KHSK
ECONOMIC CONSULTANTS

Analysis of IMI Dataset of MNCs

Final Report

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Executive Summary

This report examines the results obtained from 7 years of the IMI survey of foreign-owned multinational firms (MNCs) operating in Ireland. The results are examined in the light of a deterioration in Ireland's competitiveness as measured by a number of researchers. The IMI survey combines questions on perceptions of current performance with expectations of performance over the coming year. This provides a time element to the replies and the design of the survey also encourages executives to focus first on the environment within which their firms operate and then on the internal performance of firms, which is partly determined by this environment. Executives rate the performance of the economy in terms of a range of factors that determine competitiveness and also identify which of these factors are considered to be the most important. This enables a deeper examination of perceptions of performance than would be the case if all factors were considered to be equally important.

MNCs are a vital part of the Irish economy and have played a key role in the strong performance of the past decade. In addition, they have contributed to strengthening the performance of indigenous industry. The concept of competitiveness remains controversial but it is increasingly recognised that it contributes both to our understanding of how the economy is performing and the policy interventions that might improve this performance. Furthermore, the competitiveness of the location remains important in determining the locational decisions of MNCs.

Analysis of the survey's results over 7 years points to the consistent importance of Ireland's labourforce in determining the performance of MNCs, with a key role also being played by Ireland's corporate tax rate. Taking results from the whole period into account, the issues of most importance in determining the competitiveness of the economy from the point of view of the MNCs are the flexibility of the labourforce, wage costs and the rate of corporate taxation. This final factor is perceived to be the issue on which the economy has performed best, and the education system is also scored very highly. However, performance on wage costs is rated very poorly. A steep fall in cost competitiveness is the most noticeable development in terms of the competitive evolution of the economy in recent years. However, while Ireland is no longer positioned as a low cost economy, the results suggest that improvements in other aspects of the business environment have not been sufficient to offset this loss.

The survey provides information on the expectations of executives. Given the difficulty of providing accurate economic forecasts, it would appear that there are opportunities for the survey to be developed in this area but it would need to be more regular. A measure of disappointment is also derived that provides an indication of the performance of the economy relative to executives' expectations. Analysis indicates that disappointment leads executives to perceive that competitive weaknesses become increasingly important in terms of firms' performance. Various explanations of this result are possible, but the analysis suggests that there is a possibility, should disappointment appear consistently, that MNCs would begin to reassess their decision to locate in Ireland.

1. Introduction

1.1 Ireland's Economic Competitiveness

The role of international competitiveness in determining the performance of economies has received increasing attention over the past couple of decades. This development is particularly evident in small open economies such as Ireland where domestic demand is a relatively minor determinant of overall performance and performance is determined by the ability of the economy to create the conditions that allow businesses located in Ireland to supply global markets. Numerous statements by policymakers and by economic institutions – for example by Forfas, the National Competitiveness Council, and by the Social Partners – have attested to this enhanced role. However, the issue of competitiveness has not been without its controversies and the inclusion of the concept in economic research into performance and the determinants of growth has been slow. To an extent this has been the result of difficulties in defining the concept in a meaningful manner that facilitates measurement – since the ability to quantify variables remains central to economic research – while allowing for an inclusive but manageable concept to be retained.

The idea that it is possible to derive useful measures of competitiveness has been criticised by many economists, perhaps most notably by Krugman (1994), who maintained that it is firms, not economies, which compete. The critique rests to an extent on the correct claim that international economic relations do not amount to a zero-sum game where one country gains only at the expense of another, as might be the case with two firms battling for market share. In addition, some authors have expressed a general unease at the extent to which such a complex idea can be boiled down to a few simple metrics while others would continue to reiterate more traditional opinions that competitiveness is essentially a concept that can be captured by numerical measures of productivity.

This critique is particularly apt in the case when opinion surveys, usually of business executives and other elites, are used as important inputs into the overall competitiveness scores to be allocated. However, supporters of the approach argue that it 'provides much richer information than would be available through hard data sources alone by soliciting the opinions of business leaders operating in these countries' (Blake *et al*, 2002). The claim is that opinion surveys provide a perspective on professional, executive, organisational and national cultures, and capture their contribution to national economies which are often perceived as highly intangible.

