skills' qualifications have been achieved, exceeding the Public Service Agreement target of 18,500 qualifications.[43]

Participation and inactivity

4.58 However, the solution does not lie solely with the Northern Ireland Executive. Fewer adults participate in learning in Northern Ireland (broadly, 30 per cent) than any other UK region.[44] Additionally, Northern Ireland has the lowest level of job-related training of all UK regions.[45] The most recent figures show that only 10.8 per cent of male and 12.8 per cent of female employees received job-related training in the previous month (the corresponding UK figures were 14.2 per cent and 18.3 per cent respectively.[46] The emphasis must, therefore, be on businesses to provide the opportunities and individuals to take the responsibility for improving their skills and education.

[39] These issues are examined at length in the Sainsbury Review of innovation.
[40] DELNI, 'Success through Skills', (Feb 2006).
[41] Leitch Review of Skills, 'Prosperity for all in the global economy - world class skills', (Dec 2006).
[42] DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007).
[43] DELNI, 'Success through Skills - progress report', (May 2000), p.31.
[44] UK average is 39 per cent.
[45] Ulster Bank submission to the Review (Jul 2007).
[46] DELNI, 'Success through Skills - Progress Report', (May 2007), p.10.

4.59 Reducing inactivity remains a key priority and possible labour market options include welfare reform such as rolling out 'Pathways to Work', expanding the local employment partnerships announced in the May 2007 package, and ensuring public sector pay reflects the regional labour market.

Migration

4.60 Another major challenge is in ensuring that there are the opportunities and incentives for the most gifted young people to stay, as well as for those who have emigrated and have gained valuable experience in other cultures to return home and put this experience to work in Northern Ireland. This is not something that will be immediately responsive to government programmes – to a certain extent the combination of a continuing peace and increased private sector activity will overturn this with time.

Sector skills

4.61 Chapter 1 outlined that the ability of the IDA and the Higher Education Authority in the Republic of Ireland to respond to the needs of different industries with specific programmes was key to attracting inward investment. The importance of accurate skills forecasting in partnership with business, and then the ability to relay this into and influence central government is decisive. As part of the 'Success through skills' programme, the Skills Expert Group identified two priority sectors: ICT and financial services.

4.62 Evidence to the Review suggests that there will be a shortfall of around 500 to 1,000 qualified candidates per annum in the computer science field over the next decade, which may seriously impact on the current development of the ICT sector.[47] Schemes like the 'Rapid Advancement Programme'[48] are extremely important for tackling this sort of shortfall. As part of this, there may be scope for closer collaboration between the Department of Employment and Learning and Invest NI in order to ensure that future skills provision is directly linked to demand, as well as further collaboration with the Republic of Ireland's 'Expert Group on Future Skills Needs' so as to evaluate and develop skills on an 'all island' basis.

Trade and investment promotion

FDI performance

4.63 As discussed above, Northern Ireland is building a track record in attracting FDI. Since January 2002, FDI in Northern Ireland has been dominated by ICT and business and financial service sectors, with six of the ten biggest investors in job creation terms operating in these sectors.[49] The USA is by a significant margin the largest FDI investor in the region, making investments in 30 tradable services, and a further 62 non-tradable investments since January 2002.

Increasing value-added

4.64 While Northern Ireland's share of FDI projects into the UK appears to be on a par with other regions, there is evidence in Northern Ireland at least that the quality of job creation is low. Although, FDI has helped to safeguard a number of high wage jobs, many of the newer jobs that have been created are lower value-added, with this being particularly true in the tradable services sector.[49] To a large degree, the opportunities for attracting high value job creation rest in Northern Ireland ensuring it invests appropriately in skills, infrastructure and innovation, which have been examined above.

[47] Northern Ireland Business Alliance submission to the Review (Jul 2007).
[48] The Rapid Advancement Programme is a 29-week ICT conversion programme providing non-IT graduates with an opportunity to fast track their careers in information technology.
[49] DETINI, 'Foreign Direct Investment in Tradable Services', (draft unpublished research – Jun 2007).

Marketing Northern Ireland

4.65 However, companies may lack sufficient information on potential markets in Northern Ireland or locations from which to export out of the region. This has been reported to the Review, but is a well-documented problem of 'internationalisation', resulting from issues of language, lack of personal contact, unfamiliarity with local data sources etc.[50] In marketing the region better, one can draw comparisons with the Republic of Ireland, where not only have 'material' factors been important, but also a discursive element. That is, the very image of Ireland as a 'Celtic Tiger' may have itself contributed material benefits.[51]

4.66 This stands in contrast to the image of Northern Ireland, where nearly 30 years of civil unrest suggest particular marketing challenges. Accordingly, investment promotion should be prioritised as part of the Northern Ireland Executive's spending review. In addition, the Review recommends that:

- UK Trade & Investment (UKTI) reviews with Invest NI the scope for better marketing of Northern Ireland to higher valued-added FDI in particular targeted sectors; and
- UKTI examines the capacity for better joint marketing between the UK regions in the location of ancillary activities – including fostering better links between the competitive advantages of the City of London and the regions, for example Belfast, on financial services.

Joining up across government

4.67 Representations to the Review have suggested that in a small economy an investment promotion agency which commands the confidence of ministers and senior officials is essential to encouraging a policy environment responsive to inward investment. Ministerial support in the form of personal engagement with potential investors is a powerful promotional tool. Key is building capabilities rather than simply providing financial and promotional support. This requires a cross-government shift in culture geared towards fostering the business environment and driving economic development up the policy agenda.

Greater 'all-island' working

4.68 Furthermore, the high-level desire for an 'all-island' economy should be effectively translated to the working level. The IDA has substantial experience in attracting US investors and in generating re-investments from existing foreign companies. Although the Republic of Ireland has created a significant number of jobs across the Northern Ireland economy, including in finance, telecoms and foods, their involvement in the tradable services sector has been more limited.[49] Currently, there is some cooperation between Invest NI and Enterprise Ireland – for example, in joint trade missions.

4.69 However, there may be scope for a more far-reaching cooperation between Invest NI and the Irish IDA. This could involve sharing best-practice and an expansion in the staff secondments between the two agencies. Where appropriate, greater sharing of market information could enhance the attractiveness of the island of Ireland and deepen the links between existing tradable services sectors.

[50] OECD-APEC Conference on 'Removing Barriers to SME Access to International Markets', (Nov 2006).
[51] Krugman notes that 'investors may, entirely rationally, end up 'following the herd" so that 'early decisions about the location of investment can produce a cascade of followers.' See Krugman, 'Good news from Ireland: a geographical perspective', in Gray, 'International Perspectives on the Irish Economy', pp.49-50.

The 2007 Comprehensive Spending Review and NIE draft Budget

2007 CSR

4.70 The 2007 PBR/CSR announced:

- a CSR settlement for the Northern Ireland Executive involving an additional £2.3 billion for the next three years over the 2007-08 baseline. This settlement more than meets the £51.5 billion financial package announced in May 2007, and will facilitate measures to promote economic growth by the Northern Ireland Executive;
- in addition, a drawdown of £440 million of End Year Flexibility will be available, which is £295 million beyond the May package;
- provision for the retention of receipts from asset sales and increased capital investment, beyond the May package.

NIE draft Budget

4.71 Drawing on the funding provided by the UK Government in May 2007 and in the CSR, the Northern Ireland Executive's draft Programme for Government, along with a draft Budget and draft Investment Strategy for 2008-2011, were presented on 25 October 2007. The Programme for Government puts growing the economy at the top of the Executive's priorities. The draft Budget announced a wide range of measures for supporting the delivery of the Executive's Economic Vision of an innovative, entrepreneurial, wealth generating, export oriented economy. These measures include a coordinated approach to the management and targeting of funding sources for innovation, drawing on money allocated in the UK Government's financial package and funding from the Irish Government. The Budget also announced a three year real terms freeze on the business regional rate and completion of the roll-out of Pathways to Work. There was also an average growth of 4.8 per cent in the budget for the Department of Enterprise, Trade and Investment.

CONCLUSION: FUTURE OPPORTUNITIES AND CHALLENGES

4.72 The terms of reference of the Review were to report on how current and future tax policy, including the tax changes announced in the Budget, can support sustainable growth of businesses and long-term investment in Northern Ireland. Chapter 3 has set out that a case cannot be made for a reduced rate of corporation tax in Northern Ireland. Therefore, in considering how to use public funds to drive productivity improvements, this chapter has shown that there are significant opportunities for the Northern Ireland economy, and that Northern Ireland individuals have the levers to effect real change.

Role of UK Government

4.73 HM Treasury continues to have an important role in relation to Northern Ireland. This is in:

- ensuring a stable macroeconomic framework;
- delivering a stable short, medium and long term funding environment for Northern Ireland (underpinned by the May package); and in
- ensuring that all UK regions are considered when setting UK tax policy (including levels of taxation, complexity and administration).

4.74 Regional policy in the UK is based on bringing all regions up to the performance of the best and many other departments have an important role to play.

Role of Irish Government

4.75 The Irish Government has already invested considerable time and resource to the delivery of an 'all-island' economy. However, there is scope to go even further, for example better sharing of best-practice and closer working level contact, building on the range of recommendations in the 'Comprehensive study'.[52]

Role for Northern Ireland

4.76 Northern Ireland has a unique historical and geographical context. However, it has also received a unique level of support from both the UK and the Republic of Ireland governments. All submissions agree that the overriding aim for Northern Ireland must be to grow a successful private sector led economy. However, this is dependent on the ability and willingness of public and private sectors to undergo a cultural transformation. The Review has suggested some potential challenges to consider. Many of the important levers are in Northern Ireland's hands, and devolution provides the opportunity for the Northern Ireland Executive to determine its own priorities for promoting economic growth, including through implementing its Programme for Government.

[52] British-Irish Inter-Governmental Conference, 'Comprehensive study on the All-Island Economy', (Oct 2006).

A Investment and tax literature

A.1 This annex expands on some issues outlined in Chapter 2 regarding:

- literature on tax competition;
- the literature on profit shifting; and
- the efficacy of 'dynamic' scoring models.

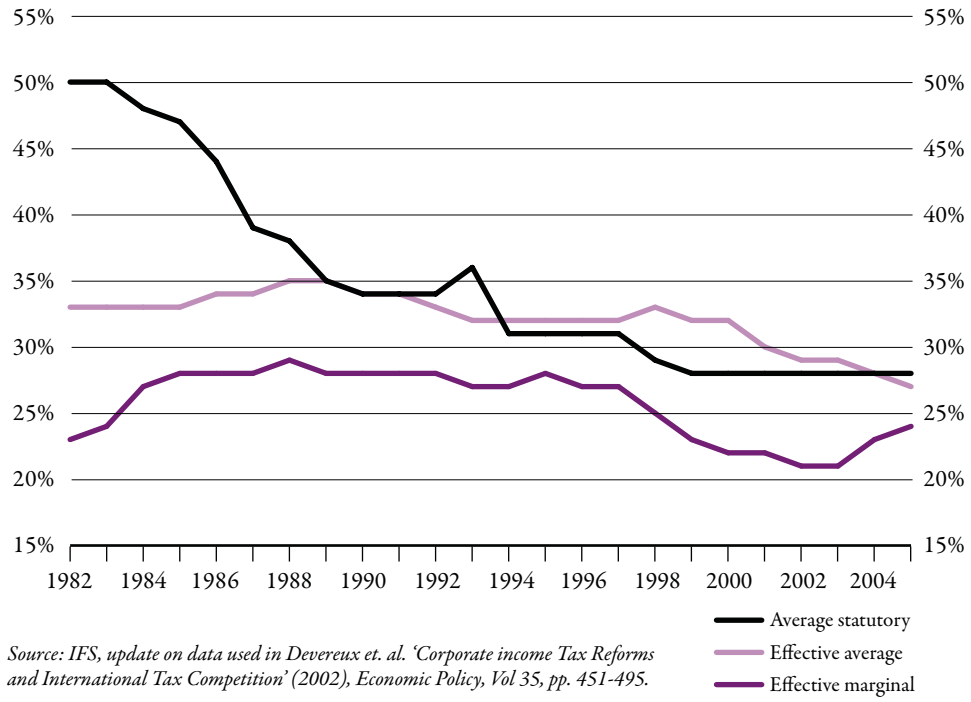
TAX COMPETITION

A.2 An important consideration in assessing the likely impact of corporate tax changes is the extent to which other countries may respond to such changes. As Chapter 2 and Annex A outlined, the evidence suggests that the corporation tax rate can have an impact on the level of inward investment a country receives. To the extent that countries will wish to attract as much inward investment as possible and, equally, avoid losing existing inward investment to other countries, there is likely to be a degree of interdependence between corporate tax rates in different countries.

A.3 At one extreme, this observation has led some commentators to warn of a 'race to the bottom' in corporation tax rates. On this view, when a country lowers its corporation tax rate, it attracts mobile capital based in neighbouring countries, lowering the economic welfare of that country and encouraging it to respond by lowering its own taxes. This process generates a downward spiral in corporation tax rates, undermining governments' abilities to raise revenue from mobile capital.

A.4 Despite a number of small countries such as the Republic of Ireland having moved to a low rate of corporation tax, the major economies have not followed suit. Among the G7 economies, reductions in the rate of corporation tax have generally been accompanied by base broadening measures, meaning that effective tax rates on business have not fallen to the same extent as statutory rates. See Chart A.1.

Chart A.1: Different measures of corporate tax rates (average G7 countries)



Source: IFS, update on data used in Devereux et. al. 'Corporate income Tax Reforms and International Tax Competition' (2002), Economic Policy, Vol 35, pp. 451-495.

A.5 There are a number of possible explanations as to why effective corporation tax rates in large economies have remained fairly resilient in the face of increased capital mobility. One plausible reason is the locational advantages offered by larger countries. In determining where to place investment, firms will trade off the location specific benefits against the corporation tax rate. There is evidence that larger countries tend to offer larger locational benefits in the form of greater market access, greater availability of resources and higher productivity.[1] These benefits allow larger countries to maintain corporation tax rates above levels seen in smaller economies, which cannot offer the same non-tax advantages.

A.6 There is a fairly substantial academic literature looking at issues around tax competition and tax interdependence. Griffith and Klemm (2001; 2002) provide some evidence that corporate tax reforms have been designed to favour mobile and profitable capital but these papers do not address the issue of whether countries interact when setting their tax rates.

A.7 Chennells and Griffith (1997) consider specific predictions from the tax competition literature and look at whether the empirical evidence supports them. They calculate effective and implicit tax rates for ten countries over the period 1979 to 1994. They then consider whether small countries have lower taxes than larger countries, whether this depends on the degree of openness, and whether capital importing countries set their tax rates at, or below, a dominant capital exporter. Neither of these hypotheses is supported by the data.

A.8 Besley, Griffith and Klemm (2001) estimate the interdependence in tax setting behaviour amongst OECD countries. They include five tax bases (labour, corporate, property, sales, excise) which vary in the degree of mobility, but they use relatively unsophisticated backward looking average tax rates. They find evidence to support the hypotheses that: taxes on more mobile factors should be more interdependent; and interdependence should be greater between countries where there is greater mobility (e.g. in the EU).

[1] For example, see Alesina and Waczairg (1997).

A.9 Devereux, Lockwood and Redoano (2002) use an updated version of the data in Chennells and Griffith and estimate countries' reaction functions. They find evidence that there is interdependence in the statutory and average tax rates, but not in marginal tax rates. Interestingly, they also find that countries with relatively high tax rates tend to respond more strongly to rates in other countries, i.e. a country with a relative low tax rate might be less concerned about seeing its tax differential diminish than a high-tax country seeing its tax differential increase.

A.10 Altshuler and Goodspeed (2002) attempt to test the type of competition prevalent by estimating reactions functions for two models:

- an oligopoly model in which European countries compete with each other, setting their tax rates taking the rates of the others as given;
- a Stackelberg type model in which the USA plays the role of a 'leader' in setting tax rates, with the Europeans competing as before.

A.11 The authors used OECD published tax revenue data for the period 1968 to 1996. They find that countries interact strategically when setting capital tax rates, but not when setting personal tax rates. They find no evidence to suggest that the USA acts as a leader or that competition has intensified over the years.

A.12 More recent analysis of this issue has been conducted by Ruiz (2006). He examines corporate tax interdependency between EU15 countries over the period 1993 to 2001 and finds a general absence of such interdependency. While the capital stock in an economy and the corporation tax rate appear to be inversely related, tax rates within EU15 countries do not appear to be set on the basis of strategic interaction or tax competition.

A.13 So the evidence suggests that while we have not seen a 'race to the bottom' in corporation tax rates, there is some support for the proposition that a degree of interdependence exists between corporation tax rates in different jurisdictions. However, as with many aspects of corporation tax analysis, it is difficult to arrive at a firm conclusion over its size. An important point to note is that existing studies on this issue generally examine international responses to relatively small movements in corporation tax rates. Intuitively, one could expect reactions to be significantly stronger in the context of a country cutting its corporation tax rate by a substantial amount.

PROFIT SHIFTING

A.14 As Chapter 2 explains, companies with international operations can potentially use a number of devices to shift profits from high-tax to low-tax jurisdictions. A key issue in the context of this Review is how sensitive this behaviour may be to the level of the corporation tax rate. This section draws on the academic literature to arrive at a plausible estimate of this sensitivity.

A.15 A key observation in the early literature in this field was that foreign-owned subsidiaries in the USA were less profitable than purely domestic groups.[2] Another approach examined the profitability of parent companies. Harris et al. (1993) observes that parent companies with subsidiaries in low tax countries showed a significantly lower profitability than companies with subsidiaries in high tax countries. Using US data from the 1980s, Rousslang (1997) estimates a direct effect of tax rates on profits of 0.3 per cent in the presence of a one-percentage point increase in the tax rate.