To an extent, Porter (2001) has managed to bring together the various opinions into an increasingly accepted synthesis. According to him, competitiveness must not be analysed as a zero-sum game between economies in which the more competitive nations gain additional market share at the expense of others. Rather, competitiveness must be built on productivity growth where an improvement can lead to an increase in the standard of

living in all countries. This has two further implications. First, while macroeconomic balance is required it is not sufficient and microeconomic policies hold the key to developing competitiveness. Second, the crucial role of productivity means that the entire economy matters in determining the standard of living and not just the internationally traded sectors. As a result Porter concludes that competitiveness depends on productivity which is determined by microeconomic performance in two interrelated areas: first, the sophistication with which companies in the country compete and, second, the quality of the business environment.

This view would seem to dominate at present and while showing that it is ultimately the extent to which firms compete that matters – in other words, microeconomic issues and the internal decisions of firms – a key role is retained for the impact of the external environment which is largely beyond the control of the executives whose opinions are important in determining the scores that are allocated to a particular country. A more fundamental point however that may affect the validity of these attempts to measure international competitiveness is that perceptions are inevitably subjective and can be affected excessively by recent events. This is examined in the final section of this report below.

Approaches to Measuring Competitiveness

A number of major international research programmes are used to measure international competitiveness of a broad range of countries annually and rankings are produced. Two of these, undertaken by the World Economic Forum and by IMD, have received considerable attention in Ireland in recent years. The results of this research are based on the integration of measures of economic performance along traditional lines with numerics derived from opinion surveys and are presented in the form of indices with the most competitive country achieving a score of 100. Thus, they represent a snapshot of relative competitiveness at a point in time, although changes in the ranking of a particular country can be interpreted to indicate gains or losses relative to other economies. In addition, a somewhat similar approach has been used by national organisations – such as the National Competitiveness Council (NCC) in Ireland – to track developments over time. One important output of the approach that is taken in all this research is that it produces results that are clearly aimed at informing decisions by policymakers.

As a relatively new way of measuring economic performance and potential, the measurement of competitiveness is inevitably subject to ongoing change. While most attention has focussed on extending and refining the variables that are included in the indices, other work has focussed on aiding the interpretation of trends by weighting the competitiveness indicators, for example, weighting according to Ireland's trade flows (Central Bank, 2001). Indeed, the approach taken generally accepts that changes over time in the way measures are derived reflects a need for flexibility on the part of the studies, the benefits of which are assumed to more than compensate for any loss in the longer term comparability of the results.

Halpin (2003) examines the methodologies employed in these studies and provides an analysis of trends in the international measures of Ireland's competitiveness in the period

1998-2002. On the basis of the WEF reports, this shows that Ireland lost competitiveness in this period. The overall ranking fell from 4th in 2000 to 24th in 2002. This trend continued in 2003 when Ireland was ranked 30th, a position is maintained in 2004. Over this period, Ireland generally performed well in terms of its macroeconomic performance and national institutions, but was weaker in areas such as technology where it was ranked 37th in 2004 and in the quality of competition in the economy. However, the difficulties in deriving a single measure of competitiveness and the need for care in the interpretation of the results produced is evidenced by the fact that the IMD work ranked Ireland 10th in 2004, up from 11th in 2003. However, this also represents a slippage from a position of 7th in 2001. Resource weaknesses in areas such as transport infrastructure and technology have contributed to these trends but cost issues are also important. While changes in exchange rtes, which may diverge from equilibrium levels and distort the results, make the interpretation of cost factors difficult when a broad range of countries is included in the analysis, it has become very clear that Ireland has lost cost competitiveness in recent years, particularly when assessed against Eurozone countries. The NCC has recently concluded that costs in Ireland are out of line with trading partners to the extent that by 2003 Ireland was virtually the most expensive country in the Eurozone[1]. The Council estimated that Ireland's price level, when measured in a common currency, was 8% above the long-run sustainable level that is required to maintain competitiveness and sustain full employment. This means that unless the trend changes real losses are almost inevitable in the foreseeable future.

Against this, a recently published study has found that Ireland is the most profitable location for US multinationals oversees[2]. The primary reason for this is identified as low corporate taxes which have attracted firms and provided the opportunity to locate their operations in a tax efficient manner. Furthermore, research has ranked Ireland 7th in the world in terms of FDI attracted in 2003. In that year, Ireland secured €20.4 billion in FDI, a 4% increase on 2002[3].