[2] See Wheeler (1988), and Dworin (1990). Grubert et al. (1993) estimate that about half of the difference can be explained by profit shifting.

A.16 Overall 22 papers have been considered on this topic. Of the 22, nine studies have been used for the purposes of to estimate a sensitivity. These nine were chosen because they had, very broadly, comparable methodologies, and also because there was sufficient data to enable one to calculate the sensitivity of the tax base to changes in the corporation tax rate. Specifically, the semi-elasticity of company profits (and by assumption the tax base) to the corporation tax rate has been computed.

A.17 The semi-elasticity relates how the dependent variable, in this case reported profits, responds to a one percentage point change in the tax rate. The studies of interest are those which use statutory tax rates, rather than effective rates. It is the statutory rate against which groups base their tax planning. The use of the effective rates in econometric work opens up a possible problem of circularity.[3] The problem is that the effective rate already encapsulates some of the extent of profit shifting.

A.18 Table A.1 reports the semi-elasticities that have been calculated for each of the studies. Some of the figures reported in this note may be taking into account several regressions so may differ from those reported in the actual papers. The semi-elasticities range from 0.3 in Collins et. al. to 8.5 in Mintz and Smart. The differences reflect the individual specifics of each study. For example, although Grubert and Mutti use the same dataset and cover the same period as Hines and Rice, the former only considers manufacturing companies whilst the latter considers all non-financial income. Most of the studies use US data, the exceptions being Demirguc-Kunt and Huizinga (80 countries), Mintz and Smart (Canada), Bartelsman and Beetsma (OECD) and Huizinga and Laeven (Europe). Demirguc-Kunt and Huizinga can be further distinguished by their consideration of the banking sector.

A.19 The models can be broadly distinguished in two ways. The first distinction is in the dependent variable. This is either a straightforward measure of profit (or some proxy such as reported income) or a measure of 'profitability'. The latter is represented by a profit to asset (or sales) ratio. This second specification presents a difficulty, since it is how profits respond to changes, rather than profitability, that is important. To overcome this problem, the Review has had to assume that the asset or sales value remains constant across the time frame of the study. Of course, this is a restrictive assumption. There is a great deal of evidence demonstrating how investment, and so assets and sales, responds to tax changes. Nevertheless, it is a necessary restriction for this exercise. If the levels of assets and sales do remain constant then the regressions do indeed measure the response of profits to tax changes.

[3] Strictly, this is referred to at the 'endogeneity' of effective tax rates. In other words, the tax rate faced by a firm will influence the type of investment undertaken, which in turn will affect the amount of tax paid.

Table A.1: Reported and calculated semi-elasticities

Study	Semi-Elasticity
Grubert & Mutti (1991)	2.1, 2.6
Hines & Rice (1994)	2.5
Collins et. al. (1998)	0.3
Demirguc-Kunt & Huizinga (2001)	2.3
Grubert (2003)	0.6, 1.0
Mills & Newberry (2004)	3.0, 6.9
Mintz & Smart (2004)	8.5
Bartelsman & Beetsma (2004)	2.2
Huizinga & Laeven (2005)	1.0, 2.2

Source: Cited studies and Review calculations. Where there are two reported semi-elasticities it is to reflect different regressions.

A.20 The second way that the models can be disinguished is in their functional form. The majority of the models are linear, i.e. in the general form:

$$p = a + bt + gX$$

A.21 Where reported profits (p) are a function of taxes (t) and a vector of other factors (X). Other factors can include general economic variables, sector specific factors, levels of inputs, the use of intangible assets and so on. For these models the regression results do not directly provide either elasticity or semi-elasticity figures. Instead, these have had to be manipulated to obtain estimated semi-elasticities. A second functional form is the log-log model:

$$\ln p = a + b\ln t + g\ln X$$

A.22 Here all variables are expressed in their natural log forms. For this model, the tax coefficient from the regression (b) measures the elasticity of profits to tax. However, this also requires a transformation to obtain the estimated semi-elasticity. The third form of model is the log-lin model:

$$\ln p = a + bt + gX$$

A.23 The tax coefficient in these regressions actually measures the semi-elasticity directly so no further manipulation is necessary.

A.24 While profit shifting clearly implies a negative effect on corporate tax revenue, it might also indirectly allow countries to sustain higher tax rates on domestic capital. Since the possibility of profit shifting effectively implies a differentiated tax rate for mobile and immobile capital, tax revenue can be sustained at a high level without deterring mobile capital. That is, the opportunity to shift income abroad allows multinational companies to locate real economic activity in high tax jurisdictions at a low tax burden. Clearly, this differentiation can be particularly important for large countries with a large domestic corporate tax base.

A.25 One can now attempt to arrive at a single unified estimate for the semi-elasticity from the academic studies.

A.26 Looking at the figures in Table A.1, the Mintz and Smart paper is clearly an outlier. The paper measures how Canadian companies react to provincial and federal taxation. No doubt part of the explanation for their high figure is the relative ease with which companies are able to shift

income across provincial as opposed to national lines. It makes sense to exclude this from the sample when considering profit shifting between countries.

A.27 The next stage is to try to identify the factors that may lead these studies to either over-estimate or under-estimate the extent of profit shifting in the UK.

A.28 Firstly, the authors are purposely trying to identify situations where profit shifting is more likely to occur, in an attempt to demonstrate the phenomenon. For example, most of these papers are assessing situations where foreign owned subsidiaries are repatriating profits to non-UK parents. This can be thought of as a highly probable profit shifting scenario but only really applies to 11 per cent of the estimated mobile tax base for the UK. Mintz and Smart show that the degree of profit shifting by domestic subsidiaries is quite a bit lower than that from foreign. Collins et al allows us to test the difference between profit shifting into and out of a country (in this case the USA). Their results suggest the sensitivity of foreign profits might be double that for US profits. Another similar distinction can be made between parents and subsidiaries. One would expect that profit shifting is less likely in the former than the latter. Huizinga and Laeven do a calculation for both groups and suggest that the semi-elasticity for subsidiaries is over twice that of parents. These factors would tend to suggest that a semi-elasticity based purely on profits of foreign subsidiaries would be an overestimate, perhaps by a factor of two, although it is difficult to assert a single figure.

A.29 Another element of the sample selection that needs to be controlled for is the choice of sector. For one example of this, one should note that those studies that limit themselves to manufacturing groups tend to report lower semi-elasticities. Demirguc-Kunt and Huizinga, which considers only the banking sector, where one would think that shifting profits could be achieved more easily, is an overestimate for the entire economy. Overall though, the sector coverage within the studies seems to be sufficiently broad so as not to bias the results particularly.

A.30 A third point worth making is that only one of the studies, Grubert, explicitly allows for the use of a debt financing strategy in its regression. It is clear from the papers reviewed in Table A.1 that there is a significant positive correlation between the tax variable and the gearing ratio. It is also clear that a higher gearing ratio will reduce the level of taxable profits due to increased interest deductions. This suggests that a more accurate regression might be:

$$p = a + b_1 t + b_2 g + gX$$

A.31 In this regression, g refers to the level of gearing. This shows that that if gearing is not factored in, then the direct effect of the tax rate on profits (b_1) is over-estimated. Some of the effect on profits is working indirectly through the increased gearing, rather than directly through the tax rate. One would expect b_2 to also have a negative sign. When Grubert adds gearing as an additional explanatory variable he finds it is negative and significant. In fact, he points out that it actually accounts for about half of the overall profit shifting. Related to this point is the choice of profit variable. Grubert and Mutti is the only study that uses after-tax profits. The problem with using earnings before interest and tax (EBIT) as a pre-tax measure of profits is that it has not yet accounted for the level of interest payments. Without these, the important element of profit shifting is clearly missing.

A.32 A fourth factor that points to potential under-estimation occurs when a profitability measure is the dependent variable. It is assumed that the level of assets or sales do not vary with the tax rate. However, the evidence from the literature on FDI and elsewhere suggest that there is likely to be an inverse relationship between assets and the tax rate. If the corporation tax rate increases, the level of assets will probably decrease, rather than remain constant. However, it is likely that the relative reduction in assets is probably less than the relative reduction in profits. If this is indeed the case, then an elasticity based on the profits-to-assets ratio is most likely an under-

estimate. There is probably less of an issue if sales is used as the denominator; the link between the tax rate and sales is probably weaker. If so, it could be argued that, where the choice is available, the profit-to-sales ratio should be the preferred dependent. The Mills and Newberry paper produces different regressions for the two denominators. It shows that the difference in the calculated semi-elasticity can be quite large. When assets is used as the denominator, the estimated semi-elasticity is 3.0, when sales is used it is 6.9. The only other study that uses only assets as the denominator is Dermirguc-Kunt and Huizinga.

A.33 A final factor worth noting is that some of the studies do not control for many other factors. Once again, this might lead to an over-estimation of the tax variable, if the variables have any correlation with the tax rate. However, it is more likely that they are simply captured within the error term. Also, it must be acknowledged that the exclusion of 'tax havens' in some studies is a factor that might underestimate the extent of profit shifting in those papers.

A.34 Once Mintz and Smart are excluded the mean and median values of the semi-elasticities are in the range (1.8 to 2.5) and (2.2 to 2.3) respectively. This suggests a rounded figure of 2.0. Despite the various factors that have been considered above, no further reduction or increase is made to take account for possible under-estimation or over-estimation within the studies. The main reason for this is that different factors are pulling in opposite directions and it is difficult to be sure of the magnitude of these. However, there does remain some uncertainty and so the figure of 2.0 should be seen as a central estimate within a range of perhaps 1.5 to 2.5. The bottom end might apply to those who, although able to shift profits, find it trickier or are less willing to do so. Perhaps a domestic manufacturing subsidiary might fit this category. The top end might be represented, for example, by a foreign owned subsidiary in the financial sector. Interestingly, when different semi-elasticities are applied to the three different segments of the mobile base (domestic, foreign, financial), assuming that the semi-elasticity for domestic subsidiaries is around half that for the others, an estimate of 2.0 is also obtained.

A.35 In short, for a one percentage point change in the UK tax rate, the change in the tax base is between 0.75 per cent and 1.25 per cent (since there is no effect on the half of the base that is immobile), with a central estimate of 1 per cent.

'DYNAMIC' IMPACTS OF TAX CHANGES

Incorporating secondary effects

A.36 So-called 'traditional' revenue estimation, or static scoring, as an approach to tax analysis assumes that a tax change has a limited effect on wider consumption and national income. The so-called 'dynamic' approach suggests that tax cuts could generate so much economic growth that they go some way towards paying (or even completely pay) for themselves. Dynamic scoring seeks to incorporate secondary or indirect effects arising from a policy change by making use of more information and possible channels of economic activity to reflect the wider implications of a tax change on consumption, productivity and in turn tax revenues.

A.37 However, such an approach also has significant limitations. Indeed, some of the secondary relationships can appear counter-intuitive: for example, a tax cut aimed at stimulating investment could actually have a negative impact on employment, if firms respond by substituting capital for labour. Therefore, such analysis relies heavily on assumptions made about these effects, which, in many cases, can be based on less reliable evidence or data.[4]

[4] For a summary of the advantages and disadvantages of 'dynamic scoring', see Auberbach, 'Dynamic Scoring: An Introduction to the Issues', (2005).

General evidence

A.38 In terms of the empirical literature, Mankiw and Weinzierl (2006) argue that the effect of a tax cut on capital income is that around half of the revenue cost is recovered in the long run. This empirical work does not, therefore, provide resounding general support that a tax cut is value-for-money, even when considering 'dynamic' effects. More generally, they observe:[5]

> *'To what extent does a tax cut pay for itself? This question arises regularly for economists working at government agencies in charge of estimating tax revenues. Traditional revenue estimation, called static scoring, assumes no feedback from taxes to national income. The other extreme, illustrated by the renowned Laffer curve, suggests that tax cuts can generate so much economic growth that they completely (or even more than completely) pay for themselves. Most economists are sceptical of both polar cases. They believe that taxes influence national income but doubt that the growth effects are large enough to make tax cuts self-financing. In other words, tax cuts pay for themselves in part, and the open question is the magnitude of the effect.'*

An example from the USA

A.39 By way of an example, the US government uses five economic models in its analysis of the macroeconomic impact of policy changes. These include two commercial macroeconomic forecasting models. These models were used by the US Congressional Budget Office (CBO) to analyse the impact of the 2004 US Budget. The CBO analysis found that the overall macroeconomic effect of the proposals in the 2004 Budget was ambiguous, with the direction and magnitude of the effects dependent on the model used for analysis.[6]

Practical implications

A.40 The practical implication is that it raises a question as to which effects policy makers should take into account when assessing a specific policy measure. The direct revenue implication of a tax measure should, of course, be considered: for example, the corporation tax revenue implication of a corporation tax change. However, there is a more difficult judgement as to how one incorporates possible secondary effects, that is, the possible impact on consumption and investment that could affect the revenue from consumption and other revenue taxes. This need for judgment is underlined by HM Treasury's approach set out at Appendix A2 of the annual Budget document:[7]

> *'The net Exchequer effect of a Budget measure is generally calculated as the difference between applying the pre-Budget and post-Budget tax and benefit regimes to the levels of total income and spending at factor cost expected after the Budget. The estimates do not therefore include any effect of the tax changes themselves on overall levels of income and spending. However, they do take account of other effects on behaviour where they are likely to have a significant and quantifiable effect on the cost or yield and any consequential changes in revenue from related taxes and benefits.'*

Implications for the Review's analysis

A.41 Thus, depending on the relative certainty around secondary or indirect effects, there is a judgment call to be made by policy makers wanting to make reasoned decisions that balance the objectives of fiscal discipline and economic growth. And, above all, the presentation should also be transparent. With regard to the economic assessment made in Chapter 3 of this report, the Review considers the possible effect on tax revenues in addition to corporation tax receipts, using a multiplier. This is simplistic, but presents an intuitive and transparent assessment by providing a range for policy makers to consider in Chapter 3. Needless to say, it requires a careful consideration of the relative uncertainty around the revenue estimates from taxes in addition to corporation tax. Caveats are set out in Box 3.2 of Chapter 3.

[5] Mankiw and Weinzierl, 'Dynamic Scoring: A Back-of-the-Envelope Guide', pp.1415-1433.
[6] For further details see Congressional Budget Office (2003), 'An Analysis of the Presidents Budgetary Proposals for the Fiscal Year 2004', (Mar 2003).
[7] HM Treasury, 'The Financial Statement and Budget Report', (2007) ñ Appendix A2, p.229.

B Methodology for the 'stylised examples'

B.1 As Chapter 2 demonstrates a change in the corporation tax rate is likely to influence national income to the extent that it can encourage investment activity. In order to estimate the potential economic effect of a corporation tax reduction, it is necessary to gain an understanding of the impact of corporation tax on aggregate investment. The key variables of interest in doing so are the aggregate capital stock and the profitability of capital.

B.2 The ERINI analysis cited in the body of the Review assumes that following a reduction in the corporation tax rate, Northern Ireland would achieve a pro-rata share of the Republic of Ireland's forecast for foreign direct investment (FDI). There are risks to an approach built on the reliability of FDI forecasts. Box 2.2 in Chapter 2 discusses the problems of using FDI data to proxy for the level and composition of the aggregate capital stock.

Capital accumulation as a 'first principles' illustration

B.3 An alternative approach, set out here, is based on the 'first principles' idea of convergence of capital-to-labour ratios between two countries with similar economic environments. Economic theory suggests a link between capital-to-labour ratios and capital inflows. All else equal, countries with low levels of capital per worker will offer higher returns and are therefore more likely to attract capital inflows compared to more capital 'rich' countries. Such flows should continue into capital 'poor' countries until returns on capital equalise. For example, the high level of investment into central and eastern European countries which joined the EU in May 2004 is likely to be linked to the initially low levels of capital in those countries.

B.4 Projecting the rate of convergence of capital accumulation, while conceptually very different from an approach based on FDI flows, does provide a complementary way of assessing the potential impact of a lower corporation tax rate, drawing on standard macroeconomic concepts.

BACKGROUND

B.5 The simplistic starting point is that identical countries using the same technology (production function) should have the same capital-to-labour ratio. In addition, the accumulation of capital is subject to diminishing returns – the return on each additional unit of capital declines as the capital stock increases. Under the assumption of perfect capital mobility, capital will flow from low-return to high-return countries, until a point is reached where post-tax returns on capital in both countries are the same. Hence, if tax rates differ between countries, the low tax country will have a higher capital-to-labour ratio than the high-tax country. The higher capital-to-labour ratio is associated with higher total returns on capital, but lower (pre-tax) marginal returns. To maintain post-tax returns, a tax cut in the high tax country to the low tax country's level leads, therefore, to an increased rate of capital accumulation (and capital inflows) and a convergence in capital-to-labour ratios, productivity and pre-tax returns on capital.

The degree of convergence

B.6 If, however, countries differ with respect to their technology, skill endowment, or the quality of the capital stock, then the dynamic adjustment will be different. In particular, if the high-tax country is worse off with respect to other dimensions than the tax rate, then a tax cut will only lead to partial 'catch-up'. This is likely to be the case of Northern Ireland compared to the Republic of Ireland. Partial convergence can be reflected in various aspects of capital accumulation like the growth rate, productivity or the returns to capital.

B.7 The approach here is based on a set of assumptions which offer some intuition on the issue of 'catch-up'. Using these assumptions, the relevant data can be applied to project various convergence paths for Northern Ireland relative to the Republic of Ireland.

ASSUMPTIONS

B.8 The approach seeks to project capital accumulation paths and corporate tax revenue in a highly stylised environment. The assumptions outlined below are critical to the example and its results.

1. The tax cut induces additional investment: the rate of capital accumulation is above the current Northern Ireland rate. This is an uncontroversial assumption, since a lower corporation tax rate is associated with higher investment.

2. 'Convergence' is only partial: the new rate of capital accumulation is below the current Republic of Ireland rate. Given the relative advantages of the Republic of Ireland economy, this assumption is not controversial. However, quantifying this is difficult.

3. There is no substitutability between capital goods: different returns are realised on 'old style' investment ('type 1') and 'new style' investment ('type 2'). This assumption is arguably strong. However, it is unlikely that the current (old industrial) capital stock in Northern Ireland is a good substitute to the Republic of Ireland's capital stock.

4. Returns on 'type 2' capital increase over time and reach the current Republic of Ireland level when Northern Ireland reaches the Republic's current capital-to-labour ratio. Initial returns on 'type 2' capital are, however, above the current Northern Ireland level. This assumption is slightly arbitrary, since there is no necessary relationship between the total capital-to-labour ratio and the 'type 2' capital stock. In fact, the implicit assumption is that both types of capital employ the same relative amount of labour.

5. There exist positive 'spillover' effects that increase the profitability of 'type 1' investment. Generally, the existence of positive 'spillovers', in particular arising from foreign investment (foreign owned capital stock), is a well-established result. However, there is limited information about the size of this effect.

6. The number of hours worked is held constant. This allows an estimate to be made of the 'catch-up' of the capital-to-labour ratio and the returns on the 'new style' capital stock.

B.9 It should be noted that this approach does not consider other possible tax revenues that might be drawn in by increased investment.

Data

B.10 Table B.1 below outlines the data used in the three 'stylised examples' below. A sterling/euro exchange rate of 0.66 is used an average over the period to convert the Republic of Ireland data so that they are in the same currency units.

Table B.1: Summary of data used in the 'stylised examples'

	Republic of Ireland	Northern Ireland
Capital stock (£ millions)	70,740	18,270
Net capital formation (£ millions)	4,680	580
Gross value added (£ millions)	78,190	21,180
Labour (millions hours)	3,000	1,210
Capital-to-Labour ratio (£/hour)	23.59	15.09
Investment rate (%)	6.6	3.1
Corporation tax revenues (£ millions)	3,080	550
Profits before corporation tax (£ millions)	24,650	1,830
Implicit profitability (%)	34.8	10.0

Source: ONS, OECD, Ireland CSO, averages 2001-2005.

STYLISED EXAMPLES

B.11 Three examples are analysed, representing different degrees of 'catch-up' in the rate of capital accumulation of Northern Ireland relative to the Republic of Ireland's current level. It can be seen from the bullets below that they are highly stylised. Nevertheless, the three examples present a plausible range.

- **Example 1: 25 per cent** of the difference between current Northern Ireland and Republic of Ireland investment is realised. This implies that the current Republic of Ireland capital-to-labour ratio is reached after 12 years (compared to 15 years in the base case (i.e. no change in the Northern Ireland tax rate)). Net annual corporation tax revenue 'breaks even' after 36 years.
- **Example 2 (central): 50 per cent** of the difference between current Northern Ireland and Republic of Ireland investment is realised. This implies that the current Republic of Ireland capital-to-labour ratio is reached after 10 years (compared to 15 years in the base case). Net annual corporation tax revenue 'breaks even' after 20 years.
- **Example 3: 75 per cent** of the difference between current Northern Ireland and Republic of Ireland investment is realised. This implies that the current Republic of Ireland capital-to-labour ratio is reached after 8 years (compared to 15 years in the base case). Net annual corporation tax revenue 'breaks even' after 14 years.

B.12 It should be noted that the examples here do not consider other possible tax revenues that might be drawn in by increased investment. They should, therefore, be compared to the 'break even' period of 14 years estimated by the ERINI study.[1]

[1] Which is similarly on a corporation tax revenue only basis.

Observations

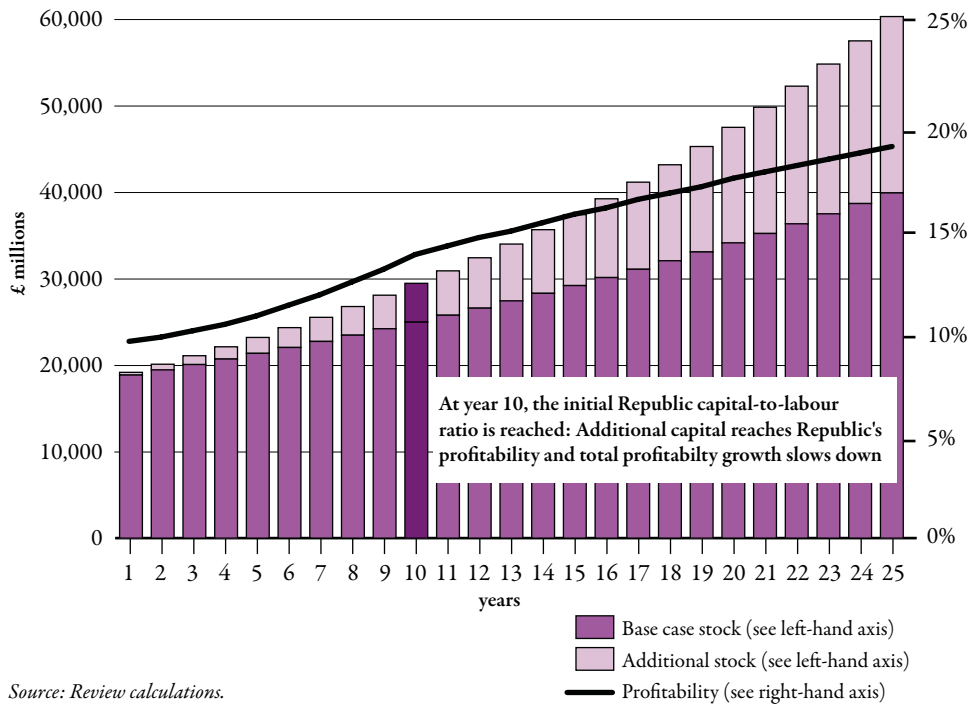
B.13 It is very difficult to assess the likelihood of any one particular example presented above. Given the large differences between Northern Ireland and the Republic of Ireland, a slower 'catch-up' might be more likely. Generally, all examples rely not only on increasing real activity following the tax cut, but also substantial profit shifting activity. Indeed, without profit shifting the values observed for Republic of Ireland profitability (above 30 per cent) seem highly implausible. On the other hand, with substantial profit shifting, Northern Ireland's taxable profits could grow more quickly than assumed and hence accelerate the dynamic revenue effect.

B.14 Even under the optimistic assumption that Northern Ireland can narrow its capital growth rate with the Republic of Ireland by half immediately after a corporation tax cut, it is still likely to require around 20 years before the net annual corporate tax revenue effect of the reform becomes positive compared to the base case of the current rate of capital accumulation and the current UK tax rate. For the '50 per cent example', over this period, a total cost of around 25 per cent of Northern Ireland's current gross value added could have been incurred. Consequently, the cumulative cost of the reform would take almost 40 years to 'break even'.

Central example

B.15 The following chart illustrates the results represented by the 'central example' (50 per cent) in terms of Northern Ireland's capital stock and profitability.

Chart B.1: Capital stock and profitability – central example



Source: Review calculations.

CONCLUSION: STYLISED EXAMPLES

B.16 This annex presented a set of 'stylised examples'. As one of a number of possible approaches, it shows that the revenue impact of a reduction in the corporate tax rate is highly dependent on:

- the data used to judge convergence (whether forecasts for FDI or the aggregate capital stock); and
- the assumptions made about the propensity for Northern Ireland to 'catch-up'. Even under fairly optimistic assumptions, this process takes a substantial length of time. Adopting a more conservative assumption increases the cost of the policy disproportionately.

C Methodology for the Review's analysis

INTRODUCTION

C.1 This annex describes the methodology and workings behind the numbers presented in Chapter 3. It demonstrates an alternative approach to modelling the domestic and foreign direct investment (FDI) effects of a reduction in the corporation tax rate to that proposed in the ERINI report. It also examines the implications for UK corporation tax yield from the effects of profit shifting – an issues which was omitted from the ERINI's analysis. Whilst neither approach is without flaws, at the very least this analysis demonstrates that the main results presented by the ERINI report are sensitive to, and indeed reversed, when modelled using a different methodology.

Factors affecting corporation tax yield

C.2 The annex focuses directly on corporation tax yield for the UK, which would be used for HM Treasury's scorecard purposes, with the last section accounting an approach to factoring in the role of other taxes based upon applying a simple multiple derived from examining the ERINI's conclusions. Chapter 3 also accounts this approach. The following flows are estimated:

UK positives

- Increased domestic investment in Northern Ireland;
- Increased FDI; and
- Profit shifting to Northern Ireland from other countries ('RoW'), excluding Great Britain.

UK negatives

- Static cost from reduced corporation tax rate;
- FDI displaced from elsewhere in the UK; and
- Profits diverted to Northern Ireland from the rest of the UK.

Main result

C.3 The main result is that, purely in terms of UK corporation tax yield, the negative effects outweigh the positive ones. Table C.10 presents the main estimates on a cumulative basis. It shows that, for a central estimate, the initial annual cost is almost £300 million. Induced additional investment would be insufficient to raise revenue such that the policy (of reducing the rate of corporation tax in Northern Ireland to 12.5 per cent) would result in a net cost to the UK Exchequer of about £2.2 billion over ten years, with no prospect of cost recovery over the long run.

METHODOLOGY

C.4 In order to estimate the economic impact of a corporation tax reduction on the UK economy and the effect on corporation tax receipts, it is necessary to work through a number of stages:

1. estimate the current level of corporation tax received from companies in Northern Ireland;
2. use this estimate to calculate the immediate reduction in yield following a cut in corporation tax;

3. estimate the impact of a lower corporation tax rate on domestic investment in Northern Ireland;
4. estimate the impact of a lower corporation tax rate on the level of FDI in Northern Ireland;
5. estimate the displacement of FDI which would have gone to Great Britain but will now go to Northern Ireland as a consequence of a lower corporation tax rate in the region; and
6. estimate the potential for increased profit shifting in to Northern Ireland both from outside the UK and from within the UK.
7. estimate the potential receipts from other taxes in addition to corporation tax.

NORTHERN IRELAND CORPORATION TAX BASE

C.5 Using HM Revenue & Customs data, it is estimated that the corporation tax yield currently received from Northern Ireland companies is in the region of £500 million to £600 million. This is around 1 per cent to 1.5 per cent of the total UK base. This is less than the proportion of Northern Ireland gross value added (GVA) to UK GVA, which is around 2 to 2.5 percent of the UK total.[1] GVA, however, is not an ideal proxy, since profits are only one of its components, the other being labour costs. It would be possible, for example, for a public body to generate sizeable GVA without corresponding profits or tax revenue. A better indicator would be the degree of private sector activity, which is low in Northern Ireland. Therefore, the lower figure seems reasonable.

C.6 One caveat to note is that this Northern Ireland yield is based on Northern Ireland registered companies; being registered in one country does not guarantee that the profits made by that company have necessarily been generated in Northern Ireland. However, while some of the profits may have been generated elsewhere in the UK, it is also the case that there will be profits generated in Northern Ireland by non-Northern Ireland companies registered so this is offset somewhat.

C.7 The current level of corporation tax yield implies that the Northern Ireland corporation tax base is around £2 billion. This can be used to estimate the static annual cost to corporation tax receipts from the proposed tax cut.

STATIC COST OF A CUT IN CORPORATION TAX

C.8 If one assumes that companies are paying corporation tax at 30 per cent for large groups and 19 per cent for small and medium sized enterprises (SMEs) then the immediate effect will be a reduction in the corporation tax yield.[2]

C.9 A reduction in the corporation tax rate in Northern Ireland to 12.5 per cent would mean a 17.5 percentage point cut in the rate for large companies (from the current rate of 30 per cent) and a 6.5 percentage reduction for SMEs (from the current small companies rate of 19 per cent). Using a central estimate for the Northern Ireland corporation tax base, this implies an immediate reduction in receipts of £278 million. This is assumed constant over the analysis time period,

[1] ONS, 'Headline Gross Value Added at current basic prices by region 1989 to 2005'. See www.statistics.gov.uk/downloads/theme_economy/NUTS1_Tables_1-8.xls.

[2] Once capital allowances and other reliefs are taken into account the actual corporation tax paid for large and small companies will be slightly lower than the statutory rates. However, the rate paid by medium sized companies will be higher than the 19 per cent rate. The statutory rates are used for convenience.

effectively assuming that the level of profitability in the current corporation tax eligible companies in Northern Ireland remains the same.

IMPACT ON DOMESTIC INVESTMENT

C.10 The proposed reduction in the corporation tax rate will lower the cost of capital which, one would expect, precipitate an increase in domestic investment. In order to evaluate the magnitude of this increase, the analysis makes use of the standard model based on Hall and Jorgenson (1967) and King and Fullerton (1984).[3]

C.11 The model calculates the cost of capital and effective tax rates for a variety of hypothetical investments. These vary depending on the nature of the asset (e.g. industrial or commercial buildings, standard or long-life plant and machinery and stocks), how the investment is financed (through retained earnings, new equity or debt) and by the type of investor (pension funds, insurance companies and households). This gives 45 possible combinations of asset, finance type and investor type. The various categories represent the distinctiveness of each in their tax treatment.

Changes in the effective marginal tax rate

C.12 The model calculates an economy-wide effective marginal tax rate (EMTR) and cost of capital (see Chapter 2). This last step is achieved by allocating parameters to each of the categories, reflecting their relative importance – effectively a weighted average. The model essentially looks at effect of tax on marginal projects, those that generate enough of a return to just cover the cost of capital. That is, the minimum return an investment must make to cover costs. The cost of capital includes the rate of return that could have been made by the investor in an alternative investment, (assumed to be government bonds), as well as taxes paid by the company and the investor.

C.13 For the purposes of calculating aggregate effects the model follows the academic literature and employs the 'user cost of capital'. This is the standard cost of capital plus economic depreciation and is the measure often used in empirical studies analysing the effect of taxation policy on aggregate investment.

Elasticity

C.14 Based on the academic literature, the Review employs a 'user cost of capital' elasticity estimate of 0.4. This is based on a consideration of the empirical literature. See, for example, the research by Chirinko et al. (1999)[4] which estimates an elasticity of 0.25 for both equipment and structures. Broadly, this equates to a 'user cost of capital' elasticity of about 0.4 for equipment alone. The elasticity measures the long-run effect on investment, holding cashflow constant. Cashflow effects operate only in the short run.

Results

C.15 Following the proposed reduction in the corporation tax rate, the model calculates that the 'user cost of capital' in Northern Ireland would fall from around 12.3 per cent to 11.4 per cent. To extrapolate this change and estimate the absolute increase in investment the relevant elasticity and the current level of investment in Northern Ireland is employed.

C.16 From the ONS, it is possible to obtain data on capital expenditure to use as the basis for a estimate Northern Ireland. Total capital expenditure in the UK is estimated to be around £130 billion.[5] If the proportion that takes place in Northern Ireland is considered to be in line with proportionate GVA then the figure is, broadly, in the range of £2 billion to £3 billion – these figures were used as the lower and upper bound respectively. A central estimate is also presented.

[3] Hall and Jorgensen, 'Tax Policy and Investment Behaviour', (1967); King and Fullerton 'Taxing Income from Capital', (1984).
[4] Chirinko, Fazzari, and Meyer, 'How Responsive is Business Capital Formation to its User Cost? An Exploration with Micro Data', (1999).
[5] ONS, 'Capital Stocks, Capital Consumption and Non-Financial Balance Sheets 2007'.

The analysis suggests that the increase in domestic investment is in the range £54 million to £90 million per year. The Review estimates that around 60 per cent of investment in Northern Ireland is in services and 40 per cent in manufacturing, with the rate of return in services being around 17 per cent and in manufacturing around 10 per cent.[6] Combining the investment and return figures gives a resulting tax yield of around £1 million to £2 million for each year's increased investment. These figures are presented in Table C.1.

Table C.1: Increase in domestic investment (£ millions)

	Increase in Investment	Return	Tax Revenue
Lower Bound	54	8	1
Central Estimate	72	10	1
Upper Bound	90	13	2

C.17 Assuming that the growth rate of capital expenditure is six per cent, independent of the tax change, which is in line with the forecast increase in the monetary level of gross domestic product (GDP) presented in the annual Budget Report, then one can calculate effects over time. It is assumed that an investment will yield a return for 10 years. So from year 1 to year 10, the revenue from additional new investments is added to the existing investments. From year 10, however, this must fall as the returns of investments in earlier years are extinguished. This assumption is in line with asset life lengths produced by the ONS for capital expenditure.[7] Table C.2 presents the results for the central estimate up to year 10.

Table C.2: Domestic investment effect over time, central estimate (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Increase in Investment	72	76	81	86	91	96	102	108	115	121
Return	10	11	11	12	13	14	14	15	16	17
Annual Increase in CT Revenue	1	1	1	2	2	2	2	2	2	2
Total Increase in CT Revenue	1	3	4	6	7	9	11	13	15	17

C.18 The final row in Table C.2 describes the cumulative tax return over time, assuming that the typical project last ten years. This suggests that, as a central estimate, total increased investment by year 10 will be £121 million and that will yield an additional £17 million in corporation tax. Table C.11 provides the complete listing up to year 20. It estimates that the additional yield by year 20 would be between £23 million and £38 million.

IMPACT ON FOREIGN DIRECT INVESTMENT

C.19 As with domestic investors, a reduction in Northern Ireland's corporation tax rate would also increase the incentives for foreign investors to invest in the region. Once again, lowering corporation tax will lower the cost of capital for a potential overseas investor, who may now choose to locate their operations in Northern Ireland rather than elsewhere.

[6] Rates of return can be found in ONS publication, 'Profitability of UK companies', (Q1 2007). The breakdown between manufacturing and services can be found in the DETINI publication, 'Northern Ireland Annual Business Inquiry'.