The survey of executives in foreign-owned multinational firms located in Ireland on which the analysis in this report is based is somewhat similar to these approaches in using executive opinions to estimate changes in the competitiveness of the economy. However, the results are not integrated with economic data as it is assumed that the executives have taken into account the available data in forming their opinions. Thus, the results are based on the interpretation of the data by executives rather than by the researcher. One other difference between the IMI approach and those generally used – which is potentially an important benefit of the IMI survey over other surveys – is that respondents not only assess performance across a range of factors but also indicate which of the factors are most important.

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[1] National Competitiveness Council, *Statement on Prices and Costs*, September 2004

[2] As reported in *Tax Notes*, September 2004. The research found that the earnings of US firms in Ireland continued to grow strongly in Ireland in the period 1999-2002 while undergoing a sharp decline in many other European countries.

[3] UNCTAD (2004) *World Investment Report*

1.2 Description of the Dataset

The dataset on which the analysis in this report is based consists of the results of seven annual surveys of foreign-owned multinational companies (MNCs) operating in Ireland undertaken by the IMI in the years 1998-2004[4]. The surveys used postal questionnaires that were generally completed by either the Chief Executive or the Chief Financial Officer. The main criterion for inclusion in the survey was that the plant was an Irish-based subsidiary of a foreign-owned multinational. The companies were drawn from the largest 200 companies by turnover in the previous year and were predominantly in the high tech manufacturing sectors. The surveys are designed to gather information in relation to the competitiveness of the Irish economy as a base for operations but in addition to assessing Ireland's performance in relation to a list of specified indicators of competitiveness they also provide information in relation to the perceived outlook of the executives at the time the survey was undertaken.

The survey provides a profile of participating firms, and it required respondents to rank a total of about 30 factors according to their importance in determining the firms' overall performance. There have been some changes to the survey over the period but the structure and the information collected has remained fairly constant to the extent that there is a full dataset in respect of 27 of the original factors. The respondents were also asked to assess on a scale of 1 to 5 Ireland's performance in relation to each of these issues. Finally, respondents were asked their assessment of the likely impact of various possible developments on their companies over the next year. As well as giving a picture of which issues provide the greatest challenges for these firms, this allowed calculation of an indicator of confidence among MNCs.

A total of 555 replies to the survey have been received, i.e. about 80 in each year. This represents a steady response rate of about 45%, the only exception being 2003 when the response rate dropped below 40%. Overall this is a good response rate. Importantly, analysis of responses that was undertaken in the IMI in respect of individual years did not uncover any correlation between executives' responses and the size or sector of their firms.

The employment associated with firms participating in the survey is considerable. On average, replies were received from firms employing almost 37,000 people each year[5]. Over the period, this is equivalent to about 33% of employment in all foreign owned industry in Ireland and almost 10% of employment in all manufacturing industry in Ireland. About 93% of employees are full-time and about 30% are graduates. Both these figures have remained fairly constant over the period with only a slight upward trend. In total, just over 60% of the work force is unionised, with some unionisation in about 75% of firms and about 50% fully unionised. The degree of unionisation is highest in

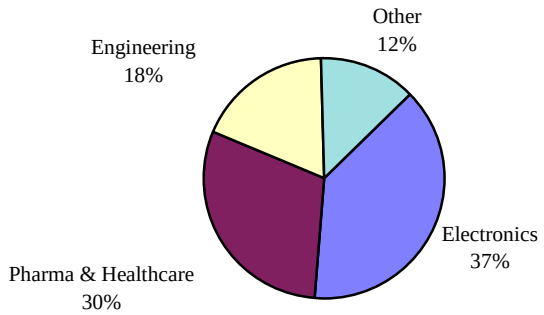
[4] The IMI has produced an annual report on this survey. The survey questionnaire is included below as an appendix to this report.

[5] A small number of large firms are very important and, on average, firms with more than 1,000 employees each account for about 40% of the total employment in participating firms. However, analysis of replies when weighted by employment did not indicate a significant effect on the findings.

pharmaceuticals at 89.4% and tends to be lower as the proportion of graduates employed rises.

The participating firms operate in a range of industries but, unsurprisingly, when measured by employment, two sectors dominate. Electronics firms, including telecommunications and software, accounted for 37% of employment over the period, while firms in pharmaceutical and healthcare sectors accounted for 30%. The sectoral distribution is illustrated in Figure 1. The largest sector within the 'Other' category was food firms.

Figure 1 Employment by Industrial Sector



Total turnover in firms responding to the survey averaged €15.2 billion per annum with the average annual turnover per participating firm amounting to €193 million. Clearly, these firms amount to a considerable proportion of the Irish economy. Over the period, value-added in Ireland is estimated to account for about 60% of turnover with a considerable number of firms indicating that 100% of turnover was value-added in Ireland. From this, it can be interpreted that value-added of firms participating in the survey amounted to in the region of €9 billion per annum, about 9% of Irish GDP in this period. The firms are highly export oriented with over 85% of output being exported and many firms exporting 100% of output. This means that exports by firms included in the survey accounted for about 14% of Ireland's exports in this period.

1.3 Structure of this Report

The Terms of Reference for this study required a review of the information that has been collected and a longitudinal review within broad parametres of the database. Two major themes also structure the analysis. The first examines what the surveys tell us about competitive developments in the economy and the issues that make Ireland an attractive location for foreign MNCs. This analysis is contained in Section 2 of the report. The second theme is related to the perceptions of executives at a point in time in relation to the impact of developments on their businesses in the future. One strength of the survey

design is that it incorporates this forward-looking aspect in addition to the review-type aspect on which the analysis in Section 2 is based. The analysis is undertaken in relation to two issues. The first examines executives' sentiments as the Irish economy slowed in recent years and forecasts increasingly suggested that a recession was a distinct possibility in international markets. At the same time, international surveys indicated that Ireland was in danger of losing its competitive edge. However the outcome has been that Ireland has not only avoided recession but has continued to perform quite strongly in relation to indicators such as employment and economic growth. This analysis is contained in Section 3. The second approach arises from the proposition that the views of executives as expressed in response to the survey provide an insight into decision-making in the face of uncertainty. The quantitative analysis develops the idea of the 'disappointment space' where executives form and then revise views in response to actual outcomes and is contained in Section 4. The survey results allow for the identification of instances of where performance falls short of executives' expectations and this is examined to identify if there is a relationship between this and their subsequent assessment of the importance of each variable in determining overall performance. Potential explanations of the results found are suggested that might be explored in subsequent work either within a revised version of the survey or if additional data are collected.

2. The Economic Impact of MNCs

2.1 Multinationals and the Irish Economy

In the period 1993 to 2003, employment in the Irish economy increased from 1.2 million to 1.8 million, unemployment fell from over 15% to less than 5%, the value of exports grew by 3.8 times and GNP per capita rose from 75% to 101% of the EU average. Along with the rapid growth of the Irish economy over the past decade and the fall in unemployment, one of the most notable features has been the leading role that has been played by foreign-owned multinational firms in generating output, exports and employment. According to CSO data, 48% of all employment in manufacturing firms with 3 or more employees has been in MNCs in recent years[6]. At the end of 2003 there were 1,273 foreign-owned firms that had received agency support operating in Ireland, employing 149,700 people on a full-time basis (Forfas, 2004). This amounts to about 30% of employment in manufacturing industry in Ireland. These firms had turnover of €75.7 billion in 2002, equivalent to about 65% of Ireland's GDP. The MNCs also spent €17.5 billion in the economy on procurement, payroll and services. Almost 24% of this expenditure was in the form of wages and salaries with 43.5% spent on Irish services.

The importance of foreign-owned industry in Ireland has been widely recognised. Barry and Bradley (1997) traced the development of MNCs in Ireland and argue that:

> Much of the history of the Irish economy...can be explained in terms of the quite phenomenal growth of export oriented FDI in manufacturing...The combination of geographical and compositional shift - to regions with faster growth and to goods with higher income elasticities - gave a long-term boost to the Irish growth rate, though this was masked at times by world recessions and domestic policy errors. (pp. 1798-99)

Macroeconomic data support this conclusion. Figure 1 shows the very strong growth performance of the Irish economy in the period 1990 to 2004 when compared to the EU average.[7] However, the figure also shows that export growth in Ireland exceeded economic growth in all years, except 2003, and often by a considerable margin. This is consistent with the conclusion that the exporting sectors of the economy played a key role in underpinning the high growth rates of the Irish economy over this period.