[7] Actual figures are not published by the ONS. However, they do feed into the 'Capital Stocks, Capital Consumption and Non-Financial Balance Sheets' publication and were made available.

Changes in the effective average tax rates

C.20 The analysis here is based on modelling the pre-policy and post-policy levels of the effective average tax rate (EATR) for investments into Northern Ireland from all OECD countries (see Chapter 2). The change in the various EATRs for each country can be weighted according to each country's relative current levels of FDI. Since FDI data specific to Northern Ireland is sparse, it is assumed that the composition of current Northern Ireland FDI will be somewhere in between that currently directed to the Republic of Ireland and that currently directed to the UK. This composition can then produce an overall, weighted reduction in the EATR and this can then be multiplied by the elasticity of FDI with respect to the EATR to provide an estimate for the absolute increase in FDI.

C.21 Modelling the change in the EATR is based on the theoretical model of Devereux and Griffith (1999)[8] which itself builds on the cost of capital models described in the previous section. The model considers a representative saver who supplies funds to a representative business to be used for investment in various assets. There is assumed to be only one alternative investment - long-term government bonds. The real interest rate on these bonds thus provides the investor's minimum required return, exclusive of tax.

C.22 The model calculates EATRs and effective marginal tax rates (EMTR) for investments in a variety of assets and funded using a variety of finance types. To do this the net present value of the investment, the sum of the discounted cash flows resulting from the project, is calculated. This includes any taxes paid and allowances received. The model considers international investments where it is assumed that the company in one country (the host) is the wholly-owned subsidiary of its parent company in a different country (the home country). EATRs and EMTRs can be produced for any pair of countries, for inward and outward investments. This section focuses on the EATR, which is thought to be the more relevant measure influencing location decisions. See Chapter 2 for a full discussion of the different measures of effective tax rates.

FDI into the Republic and UK

C.23 The bulk of FDI into both the UK and especially the Republic of Ireland comes from relatively few countries. For example, around 80 per cent of investment into the Republic of Ireland comes from five countries, whilst almost 90 per cent of inward investment into the UK investment is from only nine countries. The USA and the Netherlands are significant players in both cases. The modelling is calibrated for all these countries.

Semi-elasticities

C.24 De Mooij and Ederveen (2005) provide a comprehensive meta-analysis of the empirical literature on taxes and FDI. [9] While they produce elasticities for a variety of measures, the Review employed their estimate for the mean semi-elasticity for the EATR, which is 5.9. That is, a 1 percentage point reduction in the EATR might be expected to generate a 5.9 per cent increase in FDI. This is higher than their elasticity for the statutory corporation tax rate, estimated by De Mooj and Ederveen as 2.1. However, as has already been described, the modelling allows for a far richer level of analysis than that based simply on a reduction in the statutory rate.

Influence of foreign tax regimes

C.25 Table C.3 shows the EATR for the major investment countries at the original 30 per cent rate of corporation tax and the reduced 12.5 per cent rate. It is clear there is a significant effect for those countries with an exemption regime for foreign dividends.[10] For example, the EATR facing a Dutch-based company thinking of making an investment into Northern Ireland would fall from just over 32 per cent to just over 15 per cent. By contrast, the reduction for a company in the USA, with its credit treatment, is a reduction from just under 36 per cent to just under 31 per cent. When these EATRs are weighted according to level of FDI, with semi-elasticity applied, the

[8] Devereux and Griffith, 'The Taxation of Discrete Investment Choices', (1999).
[9] De Mooij and Ederveen, 'How Does Foreign Direct Invest Respond To Taxes', (2005).
[10] See Chapter 2 for details on credit and exemption regimes.

proportionate change in FDI can be calculated.[11] The results suggest that total FDI into Northern Ireland might increase by 70 to 80 per cent.

Table C.3: Reduction in countries' effective average tax rates (EATRs)

	EATR Old	EATR New	Regime
Australia	31.9%	14.2%	Exemption
Canada	35.5%	30.1%	Credit
France	30.2%	12.4%	Exemption
Germany	30.2%	12.4%	Exemption
Japan	37.8%	32.8%	Credit
Luxembourg	32.2%	15.4%	Exemption
Netherlands	32.2%	15.4%	Exemption
Switzerland	32.2%	18.4%	Credit
USA	35.7%	30.6%	Credit
UK	30.2%	22.9%	Credit

Establishing a lower and upper bound

C.26 The Review analysis models a theoretical credit system. In practice, it can be argued that this is far from the reality of how a credit system often operates. For example, if a country allows mixing of foreign dividends then the EATR may be much lower than under the theoretical system. Mixing allows a multinational to use excess credits gained from dividend repatriation from a high tax country to offset home country tax due from an investment in a lower tax country. Quite often the EATR can be closer to the theoretical exemption regime than the theoretical credit regime. With that in mind, the results are recalculated assuming that investments from countries with credit systems actually produce EATRs close to exemption countries. These results are presented in Table C.4. Thus, the EATR facing the hypothetical US investor is reduced from 30 per cent to just over 12 per cent, a significant difference. The overall estimated increase in FDI using these figures is higher, around 80 to 100 per cent. This result in Table C.4 should be thought of as an upper bound, with the previous result in Table C.3 as the lower bound.

Table C.4: Reduction in countries' effective average tax rates (EATRs) under the exemption assumption

	EATR Old	EATR New
Australia	31.9%	14.2%
Canada	31.9%	14.2%
France	30.2%	12.4%
Germany	30.2%	12.4%
Japan	31.9%	14.2%
Luxembourg	32.2%	15.4%
Netherlands	32.2%	15.4%
Switzerland	32.2%	15.4%
USA	30.0%	12.2%
UK	30.3%	12.4%

[11] The same calculations are also carried out for other OECD countries but given their relatively low importance with regard to FDI, their results are not presented.

C.27 Taken together, the results suggest that FDI into Northern Ireland might increase by between 60 to 100 per cent following a reduction in the corporation tax rate to 12.5 per cent. As a comparison, a straightforward analysis based upon the semi-elasticity with respect to the statutory rate would predict a much lower effect of around 35 per cent. The difference is mainly due to the larger semi-elasticity for the EATR.

Absolute increase in FDI

C.28 To translate the estimated proportional increase into an estimate of the increase in the value of inward investment, one needs to estimate the current level of FDI into Northern Ireland. FDI data from the ONS allows an estimate to be made for the FDI base for 2005. However, it appears that the Northern Ireland FDI base has been growing rapidly in recent years from a relatively low base. Using the current FDI stock data would therefore risk substantially underestimating the baseline level of FDI in Northern Ireland in future years and, therefore, underestimating the increase in the amount of inward investment from a lower corporation tax rate. Instead, the modelling approach used is to estimate a baseline profile for FDI flows based on the current level, up-rated by an assumed steady growth rate. The estimated increase in the flows is then cumulated into an estimated increase in the stock.

C.29 Based on information from the UK and Northern Ireland Annual Bussiness Inquiry, the current level of FDI flows into Northern Ireland is taken to be around £300 million. Table C.5 presents the basic figures for year 1. Rates of return have been described above. As a result of the reduction in corporation tax, FDI is predicted to increase by £180 million to £300 million, resulting in additional yield of £3 million to £5 million.

Table C.5: Annual increase in FDI due to the policy change (£ millions)

	Increase in FDI	Return	Tax Revenue
Lower Bound	180	26	3
Central Estimate	240	34	4
Upper Bound	300	43	5

C.30 Table C.6 presents the central estimate for years 1 to 10. Once again, Table C.12 presents complete results to year 20. It suggests an additional yield of £75 million to £126 million in year 20.

Table C.6: FDI effect over time, central estimate (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Increase in FDI	240	254	270	286	303	321	340	361	383	405
Return	34	36	38	41	43	46	48	51	54	58
Annual Increase in CT Revenue	4	5	5	5	5	6	6	6	7	7
Total Increase in CT Revenue	4	9	14	19	24	30	36	42	49	56

'Greenfield' or M&A

C.31 Most of the increase is assumed to be in 'greenfield' investment (reflecting an increase in the capital stock), rather than mergers and acquisition (M&A) activity (reflecting an acquisition by foreign firms of existing assets). There are two reasons for this. Firstly, the literature suggests that the elasticity for new capital is higher than for FDI overall. The rationale is that whereas location-specific advantages affect real investment, it is ownership advantages that determine the level of M&A activity. The second reason is that the level of private sector activity in Northern Ireland is presently at a relatively low level, which suggests the vast majority of the additional FDI would be 'greenfield' investment rather than M&A.

DISPLACEMENT OF FDI FROM UK

C.32 Some of the FDI flows that make their way to Northern Ireland will be at the expense of the rest of the UK. Potential investors who have identified that they would like a presence in the UK might have, ex-ante, chosen another region of the UK as a more profitable location in the absence of a differential tax rate. Ex-post, however, Northern Ireland might now seem the more attractive option.

C.33 The aggregate increase in FDI in the UK will be less than the increase estimated above for Northern Ireland because of this displacement. From the economic literature, one can look at the sensitivity of FDI within a country. This suggests that the semi-elasticity is much lower than that for cross-border sensitivity, around 1.0.[12] An alternative approach would be to remove the UK weighting from the composition of Northern Ireland FDI, discussed above. To reiterate, it was assumed that the composition of FDI into Northern Ireland was a weighted average of the present levels of investment into the UK and into the Republic of Ireland. However, much of the FDI into the Republic of Ireland is actually from the UK, so another way to measure the displacement would be to remove this UK element.

C.34 This second method estimates less FDI displacement than the first, but given the degree of uncertainty, the Review has decided to take a range of results from both. So, the estimated level of displacement is assumed fixed at 8 to 17.5 per cent of the increase in FDI. Table C.7 presents the revised central estimate for FDI and the resulting tax yield up to year 10. Table C.13 presents the full range of results up to year 20. This suggests that allowing for the displacement effect reduces the increase in the UK corporation tax yield from increased inward FDI from the £75 million to £126 million cited above to a range of £67 million to £95 million.

Table C.7: Net FDI effect over time, excluding displacement (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Net Increase in FDI	207	219	232	246	261	276	293	311	329	349
Total Increase in CT Revenue	3	7	11	15	19	24	29	34	39	45

PROFIT SHIFTING

C.35 As discussed in Chapter 2, profit shifting generally involves the manipulation of a group of companies' internal transactions so that as much income as possible is declared in the companies in low tax regimes. Economic research shows that profit shifting takes place despite increasingly stringent anti-avoidance legislation. For the UK, although there are internal transfer pricing rules, they do not currently apply to SMEs, nor would they apply where one company currently operates in both Northern Ireland and the rest of the UK. It is expected that lowering the corporation tax rate in Northern Ireland would generate incentives for companies to engage in profit shifting.

C.36 Profits shifting can be decomposed into two main effects:

- The potential for increased profit shifting into Northern Ireland from outside the UK. This will generate an increase in the tax base and a gain in revenue.
- The potential for increased profit shifting to Northern Ireland from within the UK. Since these profits will now be taxed at 12.5 per cent rather than 30 per cent, this is a tax revenue loss although the effect on the UK tax base is neutral.

[12] See for example, Agostini, 'The Impact of State Corporate Taxes on FDI Location', (2004).

Mobile corporation tax base

C.37 The Northern Ireland corporation tax base and how it was calculated has already been outlined above. It is further assumed that around 50 per cent of this makes up the mobile portion of the base – those companies that are able to shift profits. This is, broadly speaking, assumed to be the financial sector, the subsidiaries of foreign owned groups and the subsidiaries of UK multinationals. The tax base estimate is based on assuming a 30 per cent tax rate. This reflects the assumption that SMEs are part of the immobile base and that all the profit shifting occurs within groups paying at the headline rate. While this may be sound in terms of profits from outside the UK, in practice, as a policy response some UK based SMEs might be encouraged to shift profits into Northern Ireland. If so, this assumption may under-estimate the true extent of profit shifting. Another factor that might contribute to an under-estimate is that the semi-elasticity has been applied to the relatively small Northern Ireland mobile corporation tax base, rather than the much larger UK mobile base.

Semi-elasticities

C.38 There is a sizeable and growing empirical literature demonstrating the extent of profit shifting across international boundaries.[13] For cross-border profit shifting – from other countries (RoW) into Northern Ireland – the academic studies suggest a central semi-elasticity of around 2.0. That is, a 1 percentage point change in the corporation tax rate will elicit a 2 per cent shift in the mobile portion of the tax base. With the mobile base estimated at 50 per cent of the total, the semi-elasticity for the entire tax base is 1.0. It is also assumed that this semi-elasticity applies equally to all segments of the mobile base. This analysis is carried out using semi-elasticities of 1.5, 2.0 and 2.5.

C.39 A separate semi-elasticity is required for in-country profit shifting. There are not a great many studies looking at profit shifting within a country. Mintz and Smart (2004) consider the effect of Canadian statutory corporate tax rates, inclusive of both national and provincial taxation.[14] It finds that, for large companies, a 1 per cent increase in a provinces's corporation tax rate leads to an 8.5 per cent reduction in its reported taxable income. These results appear to be robust to different model specifications. The effect for smaller companies is around half that level, but still significantly higher than the typical semi-elasticity in cross border studies. For this work, given the paucity of studies and the relatively large degree of uncertainty, the Review assumes a conservative central estimate of 4.0 for the mobile base. This is considered a very conservative estimate, akin to the small company result in the Mintz-Smart paper. Results are presented for semi-elasticities of 3.0, 4.0 and 5.0. This implicitly assumes the UK would introduce strict anti-avoidance rules to limit the scope for internal profit shifting.

Results

C.40 Table C.8 presents the base results for the three semi-elasticities. The lower bound uses a semi-elasticity of 1.5 for profits from other countries ('RoW') and 3.0 from Great Britain. The central estimate uses 2.0 and 4.0 and the upper bound uses 2.5 and 5.0.

[13] See, for example, Grubert and Mutti, 'Taxes, Tariffs and Transfer Pricing in Multinational Corporate Decision Making', (1991); Hines and Rice, 'Fiscal Paradise: Foreign Tax Havens and American Business', (1994); Collins, Kemsley and Lang, 'Cross-Jurisdictional Income Shifting and Earnings Valuation', (1998); Bartelsman and Beetsma, 'Why Pay More? Corporate Tax Avoidance Through Transfer Pricing in OECD Countries', (2000); Demirgüc-Kunt and Huizinga, 'The Taxation of Domestic Foreign Banking', (2001); Grubert, 'Intangible Income, Inter-company Transactions, Profit shifting, and the Choice of Location', (2003); Mills and Newberry, 'Do Foreign Multinationals – Tax Incentives Influence their U.S. Income Reporting and Debt Policy', (2004); Huizinga and Laeven, 'International Profit Shifting within European Multinationals', (2005).

[14] Mintz and Smart, 'Profit shifting, Investment, and Tax Competition: Theory and Evidence from Provincial Taxation in Canada', (2004).

C.41 Thus, the overall UK corporation tax base is predicted to increase by between £248 million to £413 million as groups are encouraged to declare their profits in the lower tax Northern Ireland. However, the right-hand side of the table suggests that the overall effects for the UK, in term of yield, would be negative. While there is predicted to be a £31 million to £52 million increase from the extra profits from abroad, the loss from companies in Great Britain declaring their profits in Northern Ireland is estimated at £87 million to £145 million. This suggests that a significant proportion of the mobile base would be encouraged to locate their profits in Northern Ireland. Overall, UK corporation tax yield is forecast to decline by £56 million to £93 million per annum.

Table C.8: Effects from profit shifting (£ millions)

	Change in UK base	Change in UK yield		
	Profit Shifting from RoW	RoW Gain	GB Loss	UK Loss
Lower Bound	248	31	–87	–56
Central Estimate	330	41	–116	–74
Upper Bound	413	52	–145	–93

C.42 This behavioural change from groups is not assumed to occur immediately, but to be spread over three years. This is reflected in Table C.9 which only provides figures for the central estimate and only up to year 10. The full extent of the profit shifting effect, £74 million for the central estimate is achieved by year 3, by which time it is assumed that groups have made the necessary reorganisations. From year 4, it is assumed constant. Table C.14, at the end of this annex, provides a complete listing up to year 20.

Table C.9: Profit shifting – effect on UK corporation tax yield, central estimate (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Profit Shifting from RoW	8	34	42	42	42	42	42	42	42	42
Profit Shifting from GB	–23	–93	–116	–116	–116	–116	–116	–116	–116	–116
Total Effect from Profit Shifting	–15	–60	–75	–75	–75	–75	–75	–75	–75	–75

C.43 Naturally, if anti-avoidance measures are not simultaneously introduced and enforced, then the effects of profit shifting could be expected to be far greater.

OVERALL UK EFFECTS FROM CORPORATION TAX

C.44 The preceding sections have discussed some of the gains and losses from the proposed policy change. The overall position for the UK (in terms of revenue) is that there would be a gain from the increased domestic investment that is generated. There would also be a gain from the additional FDI flowing into Northern Ireland, albeit offset somewhat by that which has been displaced from elsewhere in the UK. There would be two profit shifting effects: firstly, a gain from profits shifted into Northern Ireland from outside the UK and; secondly, a loss from those profits shifted into Northern Ireland from within the UK. Finally, there is the static annual revenue loss from current corporation tax payers.

ADDITIONAL 'OTHER' TAX REVENUES

C.45 There is an important issue as to the extent to which additional FDI would lead to increased receipts in other taxes (e.g. income tax, NICs, VAT). This could be limited, particularly given Northern Ireland's low unemployment rate.[15] So, any additional income tax would largely depend upon higher paid jobs or additional jobs resulting from migration. The ERINI analysis implies an additional 184,000 jobs by 2020 and that broadly for every pound of corporation tax revenue, three pounds of 'other' tax revenues would be generated.[16] This is a simplistic interpretation of the ERINI's modelling (which runs though a series of effects as set out in Chapter 3). However, it brings out that the ERINI work is underpinned by an ambitious judgment about the responsiveness of other taxes.

Government scoring

C.46 For policy appraisal and for HM Treasury's budgeting and scorecard purposes, it is generally the case that one would take a prudent assessment of a policy measure by accounting effects which are quantifiable and relatively certain. This would imply scoring the corporation tax revenue implications of a corporation tax cut. However, there would be a judgment call to be made in relation to the revenue from 'other' taxes, given the general uncertainty in quantifying indirect or secondary tax effects as established in Annex A.

Applying a multiplier

C.47 The analysis of the Review, therefore, sets out the corporation tax revenue effects and adjusts for other tax revenues using a simplistic multiplier. The Review assumes that for every pound in additional corporation tax from FDI and domestic investment, there would be an additional three pounds in other tax revenues. This effectively applies the same basic relationship between the 'corporation tax' forecast and the 'all taxes' forecast of the ERINI analysis presented in Chart 3.1

C.48 For the overall UK assessment (see Chart 3.2) this multiplier is applied to FDI flows, net of any displacement from Great Britain. In other words, it is applied only to flows that are additional to the UK.

Presenting a range

C.49 This is a simplistic approach, but it is transparent and intuitively attractive. The distance between the corporation tax revenue projection and the total tax revenue projection charted in Chart 3.2 effectively present a range for policy makers to consider. This range is dependent on the possible secondary effects of a corporation tax cut in terms of increased income, consumption and job creation. Implicitly, realising revenues at the top of this range would need the sort of action examined in other chapters, e.g. sufficient labour market flexibility, skills, infrastructure, migration and innovation.

CONCLUSION: THE RESULTS OF THE REVIEW'S ANALYSIS

C.50 Table C.10 summarises all these effects for corporation tax and 'other' taxes on a cumulative basis. From this, purely in terms of corporation tax yield, the Northern Ireland rate cut results in a significant loss to the UK Exchequer. In year 1 the overall cost is estimated at £289 million. This rises in the following years as the effect of profit shifting is felt over that of the new investment. Over time, as the investment income builds up, the overall cost begins to fall. However, even after year 20, it remains at a net cost of £242 million in that year in terms of corporation tax receipts. This results in a net cumulative cost after 20 years of £5.8 billion (see Chart 3.2).

[15] For Northern Ireland, a 3.4 per cent unemployment rate, the lowest in the UK and less than half the rate of London. See http://www.statistics.gov.uk/pdfdir/lmsuk0907.pdf.

[16] The average relationship over 20 years of the ERINI projections for revenues is that 'other' revenues relate to corporation tax revenues on a 3:1 basis.

Complete assessment

C.51 When factoring in the other taxes, in year 1 the overall cost is estimated at £275 million. After year 20, revenues have turned positive, but the net cumulative cost up to that year is £2.3 billion (see Chart 3.2).

C.52 In addition, to this final assessment, Chapter 3 presents a partial assessment based on the costs and benefits for Northern Ireland. In other words, it does not count profit shifting from the rest of the UK as a cost to Northern Ireland and considers FDI displaced from the rest of the UK as a benefit. This is set out under 'the approach of the Review – Part 1'. The implications for cumulative tax revenues are set out in Table C.10.

Caveat

C.53 Finally, an important caveat. As with any modelling exercise, there is a great deal of uncertainty over the calculations especially since they rely on parameters that can take a range of values. The Review has tried to account for this by presenting a range of results in Tables C.11 to C.14. Despite this uncertainty, the fundamental result seems convincing: that static losses and the negative effects of profit shifting outweigh the gains from additional investment. The caveats are set out in Box 3.2 in Chapter 3.

Table C.10: Overall effect in terms of corporation tax yield and 'other' taxes – cumulative tax receipts (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Static Cost	-278	-557	-835	-1114	-1392	-1671	-1949	-2228	-2506	-2785	-3063	-3342	-3620	-3899	-4177	-4456	-4734	-5013	-5291	-5570
Domestic Investment	1	4	8	14	21	30	40	53	68	84	102	121	141	162	185	209	234	261	289	319
Gross FDI (displacement not removed)	4	13	27	45	69	99	135	177	226	282	342	405	471	542	618	697	782	871	966	1066
Net FDI (displacement removed)	3	10	21	36	56	80	108	142	182	227	275	326	379	437	497	561	629	701	777	858
Total Profit Shifting	-15	-75	-150	-225	-300	-375	-450	-525	-600	-675	-750	-825	-900	-975	-1050	-1125	-1200	-1275	-1350	-1425
Of which, from other countries (excluding Great Britain)	8	42	84	126	168	210	252	294	336	378	420	462	504	546	588	630	672	714	756	798
Total 'Part 1' CT effect	-265	-498	-717	-929	-1134	-1332	-1522	-1704	-1877	-2040	-2200	-2354	-2504	-2648	-2787	-2920	-3047	-3167	-3280	-3386
Total 'Part 1' all taxes effect (using a simple multiplier)	-248	-447	-613	-753	-864	-947	-997	-1014	-997	-941	-868	-777	-666	-534	-380	-202	0	229	485	772
Total UK CT effect – see Chart 3.2	**-289**	**-618**	**-956**	**-1289**	**-1616**	**-1937**	**-2251**	**-2558**	**-2857**	**-3148**	**-3436**	**-3720**	**-4000**	**-4275**	**-4545**	**-4811**	**-5071**	**-5326**	**-5574**	**-5817**
Total UK all taxes effect (using a simple multiplier) – see Chart 3.2	**-275**	**-574**	**-868**	**-1139**	**-1387**	**-1609**	**-1804**	**-1972**	**-2109**	**-2214**	**-2305**	**-2380**	**-2438**	**-2478**	**-2500**	**-2501**	**-2482**	**-2440**	**-2375**	**-2284**

Table C.11: Increased domestic investment (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Increase in Investment																				
Lower Bound	54	57	61	64	68	72	76	81	86	91	97	102	108	115	122	129	137	145	154	163
Central Estimate	72	76	81	86	91	96	102	108	115	121	129	136	145	153	162	172	183	193	205	217
Upper Bound	90	95	101	107	113	120	127	135	143	152	161	170	181	192	203	215	228	242	256	272
Return																				
Lower Bound	8	8	9	9	10	10	11	12	12	13	14	15	15	16	17	18	19	21	22	23
Central Estimate	10	11	11	12	13	14	14	15	16	17	18	19	21	22	23	24	26	27	29	31
Upper Bound	13	14	14	15	16	17	18	19	20	22	23	24	26	27	29	31	32	34	36	39
Annual Increase in CT Revenue																				
Lower Bound	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3
Central Estimate	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4
Upper Bound	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5
Total Increase in CT Revenue																				
Lower Bound	1	2	3	4	5	7	8	9	11	13	13	14	15	16	17	18	19	20	21	23
Central Estimate	1	3	4	6	7	9	11	13	15	17	18	19	20	21	22	24	25	27	28	30
Upper Bound	2	3	5	7	9	11	13	16	18	21	22	24	25	27	28	30	32	33	36	38

Table C.12: Increased FDI (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Base FDI Flows	300	318	337	357	379	401	426	451	478	507	537	569	604	640	678	719	762	808	856	908
Total Increase in FDI (from policy)																				
Lower Bound	180	191	202	214	227	241	255	271	287	304	322	342	362	384	407	431	457	485	514	545
Central Estimate	240	254	270	286	303	321	340	361	383	405	430	456	483	512	543	575	610	646	685	726
Upper Bound	300	318	337	357	379	401	426	451	478	507	537	569	604	640	678	719	762	808	856	908
Return																				
Lower Bound	26	27	29	30	32	34	36	38	41	43	46	49	51	55	58	61	65	69	73	77
Central Estimate	34	36	38	41	43	46	48	51	54	58	61	65	69	73	77	82	87	92	97	103
Upper Bound	43	45	48	51	54	57	60	64	68	72	76	81	86	91	96	102	108	115	122	129
Annual Increase in CT Revenue																				
Lower Bound	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	8	8	9	9	10
Central Estimate	4	5	5	5	5	6	6	6	7	7	8	8	9	9	10	10	11	11	12	13
Upper Bound	5	6	6	6	7	7	8	8	8	9	10	10	11	11	12	13	14	14	15	16
Total Increase in CT Revenue																				
Lower Bound	3	7	10	14	18	22	27	32	37	42	45	47	50	53	56	60	63	67	71	75
Central Estimate	4	9	14	19	24	30	36	42	49	56	60	63	67	71	75	80	84	89	95	101
Upper Bound	5	11	17	23	30	37	45	53	61	70	74	79	84	89	94	100	106	112	119	126

Table C.13: Increased FDI after removing displacement (£ millions)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Displaced FDI From GB																				
Lower Bound	14	15	16	17	18	19	20	22	23	24	26	27	29	31	33	35	37	39	41	44
Central Estimate	33	35	38	40	42	45	47	50	53	57	60	63	67	71	76	80	85	90	95	101
Upper Bound	53	56	59	63	66	70	74	79	84	89	94	100	106	112	119	126	133	141	150	159
Return																				
Lower Bound	2	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5	5	6	6	6
Central Estimate	5	5	5	6	6	6	7	7	8	8	9	9	10	10	11	11	12	13	14	14
Upper Bound	7	8	8	9	9	10	11	11	12	13	13	14	15	16	17	18	19	20	21	23
Annual Decrease in CT Revenue																				
Lower Bound	0	0	0	0	0	0	–1	–1	–1	–1	–1	–1	–1	–1	–1	–1	–1	–1	–1	–1
Central Estimate	–1	–1	–1	–1	–1	–1	–1	–1	–1	–1	–1	–2	–2	–2	–2	–2	–2	–2	–2	–3
Upper Bound	–1	–1	–1	–2	–2	–2	–2	–2	–2	–2	–2	–2	–3	–3	–3	–3	–3	–4	–4	–4
Total Decrease in CT Revenue																				
Lower Bound	0	–1	–1	–2	–2	–2	–3	–4	–4	–5	–5	–5	–6	–6	–6	–7	–7	–8	–8	–8
Central Estimate	–1	–2	–3	–4	–5	–6	–7	–8	–10	–11	–12	–12	–13	–14	–15	–16	–16	–17	–19	–20
Upper Bound	–1	–3	–4	–6	–7	–9	–11	–13	–15	–17	–18	–19	–20	–22	–23	–24	–26	–27	–29	–31
Net Increase in FDI excluding Displacement																				
Lower Bound	166	176	186	197	209	222	235	249	264	280	297	314	333	353	374	397	421	446	473	501
Central Estimate	207	219	232	246	261	276	293	311	329	349	370	392	416	441	467	495	525	556	590	625
Upper Bound	248	262	278	295	312	331	351	372	394	418	443	470	498	528	560	593	629	666	706	749
Total Increase in CT Revenue excluding Displacement																				
Lower Bound	3	6	9	12	16	20	24	28	33	37	40	42	45	47	50	53	56	60	63	67
Central Estimate	3	7	11	15	19	24	29	34	39	45	48	51	54	57	60	64	68	72	76	81
Upper Bound	4	8	13	18	23	28	34	40	46	53	56	60	63	67	71	75	80	84	90	95

Table C.14: Profit shifting – effects on UK corporation tax yield

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Profit Shifting from RoW																				
Lower Bound (1.5)	6	25	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Central Estimate (2.0)	8	34	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Upper Bound (2.5)	10	41	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Profit Shifting from GB																				
Lower Bound (3.0)	–17	–69	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87	–87
Central Estimate (4.0)	–23	–93	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116	–116
Upper Bound (5.0)	–29	–116	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145	–145
Total Effect From Profit Shifting																				
Lower Bound	–11	–45	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56	–56
Central Estimate	–15	–60	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75	–75
Upper Bound	–19	–74	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93	–93

D Other tax policy issues

Overview

D.1 In addition to the assessment in Chapter 3 of the case for a differential rate of corporation tax in Northern Ireland, other areas of business tax policy have been considered as part of the Review.

D.2 This annex considers:

- alternative models to deliver a reduced rate of corporation tax in Northern Ireland;
- other differential corporation tax policy proposals; and
- other differential business tax policy proposals.

D.3 Given the focus of the majority of submissions on a differential rate of corporation tax, it has not been possible to assess these policy proposals to the same level of detail. Nevertheless, this annex lays out the fundamental considerations of each proposal.

ALTERNATIVE DIFFERENTIAL CORPORATION TAX MODELS

D.4 Some submissions have suggested alternative ways to achieve a differential corporation tax rate for Northern Ireland:

- discounted tax base model – a reduction in the tax base upon which the UK-wide rate is applicable.
- restricted access model – applying a differential rate of corporation tax only to non-financial businesses in Northern Ireland.
- double jurisdiction model – allowing foreign investment locating in Northern Ireland to pay corporation tax to the Republic of Ireland at the Republic's rate on profits made in Northern Ireland.

Discounted tax base model

D.5 It has been suggested in some submissions that the chance of the European Commission approving a differential rate could be improved by amending the policy design. For example, rather than reducing the corporation tax rate for Northern Ireland, an alternative would be to narrow the base that is taxed at the UK statutory rate by offering a 'Northern Ireland allowance'. Specifically, the suggestion was for a deduction from taxable profits after which the full appropriate UK tax rate would apply. If the Northern Ireland allowance was set at 55 per cent then the effective tax rate for large companies would be 45 per cent x 28 per cent = 12.6 per cent[1] thus near equalising with the 12.5 per cent rate available on trading income in the Republic of Ireland.

D.6 This design would therefore achieve the same result in substance – a reduction in the effective average and marginal tax rates for a region.[2] However, it is precisely because the same

[1] Economic Research Institute of Northern Ireland submission to the Review (July 2007)
[2] See Chapter 2 for a discussion of effective tax rates.

substance would be achieved that this design suggestion seems unlikely to have a higher chance of success. There would certainly be a need for notification and a high likelihood that it would not be approved simply because the design would not mask the substance of the policy and its intention with respect to reducing a firm's normal operating expenses.

D.7 The Commission's 1998 notice on the application of state aids rules to direct business tax measures explains that a measure constitutes operating aid if it confers continuous tax relief not linked to the carrying out of projects – for example, specific investments.[3] The Commission's regional aid guidelines make clear that this kind of aid is normally prohibited, and is only exceptionally approved even in 87(3)(a) territories, which Northern Ireland is not.[4]

D.8 The policy mentioned as a precedent for the 'discounted tax base' model – the 100 per cent first-year capital allowances that applied to Northern Ireland between 1998 and 2002 – is not valid.[5] That policy aimed to reduce the costs of investment specifically. Accordingly, it related most closely to the current EC regional aid guidance on 'investment aid.' It is therefore not a real precedent for the 'discounted tax base' model, which squarely concerns 'operating aid', i.e. it reduces the costs of all business activity rather than the costs of investment specifically.

D.9 Therefore, the Review is of the opinion that the Commission would look at the end result, rather than the means to getting there, and so would consider this in the same light as the simpler route of having a differential corporation tax rate for the region.

Restricted access model

D.10 This model involves applying a differential rate only for non-financial businesses in Northern Ireland. This has been put forward under the rationale that it '*goes someway to alleviating EU concerns' since 'The Azores judgment obscured the fact that the European Commission had no objection to a lower corporation tax rate in the Azores for non financial businesses.*'[6]

D.11 The Commission approved the lower tax rate for non-financial businesses in the Azores on the basis that it was within article 87(3)(a) of the EC Treaty and so compatible with the common market.[7] Northern Ireland, by contrast, is an article 87(3)(c) region. As the Advocate General's opinion goes on to explain (at paragraph 22) the lower tax rate was an operating aid, and so not within the article 87(3)(c) exemption. Paragraphs 27 and 28 of the 'Azores' judgment itself also make this clear. Therefore, the distinction the Commission made in the case of the 'Azores' case is not relevant to Northern Ireland.

Double jurisdiction models

Basic idea

D.12 This is a more radical model that would effectively create an 'all island' corporation tax regime. The basic model suggested is that foreign companies investing in Northern Ireland would pay corporation tax on profits made in the region to the Republic of Ireland at the Republic's rate.[6] This would be achieved by the potential investor company establishing a subsidiary in the Republic of Ireland and transferring profits to it.

[3] See Official Journal of the EU, 'Guidelines on national regional aid for 2007-2013', pp.13-45.
[4] See Official Journal of the EU 'Guidelines on national regional aid for 2007-2013', paragraph 76.
[5] Economic Research Institute of Northern Ireland submission to the Review (Jul 2007).
[6] Proposed in DETINI, 'The Northern Ireland Economic Bulletin 2007'.
[7] See paragraph 21 of the Advocate General's opinion in the 'Azores' case.

D.13 The suggestion is, therefore, that instead of legislating so that Northern Ireland has a differential corporation tax rate, the law would allow profit shifting for tax purposes from Northern Ireland to the Republic of Ireland. This arrangement would need to apply to new foreign investment only (or genuinely mobile indigenous investment), otherwise the Northern Ireland tax base would disappear to the Republic of Ireland. The rationale for the proposal is that it would not be subject to European Community law with respect to the 'Azores' case.

D.14 In fact, it is far from clear that this proposal would bypass the reasoning in the 'Azores' judgment. It would still be subject to EC state aids rules, as the effect of failing to enforce tax laws in one region is essentially the same as actually imposing more favourable tax rules in that region. Also, this policy would amount to legalised tax avoidance and run counter to the UK's stance on international transfer pricing standards.

Permanent establishment idea

D.15 Another model aimed at reducing the effective corporation tax rate for potential investors comprises the UK giving up taxing rights on new inward investment from the Republic of Ireland where it took the form of setting up a branch (or permanent establishment) in Northern Ireland. The underlying principle would be that this would support an 'all-island' economy by encouraging businesses in the South to set up in the North.