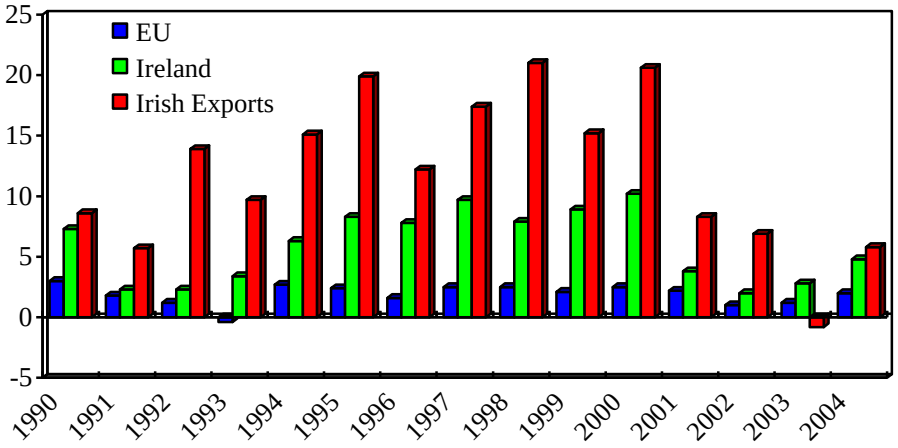
There has been a major change in the structure of Ireland's economy as a result of these developments. Ireland's exports have shifted away from traditional sectors based on agriculture and manufacturing towards new manufacturing sectors and chemicals. Exports of Food, Beverages and Tobacco, which accounted for 25.1% of the total in

[6] CSO *Census of Industrial Production*

[7] This figure uses GDP growth for EU economies but GNP for the Irish economy. Using GDP growth for Ireland would increase the rate of growth in most years by 1 to 2 percentage points.

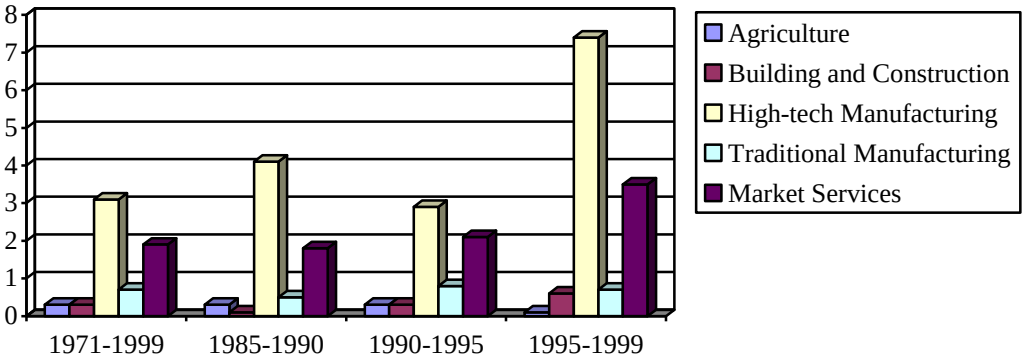
1985, had declined to 20.8% in 1994 and to 7.1% by 2002. Meanwhile, exports of Chemicals rose from 29.6% in 1985 to 42% of the total in 2002, while a machinery category that includes office machinery and computers rose from 14.4% of the total in 1985 to 35% in 2002.

Figure 1: Real Economic Growth in Ireland and the EU and Irish Export Growth 1990-2004 (% change per annum)



Employment growth has also been concentrated in high tech manufacturing but there has also been a very rapid growth in employment in services. These trends are reflected in changes in the relative importance of various economic sectors as evidenced by divergences in sectoral growth rates. Figure 2 shows output growth of the various broad sectors of the economy in each 5-year period since 1971. In effect, the underlying numbers can be interpreted as the contribution of each sector of the economy to Ireland's GDP growth in each period.

Figure 2: Sectoral Contribution to Annual GDP Growth



Source: Slevin (2002)[8]

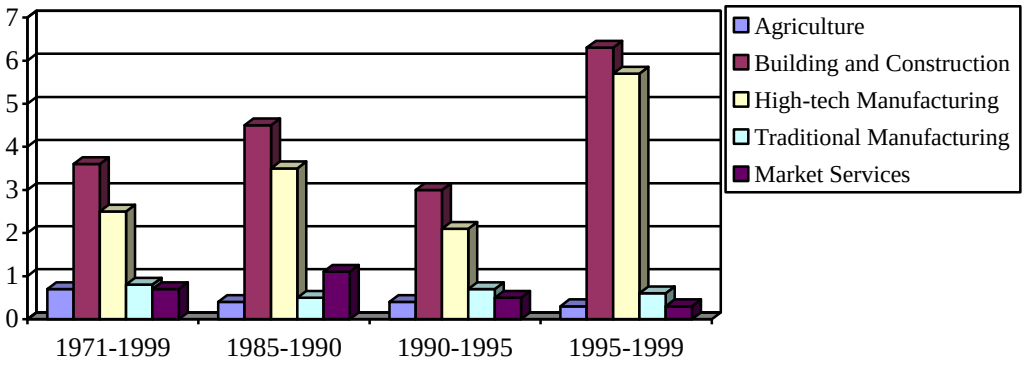
[8] Slevin, G (2002) 'Is there a New Economy in Ireland?' Central Bank of Ireland Technical Paper. In response to the question posed in the title of this paper, Slevin found that although very high productivity growth would often indicate that a 'New Economy' has emerged, data issues meant that this could not be concluded in the case of Ireland.