D.16 This proposal would minimise the scope for abuse by limiting the pool of potential investors to those already established in the Republic of Ireland. However, as with the basic idea, above, it is likely that the proposal would breach European free movement law, since it would discriminate in favour of companies from one EU Member State, to the detriment of companies from others. All would be at a competitive disadvantage relative to the Republic of Ireland residents trading in Northern Ireland through a branch.

CORPORATION TAX ALLOWANCES

D.17 The Review has received a variety of suggestions involving tax allowances for different business costs. As outlined in Chapter 2, the principles underlying the Government's approach to tax in general would argue that any proposals for Northern Ireland are focused on tackling 'market failure' unique to Northern Ireland. EC rules demand that any policy also complies with the Regional Aid Guidance.

D.18 This section covers the case for enhanced allowances for:

- research and development (R&D);
- capital expenditure;
- training expenditure; and
- marketing expenditure.

Research and development

D.19 Some submissions have suggested increasing the R&D tax credit available for business in Northern Ireland.[8] Northern Ireland's share of UK R&D spending is below what might be expected given its share of national income. Business expenditure on R&D as a proportion of gross

[8] For example, from the Northern Ireland Business Alliance

value added (GVA) was about 40 per cent of the UK average in 2004.[9] This is also true of other regions such as Wales, Scotland and the North East.[10]

Budget 2007

D.20 The tax system provides incentives for business investment in R&D by allowing companies to set their expenditure on R&D against their taxable profits. For small and medium sized companies, enhanced deductions of 175 per cent of eligible spending can be applied and for large companies 130 per cent. These rates will apply from April 2008, subject to approval by the Commission, and are the result of recent changes announced at Budget 2007. In addition, where small and medium sized companies are loss making for tax purposes, losses generated by qualifying R&D expenditure can be surrendered in return for a payable cash credit of 24 pence in the pound of the unenhanced losses. Finally, 'mid-sized' companies with between 250 and 500 employees will also benefit from an enhanced deduction of 175 per cent and a payable credit, subject to approval from the Commission.

The case made

D.21 The case for having an enhanced R&D tax credit specifically for Northern Ireland has been examined by the Economic Research Institute of Northern Ireland (ERINI).[11] The research shows that a significantly enhanced R&D tax credit would be needed to produce a substantial increase in the R&D capital stock in Northern Ireland. Given that R&D spending lags so far behind the UK average (at only about half the UK level in terms of the size of the economy), it could be argued that the R&D stock in Northern Ireland needs to double.

D.22 The question is whether a market-driven tax credit which reduces the cost of business R&D represents good value for money relative to other available policy instruments.

Cost implications

D.23 The ERINI's R&D study suggests, '*to have a significant effect on productivity (and hence output), a substantial increase in the R&D tax credit is necessary. The amount raised from increased corporation tax [revenues] is significantly below the gross cost to the exchequer of financing the extra amount spent on R&D.*'[12]

D.24 In applying a differential R&D tax credit for one region in the UK, it is quite probable that the policy would create an incentive for businesses to shift R&D spending from the rest of the UK to the favoured region. This could either occur through the movement of real spending or through artificial diversion (if a robust enough tax administration could not be put in place). It is not possible to estimate whether such a shift might occur but, by way of illustration, if one per cent of R&D moved to Northern Ireland from elsewhere in the UK, it might be expected to lead to costs of around £30 million a year, assuming the Northern Ireland R&D tax credit were applied at 300 per cent.[13]

[9] See Table 1.2 in Chapter 1.

[10] Since the R&D tax credit is an enhanced deduction against revenue expenditure it is likely to be an 'operating aid'. Unless there is an objective justification for the increased R&D tax credit for Northern Ireland over and above other regions, it could be discriminatory under the HRA/ECHR.

[11] Harris, Cher Li and Trainor, 'Assessing the Case for a Higher Rate of R&D Tax Credit in Northern Ireland', (Jan 2006).

[12] Ibid, paragraph 5.32.

[13] This is the central recommendation of the Northern Ireland Business Alliance in relation to the ERINI R&D tax credit study. Note that a rise in the large company R&D tax credit from 125 per cent to 300 per cent would represent an eight-fold increase in the value of the credit, since, in common with other current expenditure, 100 per cent of R&D expenditure would still be allowable against tax in the absence of a credit. Large companies claimed £360 million of R&D tax credit in 2004-05. One per cent of this cost is £3.6 million; multiplying by a factor of 8 gives a total cost of around £30 million.

Sustainability

D.25 Moreover, a major constraint that would be faced by an enhanced tax credit in Northern Ireland is whether it would create an incentive for sustainable increases in the R&D stock without significant increases in the supply side provision of R&D facilities (especially staff and personnel) in Northern Ireland.

Capability building and culture

D.26 The ERINI study has identified the need to increase the level of internationalisation of firms, increase absorptive capacity, and to ensure that firms that undertake R&D spend a significant amount on in-house R&D rather than 'buying-in' R&D. That is, the lack of a 'culture' of undertaking R&D (and the over-emphasis on producing goods and services that compete more on costs than quality) has to be tackled.

D.27 In support of this point on culture, the study highlights that there is low take-up of R&D tax credits in Northern Ireland. This should be tackled by raising awareness of the R&D tax credit in Northern Ireland. The existence of a 'capabilities-gap' would argue for a portfolio of policy instruments in Northern Ireland designed to develop innovation, for example, through effective deployment of the innovation fund announced 26 March 2007.

Simplification of R&D tax credits for SMEs

D.28 In 2005 HMRC completed a consultation to improve the administration and delivery of the R&D tax credit. The consultation has resulted in a package of major improvements to the scheme, which are now in the early stages of being rolled out. The improvements are designed to ensure that the R&D tax credit delivers under its three core principles: simplicity, consistency and certainty. The major initiative to emerge from the recent consultation was the creation of new 'specialist units', which have from November 2006 handled all small and medium-sized enterprises (SME) R&D tax credit claims.

NI corporation tax office

D.29 In addition, the new Northern Ireland Corporation Tax Office (NIrCTO) will be working closely with Invest NI and other bodies with the aim of promoting indigenous and inward investment in the region. It will also be responsible for promoting and providing advice on R&D tax credits in Northern Ireland.

Capital allowances

1998-2002 capital allowances

D.30 Capital allowances are a means of allowing businesses to write off their expenditure on capital against profits. Currently, expenditure on most plant and machinery can be written off on a 'reducing balance basis' at 25 per cent a year. This rate will be reduced to 20 per cent a year from next April. The introduction of 100 per cent first year allowances would allow the business to write-off all the relevant expenditure against profit in the year the expenditure is incurred. This is therefore a mechanism that effectively increases cashflow for the business by deferring liability to tax (that is, a 'tax timing benefit') rather than a permanent enhanced tax relief against profits. Northern Ireland had 100 per cent first-year allowances from 1998 to 2002 for small and medium sized businesses.

Budget 2007: annual investment allowance

D.31 In the Budget 2007, the Government announced a number of reforms to business tax, including a reduction in the main rate of corporation tax from 30 per cent to 28 per cent from April 2008. The package of business tax reforms also included the announcement of the introduction of an 'annual investment allowance' (AIA) from April 2008 to encourage investment, an enhancement of R&D tax credits and a phased increase in the small companies rate of corporation tax.

D.32 The intention of the AIA is to refocus the tax system's support directly on the activity of investment, providing a cashflow boost for both the incorporated and the unincorporated. The annual allowance will be £50,000. All qualifying expenditure (that is, on most plant and machinery, excluding cars) up to that level will receive a 100 per cent first-year allowance,

regardless of the size of the company. Any additional expenditure over the £50,000 level will be dealt with in the normal capital allowances regime, entering either the 10 per cent or 20 per cent capital allowances pools which will apply to plant and machinery from next April.

What the AIA means for Northern Ireland

D.33 In addressing proposals for an enhanced capital allowance for Northern Ireland, the Review considered whether there is a case to be made for increasing the threshold of the AIA for Northern Ireland.[14] The Review estimates that the UK-wide AIA announced at Budget 2007 covers about 10 per cent of capital expenditure and 90 per cent of companies in Northern Ireland.[15] There is, therefore, some scope for increasing the AIA threshold to cover further capital expenditure, depending on the distribution of capital expenditure in the economy.

D.34 Nevertheless, the Government's proposal covers the vast majority of SMEs. Indeed, the Government's proposed AIA has many features in common with 100 per cent first year allowances for SMEs which ran between 1998 and 2002. The critical difference, however, is that while the past scheme covered capital expenditure by SMEs, the AIA covers the first £50,000 of capital expenditure by all businesses, and fully covers all the annual qualifying capital expenditure of most SMEs.

Case for an enhancement in Northern Ireland

D.35 Recent business investment performance in Northern Ireland sits just below the UK average for the period 1998 to 2004 despite having lower GVA per head. Scotland, the North East and the North West show some signs of catch-up on this indicator with averages above the UK.[16] Increasing the AIA threshold could expand the scope of the scheme by providing a further cashflow advantage for those businesses investing more than £50,000 per annum. Issues to consider include:

- the benefit to existing firms;
- the incentive for additional investment;
- the cost of the expanded scheme; and
- compliance with EU state aids rules.

Benefit to existing firms

D.36 The benefit to firms with capital expenditure above £50,000 would depend upon the size of the expanded scheme. The Review estimates that a significant increase in threshold to £250,000 would triple the amount of capital expenditure undertaken by firms that would become eligible, compared to the Government's current AIA proposal.[17] However, only a small number of additional businesses would have all of their capital expenditure covered by the increase as a result to the skewed profile of capital expenditure, with over half of all capital investment being undertaken by less than one per cent of businesses.[18]

D.37 Moreover, this does not take into account what proportion of companies undertaking this capital expenditure (i.e. up to £250,000 per annum) are actually making profits against which an enhanced capital allowance would deliver cashflow benefits. The Review estimates that over 40 per cent of capital expenditure undertaken is by businesses not making taxable profits. This reduces the increase in the proportion of companies that might benefit from such an increase in the AIA to

[14] Northern Ireland Manufacturing Focus Group submission to the Review (Jul 2007)
[15] Review estimate.
[16] Review calculations based on ONS (2006). Net capital formation as a proportion of GVA: Scotland (12.8 per cent); London (11.3) North-East (11.1); North West (9.9); UK (9.5); Northern Ireland (9.5); Wales (8.6); East of England (7.9).
[17] Move from 8 per cent of capital expenditure covered by the current AIA to 25 per cent.
[18] 53 per cent of Northern Ireland capital expenditure is made by just 0.7 per cent of businesses.

fewer than three per cent of Northern Ireland companies, in addition to the 90 per cent of companies covered by the £50,000 limit for the AIA.

Incentive for additional investment

D.38 An initial estimate suggests that an increase in the threshold for the AIA to £250,000 would increase investment in Northern Ireland by 0.25 per cent over current levels.[19] Thus, it would likely be a marginal incentive under standard assumptions about investment responsiveness.

Further legal constraints

D.39 Any differential capital allowances scheme in Northern Ireland would need to be designed to be compliant with EU state aids rules. To be compliant, the scheme would need to:

- exclude 'sensitive sectors'. If the UK wanted to bring the proposal within the Commission block exemption for national regional investment aid, this would involve having to exclude 'sensitive sectors' (that is, coal steel, synthetic fibres, shipbuilding, fisheries, aquaculture, primary agriculture and transport equipment moveable assets) from any enhanced allowance.[20] An initial estimate would suggest that of the £640 million capital expenditure in Northern Ireland by companies in 2004-05, 10 per cent is in 'sensitive sectors'.[21]

- exclude 'replacement investment'. The UK would also need to restrict the relief to 'initial investment aid', excluding pure 'replacement expenditure'. It may not always be easy to decide what exactly constitutes new investment, and the UK would have to make sure it devised a definition that was complaint with EU law. So, in broad terms, it is likely that this legal constraint would pose a restriction on the scope of this policy option.

- satisfy the 'aid intensity' rules. In pursuing the formal process of notification, the Government would have to ensure the value of the Northern Ireland AIA did not exceed the 'aid intensity' ceiling for Northern Ireland laid down in the regional aid guidance. This is 30 per cent of gross grant equivalent (GGE). An initial assessment suggests the GGE of an enhanced AIA in Northern Ireland would be well below these ceilings (approximately 4 per cent GGE).

- satisfy 'cumulation' rules. The aid intensity ceilings cited above apply to the total amount of public support for the aided project, regardless of whether financed from local, regional, national or EC sources. Therefore, Invest NI, for example, would have to take into account the existing level of support offered by the enhanced AIA in its calculations for offering Regional Selective Assistance or other grants to businesses. This would create a compliance burden, but on the whole this seems manageable within the overall ceiling.

Conclusion

D.40 An analysis suggests that the policy case for a significant increase in the AIA threshold for

[19] A reduction in user cost of capital of approximately 6 per cent (proportional change – not percentage points), with a central case elasticity of 0.4 would imply an increase of 2-3 per cent of the investment affected by the tax change. However, since only about a tenth of capital expenditure would be affected by the increase in the AIA from £50,000 to £250,000, the percentage increase of overall investment in Northern Ireland would be say a quarter of one percent. The elasticity for cross-border investment is higher, but that includes acquisitions as well new physical investment, and is on a much smaller base. Furthermore, the 0.4 includes all physical investment so if the cross-border component is higher the domestic component is lower.

[20] Commission Regulation (EC) No 1628/2006 on the application of Articles 87 and 88 of the Treaty to national regional investment aid (Oct 2006).

[21] Agriculture & Mining (SIC code: 01, 02, 05, 10, 12, 13, 14); Manufacture of man-made fibres (SIC 24.7); Manufacture of basic metals (27); Shipbuilding (35.1); and Transport excluding activities of travel agencies, i.e. 63 (50, 60, 61, 62, 64) = £70 million of the £640 million total capital expenditure per annum in Northern Ireland.

businesses in Northern Ireland is not overwhelming. The combination of the small population who would benefit, and the legal constraints that would further limit the scope, suggests that the incentive effect of a higher level of AIA may not be sufficient for this measure to be worth pursuing.

Allowances for training costs

The general case for intervention on skills

D.41 Training and the acquisition of skills is generally regarded as one of the key drivers of productivity and hence growth. However, there are well known arguments why the market for training works imperfectly and generates a level of investment in training that is less than optimal. The basic problem is the inability of firms that invest in training to capture the full benefits of the activity since they do not have full ownership rights over the labour the investment is made in. Thus, firms that do not train can nevertheless poach trained labour from those that do while avoiding the costs of training. The existence of this 'free rider' problem is a major reason why governments everywhere actively intervene to promote training and increasing the skill levels of the workforce.

The role of tax

D.42 There is potentially a strong market failure case for intervention – particularly for SMEs. But the question is whether a tax mechanism would be as effective as a direct grant mechanism, which could deliver the subsidy to any firm in a simpler, more targeted way. For employers, all educational and training expenditure is already fully deductible from taxable income.

A grant scheme

D.43 An equivalent grant based scheme would most likely be within the power of the devolved administration (though state aids approval from the EC might be needed). Grant schemes would have to be paid for from Northern Ireland's public expenditure allocation.

Allowances for marketing costs

D.44 Some submissions have suggested a 300 per cent allowance on specified marketing costs. The case would be that because of Northern Ireland's historical and geographical context, Northern Ireland firms lack the information on potential markets in Northern Ireland or export opportunities. However, it is hard to justify such a policy in terms of a clear 'market failure'. Equally, no evidence has been provided that a tax measure would be more effective than the existing support provided, for example, through Invest NI working with potential foreign and existing businesses in Northern Ireland. Chapter 4 examines Invest NI's role in trade promotion.

The role of grants

D.45 Relative to the possible benefits and alternative policy tools available, it is difficult to see that the cost involved in establishing and policing a tax scheme not to mention the problems of adding yet more complexity to the tax codes would be justified. Again, for relatively self-contained activities like this the grant mechanism is a viable alternative.

OTHER BUSINESS TAX POLICIES

D.46 This section covers:

- Relief against business rates;
- Reduced VAT on tourism; and
- Enhanced family tax credits.

Business rates

The proposal made

D.47 National non-domestic rates is a property tax related to the rateable value of buildings not used for domestic purposes. The Federation of Small Businesses has called for the introduction of a Small Business Rates Relief Scheme in Northern Ireland.[22] It is intended that this would be available for a ten-year period and would offer small businesses 50 per cent rates relief. Relief would be conditional on any savings being reinvested into businesses. It is estimated by the FSB that the policy would cost near £4.5 billion over ten years.

Assessing impact

D.48 This proposal firstly raises the issue of the economic impact: how effective would this scheme be in increasing resources available to business for investment? This would depend upon the extent to which rents would respond to a change in business rates, i.e. whether the owners of commercial properties respond to rates relief by increasing rents, as economic theory suggests, and so reduce additional resources for investment.

Reliefs may benefit property owners rather than occupiers

D.49 A key issue is the relationship between local taxes and property capital values. The value of a property represents the discounted value of the stream of future rents arising from that property. The level of rents will be influenced by the level of taxes. That is, a reduction in business rates will increase the return on property and should be reflected in a rise in property values and hence rents. A comprehensive survey of the literature on property tax capitalisation finds a statistically significant degree of capitalisation, with the estimate lying somewhere between 50 and 100 per cent.[23] The key observation is, therefore, that much of a reduction in business rates would accrue to the owners of commercial property, rather than the businesses operating in those properties.[24]

Financing

D.50 A final issue concerns financing – business rates policy is a devolved matter for the Northern Ireland Assembly. Small business rates reliefs are self-financed in other parts of the UK, i.e. the reliefs are funded from within the rates paying population for that region. This has been done through a supplement to the rates bill of those businesses not eligible for the relief.[25]

Reduced VAT on tourism

D.51 It has been suggested to the Review that a reduced rate of VAT on tourism in Northern Ireland should be considered, to spur growth in the tourism industry.