The issue of productivity was further analysed in Cassidy (2004). He found that productivity per worker grew by 8.9% per annum in the period 1991-2002, while productivity in market services increased by only 1.9% per annum, by 3.1% in agriculture and declined in construction by 1%. As a result, the contribution to productivity growth in Ireland from the manufacturing sector, at 7.3% per annum in the period 1996-2000, was far ahead of other EU countries, which averaged 0.7%, and private services in Ireland which averaged 1.8% in this period. Furthermore, productivity growth in market services in both the EU and US in this period was ahead of the manufacturing sector.

A number of very important findings emerge from this analysis. The most important is that the high-tech manufacturing sector has been the driving force behind Irish economic growth for a prolonged period. This is the case in almost every 5-year period between 1971 and 1999. In addition, this trend became much more pronounced during the 1990s. A second important point is that services became an increasingly important source of economic growth in the 1990s. This coincided with a rapid increase in international trade in services. However, the performance of traditional manufacturing sectors in this period was much weaker.

Increased productivity has been the key issue in this regard with foreign-owned, high-tech industries taking a leading role. Slevin (2002) shows that total hours worked in high-tech sectors in Ireland in the period 1997-2001 grew by 6.2% per annum while average annual output growth was 17.6%. This means that average labour productivity (ALP) growth was 11.4% per annum in this sector. However, the picture is very different in the traditional manufacturing sector. Here, average hours worked did not grow while output grew by 1.6% per annum indicating ALP growth of only 1.6% per annum. A similar picture emerges when data on total factor productivity growth (TFP) are examined. Figure 3 shows TFP figures for the same years and sectors as in Figure 2.

Figure 3: Annual TFP Growth by Sector (%)



Source: Based on Slevin (2002) Appendix 4, Table 5

This figure again shows the key role played by productivity growth in the performance of the Irish economy. Many of the general trends can still be seen with the much stronger performance by the high tech sector compared to the performance of the traditional sector. TFP growth is not as high in the services sector as might be expected given the rapid growth of recent years as many services, such as personal services, have grown but

find it difficult to achieve labour productivity gains. The MNCs have also provided a boost to indigenous Irish firms. Görg and Strobl (2002) constructed a model to describe the entry of indigenous Irish firms in manufacturing and found that MNCs had a positive impact on indigenous Irish firms through directly creating demand for the products of these firms, but also by improving competition for intermediate goods that reduced prices for these goods thereby providing a boost to the competitiveness of Irish firms. An additional positive impact that has received increasing attention in the literature – and which is closely related to the role of clusters in competitiveness – is that MNCs not only increase the capital stock of an economy but also improve a given stock through introducing best business practices to a country. This improvement can then 'spill over' to the wider economy through imitation, changes in attitudes and institutions, or through labour movement[9]. There is little doubt that this has been important in Ireland but the impact has proven quite difficult to measure directly. As a result, the performance of these sectors will depend to a considerable extent on the performance of the high productivity sector in driving the economy. However, Görg and Strobl (2003) found that MNCs in Ireland are more likely to pull out than were indigenous firms when economic conditions deteriorated, although new jobs generated in MNCs in recent years are more likely to persist than in indigenous firms. In addition, MNCs are more likely to recover lost jobs when the economy recovers than are indigenous firms. These are important findings as they refute to an extent the idea that 'Footloose Multinationals' populate the Irish economy and are in line with actual experience during the recent downturn.

The performance of the economy over the past decade is a major success for Irish industrial policy. Honohan and Walsh (2002), while characterising the Irish economic boom as essentially a period of catch-up, conclude that Ireland was exceptionally well placed to exploit the opportunities that arose in this period. The foundation for this was in policy areas such as taxation, but they also identify the key role that was played by an educated workforce and improved cost competitiveness. They also credit a widespread consensus and continuity in overall policy - although there have been subtle and important shifts within this policy - as important factors, along with consensus at the level of industrial relations as a result of social partnership. Similarly, Barry (2000), while accepting that delayed catch-up is a partial explanation for the very rapid growth experienced in the 1990s, maintains that there is much more to the story and concludes that the evidence indicates that productivity in Irish manufacturing surpassed the UK during this period. The availability of FDI, the availability of skilled labour and an improvement in overall competitiveness were key factors in this. Conditions have now changed with respect to the last two factors while international competition to attract FDI is increasing.

[9] A voluminous literature has emerged on these issues in the past decade or so. Görg and Greenaway (2001) provide a review of literature in this area.

2.2 Explanations of Firms' Locations

The view that MNCs will locate in the most competitive location, as measured by the types of research discussed, is overly simplistic for a number of reasons. Most importantly, the location decision will depend on factors internal to the firm in question, the most important of which will be to devise the geographical location of plants in a manner that will maximise profits. As a result, it will often make sense for a firm to locate in a region that has a particular characteristic that makes it vital to operations although the overall competitive characteristics of the location might not indicate that this would occur. Good examples are the locating by many firms of logistics operations in the Rotterdam area and the location of financial firms in the City of London, despite the relatively high costs associated with both areas. A further important factor is that governments may be able to provide incentives that attract specialised operations of the MNC to a particular location although the economy in question would not appear to be a competitive location. As a result of these and similar considerations, researchers, while not denying the important role of competitiveness, have expanded the range of factors that can explain location beyond what might be considered to be the types of factors that would be incorporated into measures of competitiveness as usually derived.

Much of this work has grown out of the recognition in recent decades that there are important spatial factors that affect firm performance. In this context, the importance of developing clusters has received considerable attention in the attempts to understand the location decisions of firms. Much work remains to be done in developing our understanding of how and why clusters appear to be important and in understanding how policy can promote their development. Attention has focussed on the hypothesis that there are efficiency gains from being present in a cluster and also that there is a signalling effect whereby the location of existing firms influences other firms in making their location decisions. These ideas were examined in relation to MNCs in Ireland by Barry, Görg and Strobl (2001) who found in an empirical analysis that both the efficiency and demonstration effects are important for US firms in Ireland but that only the demonstration effect appeared to be important for UK firms. This supports the conclusion of Barry and Bradley (1997) that new firms in the high tech sectors were influenced in their location decisions by the fact that there were already many firms in these sectors in Ireland. This means that that if a perception that Ireland is a good place to locate can be created then it will be easier to attract investment under any given level of competitiveness as usually understood.

This finding of the effects of agglomeration reflects findings in many other countries. For example, Hubert and Pain (2001) in a study of FDI in the European Economic Area found that agglomeration is important, and that when these agglomeration effects are supported by fiscal incentives then there is an added boost to FDI overall and to FDI in the area providing the incentives. In another study, Barrios *et. al.* (2002) placed a somewhat different emphasis on the importance of agglomeration effects when compared to the incentives that are offered, although the impact of the latter continued to be important. However, this leaves open the question as to how a region can kick off the

process and the role of policy should the demonstration process suffer a reverse i.e. that firms begin leaving a location.

Oman (2000) shows that, globally, governments have developed incentive packages at national and sub-national levels while the significance of FDI has increased in recent years as barriers have fallen. Governments recognise the benefits of FDI relative to debt so that the competition is inter-regional i.e. most of the investment would take place in any case, the decision is where is will be located, so that the overall growth in flows is largely independent of the growth in incentives. However, the research has shown that the incentive package is only one element in the decision process and that a government that provides incentives but allows the underlying business competitiveness of the economy to decline will ultimately find that the cost of attracting FDI is excessive relative to the benefits. In an international study, Oman (2000) showed that improvements in competitiveness can prove to be a major attraction for FDI. This is reflected in the argument of MacSharry and White (2000) that the inherent potential of the economy and the operations of the IDA in attempting to attract FDI and retain MNCs in Ireland were often curtailed in the early 1980s by the macroeconomic imbalances that undermined the competitiveness of the economy as a location. Given this, it is important to identify and monitor developments in the economy that impact on the attractiveness of Ireland as a location for MNCs.