EC legal constraints

D.52 In general, EU VAT agreements, including the principal VAT Directive, do not enable Member States to vary VAT rates on a regional or geographical basis. The minor exceptions that exist are usually intended to assist the economies of remote areas, and were negotiated on a strict case-by-case basis, generally on accession. The introduction of any new regional variation in tax would require a formal proposal from the European Commission and the unanimous agreement of all 27 EU Member States.

[22] FSB, 'Proposals for a financial package for Northern Ireland – a Rates Reinvestment Fund for Northern Ireland', (2007)

[23] Yinger et al., 'Property Taxes and House Values, The Theory and Estimation of Intra-jurisdictional Property Tax Capitalisation', (1998)

[24] In considering the economic implications of this analysis it is important to bear in mind that a change in the business rates burden has different implications for companies or business sectors that are predominantly owner-occupiers of property, for whom the relationship between rents and rates may only be manifest in the capital value of their premises.

[25] Should self-financing be the preferred means of paying for its introduction, defining the thresholds for the value of property that is subject to the relief and that which is subject to the supplement that pays for the relief is an important part of the design of this option.

Assessing impact

D.53 More immediately, any reduced rate for hotels, or for other activities relating to the tourist industry, could only be applied on a UK-wide basis. The Review has not conducted an analysis on a UK wide scheme. However, it is reasonable to assume that a reduced rate for hotels would have a sizeable deadweight cost by benefiting existing activity (in some cases, larger hotels and hotel chains) in addition to any incentives it might also provide for additional activity. Moreover, small businesses would be unlikely to derive significant benefit as smaller hotels and other businesses trading below the VAT registration threshold of £64,000 are not required to charge VAT on their supplies.

Working tax credit

D.54 Some comments to the Review have suggested that an enhanced working tax credit in Northern Ireland could help address the low levels of labour market participation in the region (see Chapter 1).

D.55 It is not clear that there is a specific problem with financial incentives to work in Northern Ireland that could be tackled through enhancement in the tax credit scheme. Tax credits are designed to respond to individual families' circumstances, including number of children, disability and wages, in order to generate incentives to work, even for people with disability, and who are on Incapacity Benefit.

D.56 The main costs that vary geographically are housing and childcare. Housing Benefit has different limits in local areas, but the amount individuals are entitled to depends on their rent. The childcare element in the Working Tax Credit pays according to the costs claimants face. No evidence has been presented suggesting an exceptionally higher cost of living in Northern Ireland.

CONCLUSION: OTHER TAX POLICY ISSUES

D.57 This annex has set out a number of different proposals considered by the Review. The Review does not consider that there is a overwhelming case for differential tax policies in these areas for Northern Ireland.

E Call for evidence

E.1 Following meetings in Northern Ireland, the Review launched a public 'call for evidence' on 1 June 2007.[1] The 'call for evidence' document set out the issues on which the Review team welcomed responses. Specifically, the 'call for evidence' asked respondents to:

- Provide evidence that the review team could use to further its analysis, helping the team to minimise the duplication of research conducted elsewhere; and
- Highlight issues on which the review should focus its attention, shaping the direction that the review would take over the forthcoming months.

E.2 The questions asked in the 'call for evidence' document are set out below.

CALL FOR EVIDENCE QUESTIONS[2]

1. Effect of tax on business decision-making

We are looking for evidence on the influence tax (and tax administration) has on business decision making in relation to Northern Ireland. Specific areas we would like evidence on are:

- the effect of the tax system on the sustainability of business growth in Northern Ireland;
- the ability of the tax system to attract long-term investment in Northern Ireland;
- the industries or sectors that would stand to benefit most from a differential tax policy in Northern Ireland;
- the mechanics of operating a differential tax policy and any associated administrative burden for business;
- legal issues or points of principle raised by a differential tax policy; and
- changes in tax policy and administration that could be used to promote sustainable growth and long-term investment in Northern Ireland.

2. National and international context

We are looking for evidence on the specific national and international context of Northern Ireland. Specific areas we would like evidence on are:

- the effect of the Republic of Ireland's tax policy on businesses in Northern Ireland;
- a comparison of the overall tax burden in the Republic of Ireland and in Northern Ireland;

[1] www.hm-treasury.gov.uk/northernirelandtaxreview

[2] Not all issues under the headings were relevant to all respondents. The areas were intended only to provide a guide to relevant issues.

- how and whether an 'all-island economy' would improve the business environment in Northern Ireland, and what practical steps could be taken to move towards this;
- the consequences of a differential tax policy in Northern Ireland for the UK economy as a whole, and for UK businesses;
- the extent to which the Northern Ireland economy can be considered different to that of other regions of the UK;
- global challenges and opportunities for the Northern Ireland economy; and
- the current, and potential future, comparison of Belfast to other major international cities as a location for different forms of business activity.

3. Other drivers that improve the business environment

We are looking for evidence on other drivers that improve the business environment in Northern Ireland. Specific points we would like evidence on are:

- the most important factors that have affected growth and investment in Northern Ireland;
- the weighting in importance of non-tax and tax factors when considering future growth and investment in Northern Ireland;
- the most important factors when business considering business movement to or from Northern Ireland and the extent to which business movement has happened;
- non-tax interventions that are key to sustaining business growth and attracting long-term environment; and
- the role of business in promoting sustainable growth and long-term investment in Northern Ireland.

F List of respondents

Over the course of the review, the following organisations or individuals submitted evidence, met with Sir David, or met with the Review team.

Organisations

- Alliance Party of Northern Ireland
- Bank of Ireland
- British Telecom
- The Chamber of Commerce in Londonderry
- Democratic Unionist Party
- Department for Trade and Industry
- Derry Credit Union Ltd.
- Economic Research Institute of Northern Ireland
- HM Revenue and Customs
- HM Treasury
- The Industrial Task Force
- The Institute of Chartered Accountants in Ireland
- Inter Trade Ireland
- Invest Northern Ireland
- Irish Business and Employers Confederation
- Irish Congress of Trade Unions, Northern Ireland Committee
- Irish Exporters Association
- Irish League of Credit Unions
- Momentum
- Northern Ireland Assembly Committee for Employment and Learning
- Northern Ireland Assembly, Committee for Enterprise, Trade and Investment
- Northern Ireland Assembly Committee for Finance and Personnel
- The Northern Ireland Business Alliance
- The Northern Ireland Executive

- The Northern Ireland Manufacturing Focus Group
- The North South Business Round Table
- Price Waterhouse Coopers
- Queen's University Belfast
- Regional Forecasts Ltd.
- Republic of Ireland Government
- Sinn Fein
- Social Democratic and Labour Party
- Synetecs Ltd. (collated views of ICT industry in Northern Ireland)
- Ulster Bank
- Ulster Unionist Party
- United Kingdom Trade and Investment
- University of Ulster

Individuals

- Anthony Hopkins
- Bill Tosh
- Frank Cushnahan
- John Fitzgerald
- Liam Connellan
- Michael Smyth
- Padraic White
- Independent News & Media PLC also submitted a letter and petition for a change in the corporation tax regime for Northern Ireland, which was signed by 54 people.

G Bibliography

Agostini, 'The Impact of State Corporate Taxes on FDI Location', Georgetown University Department of Economics Working Paper, (2004)

Aitken and Harrison, 'Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela', American Economic Review 89(3), (Jun 1999)

Alesina and Wacziarg, 'Openness, Country Size and the Government', NBER Working Papers 6024, National Bureau of Economic Research, (1997)

Alesina, Ardagna, Perrotti, and Schintarelli 'Fiscal Policy, Profits, and Investment', American Economic Review, (2002)

Altschuler and Goodspeed, 'Follow the leader? Evidence on US and European tax competition', Departmental working paper, Rutgers University Department of Economics, (2002)

Aschauer, 'Does Public Capital Crowd-Out Private Capital?' Journal of Monetary Economics, (1989)

Aschauer, 'Is Public Expenditure Productive', Journal of Monetary Economics Vol. 23 No.2, (1989)

Auberbach, 'Dynamic Scoring: An Introduction to the Issues', American Economic Review, (2005)

Auerbach, 'Taxation and corporate financial policy', in Auerbach and Feldstein (eds), Handbook of Public Economics, (2002)

Baldwin and Krugman, 'Agglomeration, integration and tax harmonization', European Economic Review 48, 1(23), (2004)

Barber, 'Instruction to Deliver', Politico's, (2007)

Barry and Bradley, 'FDI and Trade: The Irish Host-Country Experience', Economic Journal, (1997)

Barry, 'Convergence is not Automatic: Lessons from Ireland for Central and Eastern Europe', World Economy, (Nov 2000)

Barry, 'Foreign Direct Investment and the Economy of Ireland: Some Current Issues', (Nov 2006)

Barry, 'From Periphery to Core? Foreign Direct Investment, Cost Competitiveness and the Transformation of the Irish Economy', paper delivered to Trade and Industrial Policy Secretariat Annual Conference, Johannesburg, (Sept 1999)

Barry, 'Peripherality in Economic geography and Modern Growth Theory: Evidence from Ireland's Adjustment to Free Trade', World Economy, (1996)

Bartelsman and Beetsma, 'Why Pay More? Corporate Tax Avoidance Through Transfer Pricing in OECD Countries', (2000)

Bartelsman, Bassanini, Haltiwanger, Jarmin, Scarpetta, and Schank, 'The Spread of ICT and Productivity Growth: Is Europe Really Lagging Behind in the New Economy?' in Cohen, Garibaldi and Scarpetta, eds, 'The Information Economy: Productivity Gains and the Digital Divide', (2004)

Baumol, Blackman, and Wolf, 'Productivity and Leadership: The Long View', Cambridge University Press, (1989)

Bellak and Leibrecht, 'Do low corporate income taxes attract FDI? Evidence from eight Central and Eastern European countries', University of Nottingham Research Paper 2005/43, (2005)

Bellak and Leibrecht, 'Do low corporate income taxes attract FDI? Evidence from eight Central and Eastern European countries', University of Nottingham Research Paper, (2005)

Benassy-Quere, Fontagne, and Lahreche-Revil (2005), 'How does FDI react to corporate taxation?' International Tax and Public Finance 12, (2005)

Bertola, 'Factor shares and savings in endogenous growth', American Economic Review, (1993)

Besley, Griffith and Klemm, 'Empirical evidence of fiscal interdependence in OECD countries', mimeo, (2001)

Bettendorf, Gorter and van der Horst, 'Who benefits from tax competition in the European Union?', CPB Netherlands Bureau for Economic Policy Analysis, (2006)

Billington, 'The location of foreign direct investment: an empirical analysis', Applied Economics 31, (1999)

Blanchard and Perotti 'An empirical characterization of the dynamic effects of changes in government spending and taxes on output', Quarterly Journal of Economics, (2002)

Blonigen, 'A Review of the Empirical Literature on FDI determinants', International Atlantic Economic Society conference, (2005)

Bloom, 'The real options effect of uncertainty on investment and labour demand', The Institute for Fiscal Studies, (2000)

Bosma and Harding, 'Global Entrepreneurship Monitor 2006 Survey Results', (2007)

Breathnach, 'Exploring the "Celtic Tiger" phenomenon: Causes and Consequences of Ireland's Economic Miracle', European Urban and Regional Studies, (1998)

Breen, Heath and Whelan, 'Ireland North and South: Perspectives from Social Science', Proceedings of the British Academy, Volume 98, (1999)

British-Irish Inter-Governmental Conference, 'Comprehensive study on the All-Island Economy', (Oct 2006)

Brueckner, 'Strategic interaction among governments: An overview of empirical studies', International Regional Science Review, (2003)

Buettner, 'The impact of taxes and public spending on the location of FDI: Evidence from FDI-flows within Europe', ZEW Discussion Papers 02-17, (2004)

Buettner, 'Do non-profit taxes affect the location of economic activity?', ETPF, (2006)

Burnham, 'Why Ireland Boomed', The Independent Review, volume 7, (2003)

Carey and Tchilinguirian, 'Average Effective Tax Rates on Capital, Labour and Consumption', OECD Economics Department Working Papers, (2000)

Carree and Thurik, 'The Impact of Entrepreneurship on Economic Growth' in 'Handbook of Entrepreneurship Research', (2003)

Cassou, 'The link between tax rates and foreign direct investment', Applied Economics 29, (1997)

CEBR, 'The dynamic impact of the 2007 Budget and a comparison with the impact of gradually introducing an Irish level of corporation tax', TaxPayers's Alliance, (Apr 2007)

Chennels and Griffith, 'Taxing profits in a changing world', Institute of Fiscal Studies, (1997)

Chirinko, Fazzari and Meyer, 'How responsive is business capital formation to its user cost?: An exploration with micro data', Journal of Public Economics, Elsevier, vol. 74(1), (Oct 1999)

Clausing, 'Tax-motivated Transfer Pricing and U.S. Intrafirm Trade Prices', Journal of Public Economics, 87, (2003)

Clausing, 'Tax-motivated Transfer Pricing and U.S. Intrafirm Trade Prices', Journal of Public Economics, (2003)

Coleman (eds.), 'The End of Irish History? Critical Reflections on the Celtic Tiger', (2003)

Collins, Kemsley and Lang, 'Cross-Jurisdictional Income Shifting and Earnings Valuation' Journal of Accounting Research, (1998)

Committee on the Preparation for Government, 'First Report on the Economic Challenges facing Northern Ireland', (2006)

Committee on the Preparation for Government, 'Second Report on the Economic Challenges facing Northern Ireland', (2006)

Committee on the Preparation for Government, 'Third Report on the Economic Challenges facing Northern Ireland', (2006)

Congressional Budget Office, 'An analysis of the Presidents Budgetary Proposals for the Fiscal Year 2004', (Mar 2003)

Cox, Guelke and Stephen. (eds.), 'A Farewell to Arms? From long war to long peace in Northern Ireland', Manchester University Press, (2000)

Creedy and Gemmell, 'The income elasticity of tax revenue: estimates for income and consumption taxes in the United Kingdom', Fiscal Studies, (2004)

Criscuolo and Martin, 'TFP Growth in British and German manufacturing, 1950-1996', Centre for Economic Policy Research, Discussion Paper No. 3078, (2003)

Cummins and Bond, 'Noisy share prices and the Q model of investment', IFS Working Papers W01/22, Institute for Fiscal Studies, (2001)

Cummins, Hasset and Hubbard, 'Tax Reform and Investment: A Cross-Country Comparison', Journal of Public Economics, (1995)

Cushman & Wakefield, 'UK City Monitor 2006', (Sept 2006)

DBERR (DTI), 'Business Clusters in the UK – a first assessment', (2001)

De Moij and Ederveen, 'Explaining the variation in empirical estimates of tax elasticities of foreign direct investments', Tinbergen Institute Discussion Paper 108/3, (2005)

De Moij and Ederveen, 'Taxation and foreign direct investment: a synthesis of empirical research', International Tax and Public Finance 10, (2003)

De Mooij and Ederveen, 'How Does Foreign Direct Investment Respond to Taxes? – A meta analysis', Paper prepared for the Conference on FDI and Taxation, (Oct 2005)

DELNI, 'Success through Skills – Progress Report', (May 2007)

DELNI, 'Success through Skills – The Skills Strategy for Northern Ireland', (Feb 2006)

DELNI, 'The Northern Ireland Skills Monitoring Survey 2005 - Summary Report', (Oct 2006)

Deloitte, 'Economic Review: the regional outlook of the UK economy', (Q3, 2007)

Demirgüc-Kunt and Huizinga 'The Taxation of Domestic Foreign Banking', Journal of Public Economics, (2001)

Demirgüc-Kunt and Huizinga, 'The Taxation of Domestic Foreign Banking'. Journal of Public Economics, 79, 429-453, (2001)

Department of Finance, Republic of Ireland, 'Budgetary and Economic Statistics: March 2004', (2004)

Desai and Goolsbee, 'Investment, Overhang, and Tax Policy,' Brookings Papers on Economic Activity 35(2), (2004)

Desai and Goolsbee, 'Investment, overhang, and tax policy', Brooking Papers on Economic Activity, (2004)

Desai, Foley and Hines, 'The Demand for Tax Haven Operations', Journal of Public Economics, (2006)

Desai, Foley, and Hines, 'The demand for tax haven operations', Journal of Public Economics 90, (2006)

DETINI, 'Economic Vision for Northern Ireland', (Feb 2005)

DETINI, 'Foreign Direct Investment in Tradable Services', (draft unpublished research - Jun 2007)

DETINI, 'Northern Ireland Innovation Survey 2006', (May 2007)

DETINI, 'The Northern Ireland Economic Bulletin 2005', (June 2005)

DETINI, 'The Northern Ireland Economic Bulletin 2007', (June 2006)

DETINI, 'The Regional Innovation Strategy for Northern Ireland', (Jun 2003)

DETINI, 'UK Innovation Survey 2005: Northern Ireland Results', (May 2006)

Devereux and Griffith, 'The Taxation of Discrete Investment Choices', IFS Working Papers W98/16 (1999)

Devereux and Griffith, 'The impact of corporate taxation on the location of capital: A review', Swedish Economic Policy Review, (2003)

Devereux and Lockwood, 'Taxes and the Size of the Foreign-Owned Capital Stock: Which Tax Rates Matter?', ETPF, (2006)

Devereux, 'The effects of international taxation on the activities of multinational companies: a survey of existing evidence', Mimeo, (2004)

Devereux, and Freeman, 'The impact of tax on foreign direct investment: empirical evidence and the implications for tax integration schemes', International Tax and Public Finance 2, (1995)

Devereux, Griffith and Klemm 'Corporate income tax reforms and international tax competition', Economic Policy, (2002)

Devereux, Griffith and Klemm, 'How has the UK corporation tax raised so much revenue? ', (2004)

Devereux, Lockwood and Redoano, 'Do Countries Compete over Corporate Tax Rates?', CEPR Discussion Paper, (2004)

DFPNI, 'Northern Ireland Draft Regional Economic Strategy', (Jan 2007)

DFPNI, 'Priorities and Budget 2006-08', (Dec 2005)

DFPNI, 'Summary of responses to the Consultation on the Northern Ireland draft Regional Economic Strategy', (July 2007)

Dixit and Pindyck, 'Investment under Uncertainty', Princeton, (1994)

DTI, 'UK Productivity and Competitiveness Indicators 2006', DTI Economics Paper No.17, (Mar 2006)

Dworin, 'Transfer pricing issues', National Tax Journal 43, (1990)

Economic Development Strategy Review Steering Group, 'Strategy 2010', (Mar 1999)

Economic Research Institute of Northern Ireland, 'Assessing the Case for a Differential Rate of Corporation Tax in Northern Ireland', (Nov 2006)

Economic Research Institute of Northern Ireland, 'Measurement and Benchmarking of Competitiveness - the Cost of Doing Business in Northern Ireland', (Dec 2005)

EIU, 'World Investment Prospects to 2010 – Boom or Backlash?', (2006)

Enterprise, Innovation and Networks Committee, 'Review of Science Policy in Wales', (Jun 2006)

EPSON, 'Ireland: National Development Plan 2007-2013, Transforming Ireland – A Better Quality of Life for All', (2007)

Ernst & Young, 'European Attractiveness Survey 2007', (Jun 2007)

European Commission, '50 Years of Figures on Europe', Eurostat, (2003)

European Court of Justice, 'Case C-88/03 - Judgment of the Court - Portuguese Republic v. Commission of the European Commnities', (Sept 2006)

First Trust Bank, 'Economic Outlook & Business Review', (Jun 2007)

First Trust Bank, 'Economic Outlook & Business Review', (Sept 2007)

Forfas, 'International Trade and Investment Report 2002', (2003)

Forfas, 'Perspectives on Irish Productivity', (2007)

FSB, 'Proposals for a financial package for Northern Ireland – a Rates Reinvestment Fund for Northern Ireland', (2007)

Gillespie, McGregor, Swales and Yin, 'A regional computable general equilibrium analysis of the demand and efficiency effects of foreign direct investment', in Pain (ed.), 'Inward Investment, Technological Change and Growth', (2001)

Goolsbee, 'Taxes and the Quality of Capital', NBER Working Papers 6731, National Bureau of Economic Research, (1998)

Goolsbee, 'Investment tax incentives, prices, and the supply of capital goods', Quarterly Journal of Economics, (1998)

Gray, 'International Perspectives on the Irish Economy', Indecon Economic Consultants, (1997)

Greenaway and Kneller (eds.), 'Globalisation and Productivity Growth - Theory and Evidence', Palgrave Macmillan, (2005)

Griffith, Redding and Simpson, 'Foreign Ownership and Productivity: New Evidence from the Service Sector and the R&D Lab', Oxford Review of Economic Policy, (2004)

Grossman and Helpman, 'Endogenous Innovation in the Theory of Growth', The Journal of Economic Perspectives, Vol. 8, No. 1, (1994)

Grubert and Altshuler, 'Corporate Taxes in the World Economy: Reforming the taxation of cross-border income', U.S. Treasury Department, Office of Tax Analysis, (2006)

Grubert and Altshuler, 'Government and Multinational Corporations in the Race to the Bottom', Tax Notes International 459, (Feb 2006)

Grubert and Mutti, 'Taxes, Tariffs and Transfer Pricing in Multinational Corporate Decision Making', Review of Economics and Statistics, (1991)

Grubert and Slemrod, 'The Effect of Taxes on Investment and Profit shifting to Puerto Rico', Review of Economics and Statistics, (1998)

Grubert, 'Intangible Income, Intercompany Transactions, Profit shifting, and the Choice of Location', National Tax Journal, 53, (2003)

Grubert, Goodspeed, and Swenson, 'Explaining the Low Taxable Income of Foreign-Controlled Companies in the United States', in Giovannini, Hubbard, and Slemrod (eds.), 'Studies in International Taxation', (1993)

Grubert, 'Intangible Income, Intercompany Transactions, Profit shifting, and the Choice of Location', National Tax Journal, (2003)

Hall and Jorgensen, 'Tax Policy and Investment Behaviour', American Economic Review, (June 1967)

Harris, Cher Li and Trainor, 'Assessing the Case for a Higher Rate of R&D Tax Credit in Northern Ireland', ERINI Monograph No.10, (Jan 2006)

Harris, Morck, Slemrod and Yeung, 'Profit shifting in US Multinational Corporations' in Giovannini, Hubbard and Slemrod (eds.), 'Studies in International Taxation', (1993)

Hasse and Hubbard, 'Tax Policy and Investment', in Auerbach (ed.), Fiscal Policy, (1997)

Hassett and Hubbard, 'Tax Policy and Investment', NBER Working Papers 5683, National Bureau of Economic Research, (1998)

Hines and Rice, 'Fiscal Paradise: Foreign Tax Havens and American Business', NBER Working Papers No 3477, (1994)

Hines and Rice, 'Fiscal Paradise: Foreign Tax Havens and American Business', Quarterly Journal of Economics, (1994)

Hines, 'Credit and deferral as international investment incentives', Scandinavian Journal of Economics, (1997)

Hines, 'Do Tax Havens Flourish?', NBER, (2004)

Hines, 'Lessons from Behavioural Responses to International Taxation', National Tax Journal, (1999)

Hines, 'Tax Policy and the Activities of Multinational Corporations', in Auerbach (ed.), 'Fiscal policy: Lessons from economic research', (1997)

HM Treasury and Inland Revenue, 'Large Business Strategy: The Government's Strategy and Corporate Tax Reforms', (2001)

HM Treasury, 'Devolving decision making: 3 – meeting the regional economic challenge: The importance of cities to regional growth', (Mar 2006)

HM Treasury, 'Globalisation and the UK: strengths and opportunities to meet the economic challenge', (Dec 2005)

HM Treasury, 'Long-term Global Economic Challenges and Opportunities for the UK', (Dec 2004)

HM Treasury, 'Productivity in the UK 6: Progress and new evidence', (2006)

HM Treasury, 'Productivity in the UK: 3 – The Regional Dimension', (2001)

HM Treasury, 'The Financial Statement and Budget Report', (2007)

HMRC, '2006 Review of Links with Large Business', (Nov 2006)

Honohan and Walsh, 'Catching up with the leaders: The Irish Hare', Brookings Panel on Economic Activity, (Apr 2002)

Horg, Greenaway and Kneller (eds.), 'Globalisation and Productivity Growth – Theory and Evidence', Palgrave, (2005)

Huizing and Nicodeme, 'Foreign ownership and corporate income taxation: An empirical evaluation', European Economic Review, (2006)

Huizinga and Laeven, 'International Profit Shifting within European Multinationals', Mimeo, (2005)

Huizinga and Laeven, 'International profit shifting within multinationals: a multi-country perspective', European Economy, European Commission, (Dec 2006)

Huizinga, Laeven and Nicodème, 'Capital Structure and International Debt Shifting in Europe', European Economy, European Commission, (Dec 2006)

IMF, 'How has Globalization Affected Inflation?', World Economic Outlook, Spring 2006, (2006)

IMF, 'The Globalization of Labour', World Economic Outlook, (2007 - forthcoming)

IMF, Germany, Article IV Consultation, Concluding Statement of the Mission, 2005, Washington, D.C., (2005)

InnovationLab, 'Innovation in Northern Ireland Tradable Services', unpublished research commissioned by the DETINI (Draft Final Report, Jun 2007)

InterTradeIreland, 'A North / South Analysis of Manufacturing Growth and Productivity', (Sept 2003)

InterTradeIreland, 'Business Networks on the Island of Ireland', (2005)

InterTradeIreland, 'Entrepreneurship in the Island of Ireland in 2004', (Oct 2005)

InterTradeIreland, 'Financial Incentives - North and South', North / South Cross Border Trade Seminars 2003, (Oct 2003)

InterTradeIreland, 'North/South Trade: A Statistical Ground-Clearing Exercise', (2003)

InterTradeIreland, 'Review of the All-Island Financial Services Sector', (Nov 2004)

InterTradeIreland, 'Spatial Strategies on the Island of Ireland - Development of a Framework for Collaborative Action', (June 2006)

InterTradeIreland, 'Survey of business links on the Island of Ireland', (Mar 2005)

InterTradeIreland, 'Trade and Production Monitor', Quarterly Report, (2004)

InterTradeIreland, 'University Collaboration on Technology Transfer: An All-Island Feasibility Study', (Feb 2006)

Invest NI, 'International Sales & Marketing Plan 2007-08', (2007)

Iparraguirre D'Elia, 'Decomposition of Regional GVA per capita gap by UK Region,' Economic Research Institute of Northern Ireland, (Jan 2006)

Iparraguirre D'Elia, 'The Five Drivers of Productivity - how much does each one contribute? Causal Analysis of Regional Labour Productivity in the UK', Economic Research Institute of Northern Ireland, (Sept 2006)

Irish Academy of Engineering, 'Engineering a Knowledge Island 2020', (Oct 2005)

Jacob, 'Taxes and Transfer Pricing: Income Shifting and the Volume of Intrafirm Transfers', Journal of Accounting Research, (1996)

Jog and Tang, 'Tax Reforms, Debt Shifting and Tax Revenues: Multinational corporations in Canada', International Tax and Public Finance, (2001)

Jorgenson, 'Capital Theory and Investment Behaviour', American Economic Review, (1963)

Jorgenson, 'Information Technology and the U.S. Economy', American Economic Review, American Economic Association, vol. 91(1), (2001)

Jovorcik, 'Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages', The American Economic Review, 94 (3), (2004)

Jun, 'How taxation affects foreign direct investment', World Bank Policy Research Working Paper 1307, (1994)

King and Fullerton, 'The Taxation of Income from Capital: A Comparative Study of the US, the UK, Sweden and West Germany', The Journal of Political Economy, (Aug 1985)

King, 'Taxation and the cost of capital', Review of Economic Studies, (1974)

KPMG, 'Competitive Alternatives, Relative Importance of Key Location-sensitive Cost Factors', (2006)

KPMG, 'UK Tax Competitiveness Where are we now?', (Jul 2007)

Leitch Review of Skills, 'Prosperity for all in the global economy – world class skills', (Dec 2006)

Maastricht Economic Research Institute on Innovation and Technology and the Joint Research Centre of the European Commission, 'European Innovation Scoreboard 2006: Comparative Analysis of Innovation Performance', (2006)

Mac Sharry and White, 'The making of the Celtic tiger: the inside story of Ireland's boom economy', Cork Mercier, (2000)

Mankiw and Weinzierl, 'Dynamic Scoring: A Back-of-the-Envelope Guide', Journal of Public Economics 90(8), (Sept 2006)

Mankiw, Romer, and Weil, 'A Contribution to the Empirics of Economic Growth', NBER Working Papers 3541, National Bureau of Economic Research, (1992)

Mendoza, Razin, and Tesar, 'Effective tax rates in macroeconomics: cross-country estimates of tax rates on factor incomes and consumption', Journal of Monetary Economics, (1994)

Mills and Newberry, 'Do Foreign Multinationals - Tax Incentives Influence their U.S. Income Reporting and Debt Policy', (2004)

Mintz and Smart, 'Profit shifting, Investment, and Tax Competition: Theory and Evidence from Provincial Taxation in Canada', Journal of Public Economics, 88, (2004)

Mintz and Weichenrieder, 'Taxation and the Financial Structure of German Outbound FDI', CESIFO Working Paper, (2005)

Mintz, 'The 2006 Tax Competitiveness Report: Proposals for Pro-Growth Tax Reform', C.D. Howe Institute Commentary 239, (Sept 2006).

Murphy, 'The "Celtic Tiger" - an analysis of Ireland's economic growth performance', European University Institute Working Paper, San Demenico, (2000)

National Audit Office, 'HM Revenue & Customs: Management of large business Corporation Tax', (2007)

National Competitiveness Council, 'Annual Competitiveness Report 2003', NCC, (Dec 2003)

Northern Ireland Executive, 'Draft Budget 2008-2011', (October 2007)

Northern Ireland Executive, 'Draft Investment Strategy', (October 2007)

Northern Ireland Executive, 'Draft Programme for Government 2008-2011', (October 2007)

O'Donnell, 'Ireland's Economic Transformation: Industrial Policy, European Integration and Social Partnership', Working Paper No. 2, Centre for West European Studies at the University of Pittsburgh, (Dec 1998)

O'Hagen (ed.), 'The Economy of Ireland: Policy and Performance of a Small European Country', Macmillan, (1995)

O'Malley, Hewitt-Dundas and Roper, 'An all-island system of innovation - myth or reality?', IntertradeIreland, (May 2006)

OECD Tax Policy Studies, 'Corporate Tax Incentives for Foreign Direct Investment', OECD, (2001)

OECD, 'Revenue Statistics 2007', OECD, (October 2007)

OECD, 'Economic Outlook No.81', OECD, (May 2007)

OECD, 'Economic Survey of Ireland 1999', OECD, (1999)

OECD, 'Recent Trends in Foreign Direct Investment', OECD, (2000)

OECD-APEC Conference on 'Removing Barriers to SME Access to International Markets', (Nov 2006)

Official Journal of the EU, 'Guidelines on national regional aid for 2007-2013', (November 2006)

Oliner and Sichel, 'Information Technology and Productivity: Where Are We Now and Where Are We Going?', Federal Reserve Bank of Atlanta Economic Review, Third Quarter, (2002)

Olsen, 'The Rise and Decline of Nations - Economic Growth, Stagflation and Social Rigidities', Yale University Press, (1982)

ONS, 'Analysing Differences in Regional Economic Performance', Regional Trends No. 39, (2006)

ONS, 'Annual Business Inquiry', (Jul 2007)

ONS, 'Capital Stocks, Capital Consumption and Non-Financial Balance Sheets', (2007)

ONS, 'Labour Market Statistics', (Sept 2007)

ONS, 'Profitability of UK companies', (Q1 2007)

ONS, 'Public Sector Employment Trends', (2005)

ONS, 'Regional Trends' (2006)

ONS, 'UK Balance of Payments – the Pink Book', (2007)

Portland Trust, 'Economics in Peacemaking, Lessons from Northern Ireland', (2007)

Ramb and Weichenrieder, 'Taxes and the Financial Structure of German Inward FDI', CESifo Working Paper, (2004)

Regional Forecasts Limited, 'Assessing the economic implications of a change to Corporation Tax in Northern Ireland', (Oct 2006)

Rousslang, 'International income shifting by US multinational corporations', Applied Economics, (1997)

RPANI, 'Better Government for Northern Ireland: Final decisions on the Review of Public Administration', (Mar 2006)

Schaller, 'Estimating the Long-Run User Cost Elasticity', Journal of Monetary Economics, (2005)

Schaller, 'The long-run effect of taxes, prices, and the interest rate on the capital stock', Carleton University, (2005)

Schwartz, 'Multinational Activity and Profit Shifting: The Case of Germany', (2005)

Smith, 'Showcasing globalisation? The Political Economy of the Irish Republic', Manchester, Manchester University Press, (2005)

Sørensen, 'Company tax reform in the European Union', International Tax and Public Finance, (2004)

Steinmo, 'Globalisation and taxation: challenges to the Swedish welfare state', Comparative Political Studies, 35: 7, (2002)

Stiroh, 'Information Technology and the US productivity Revival: What do the Industry Data Say?', American Economic Review vol. 92(5), (2002)

Stowhase, 'Tax-rate differentials and sector specific foreign direct investment: Empirical evidence from the EU', FinanzArchiv 61, (2005)

Stowhase, 'Profit Shifting Opportunities, Multinationals, and the Determinants of FDI', University of Munich Discussion Paper, (2002)

Stowhase, 'Tax-rate differentials and sector specific foreign direct investment: Empirical evidence from the EU', FinanzArchiv, (2005)

Sullivan, 'Data Shows Dramatic Shift of Profits to Tax Havens', Tax Notes (2004)

Sweeney, 'The Celtic Tiger: Ireland's Economic Miracle Explained', Dublin, Oak Tree Press, (1998)

Swenson 'The impact of US tax reform on foreign direct investment in the United States', Journal of Public Economics, (1994)

Swenson, 'Transaction type and the effect of taxes on the distribution of foreign direct investment in the U.S', in Hines (ed.), International Taxation and Multinational Activity, (2001)

The Economist, 'Survey: Ireland', (2004)

Tobin, 'A general equilibrium approach to monetary theory', Journal of Money Credit and Banking, Vol.1 No.1, (1969)

UK Trade & Investment, 'UK Inward Investment Report 2005-06', (2006)

UNCTAD, 'World Investment Report', (2005)

Urban Studies, 'Cities and national economic growth: a reappraisal', (2005)

Warda, 'Measuring the value of R&D Tax Treatment in OECD Countries', STI Review No.27, OECD, (2001)

Weichenrieder, 'Profit shifting in the EU: Evidence from Germany', presented at ETPF/IFS conference 'The impact of corporation tax across borders', (Apr 2006)

Wheeler, 'An academic look at transfer pricing in a global economy', Tax Notes, (Jul 1988)

Wilson 'A theory of interregional tax competition', Journal of Urban Economics (1986)

World Bank, 'Doing Business in 2008', (Sep 2007)

World Economic Forum, 'Global Competitiveness Report', (Sept 2006)

Yinger, Bloom, Borsch-Supan and Ladd, 'Property Taxes and House Values, The Theory and Estimation of Intra-jurisdictional Property Tax Capitalisation', San Diego, CA, Press, (1998)