The design of the IMI survey partly reflected the design that has been used in major international surveys of competitiveness, such as those implemented by IMD and the WEF. It also reflected existing work on the factors that influence locational decisions for companies investing abroad such as that undertaken by Lorce and Guisinger (1995). They found that a broad range of policy and non-policy variables had statistically significant effects on the locational decision of US companies investing abroad, with incentives, lower taxes, lower performance requirements, political stability, cultural similarity to the US and developed infrastructure all promoting investment in a particular location. Similar results were found in a study of inward investment to 11 regions of the UK, as reported in Billington (1999) with the added dimension that a relatively high rate of unemployed appeared to increase the propensity for a region to attract FDI. While on one level this might appear to conflict with the demonstration effect, the finding was explained by suggesting that firms interpret a high rate of employment as an indication that labour is easily available. The results of the IMI survey below would appear to suggest that there is validity in this interpretation.

2.3 Results of the Survey

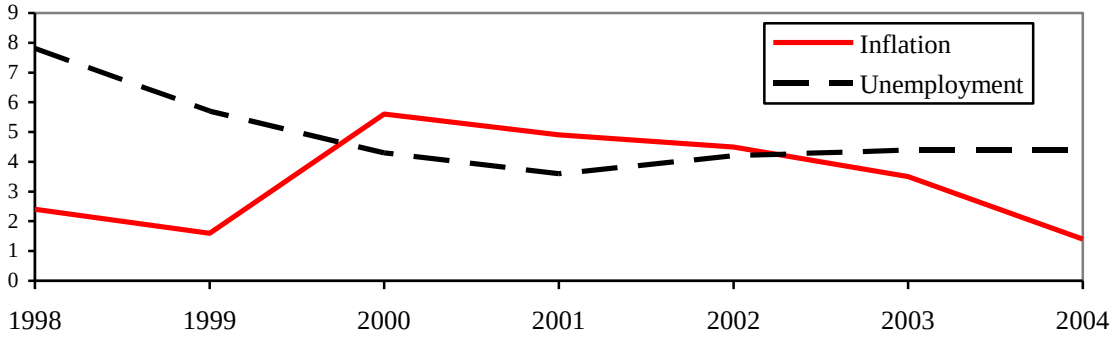
Factors of Importance for Competitiveness

The IMI survey is specifically targeted at decisionmakers within MNCs. Unlike most of the other work on competitiveness it elicits views directly from executives and provides an up to date and evolving picture of how well Ireland is performing in relation to the issues that determine performance and, ultimately, the location of these firms.

Respondents are asked to evaluate, on a scale of 1 to 5, the importance of 30 factors which may affect the performance of their firms. These factors were grouped under four headings - the economic environment, infrastructure, operations and employment and social issues. The results are used to rank these factors as shown in Figure 5 and 6 and detailed in Table A1 in the Appendix for the importance of the factors and in Table A2 for Performance. It is possible to reclassify the results into 3 categories: labourforce factors, cost-related factors and other factors. This reclassification is shown in Table A3 of the Appendix.

Conditions in the Irish economy have changed considerably within the period covered by the surveys. Along with the introduction of the Euro and a fall in interest rates, the period has also seen a considerable tightening of labour markets and a rise of Irish inflation to the highest in Europe before a subsequent fall back into line. These latter developments are shown in Figure 4.

Figure 4: Inflation and Unemployment Rates 1998-2004



Importantly, the global economy has also gone from boom to recession in this period and has seen emergence of a recovery in 2004. However, while Ireland's growth slowed, this slowdown was from a rate of growth that had been unsustainable, and should not be characterised as a recession.

Table 1 shows the highest ranked factors in each year, in terms of importance in determining the competitiveness of the economy.

Table 1: Ranking of Factors of Greatest Importance for Competitiveness

	1998	1999	2000	2001	2002	2003	2004	Overall
Education System	3	1	9	5	3	3	2	1
Labourforce Flexibility	1	3	2	3	4	4	5	2
Wage Costs	9	9	2	4	1	1	1	3
Corporate Tax	2	5	8	2	6	6	3	4
Labour Availability	4	2	1	6	7	11	12	5
Air & Sea Facilities	6	8	10	7	9	7	5	6
Industrial Relations	7	6	7	8	5	5	13	7
Labourforce Skills	8	6	5	9	8	9	7	8
Rate of Inflation	10	10	11	10	11	2	3	9
Telecommunications	5	4	5	1	2	25	16	10

Note: Only factors that were included in all surveys have been used in devising this ranking.

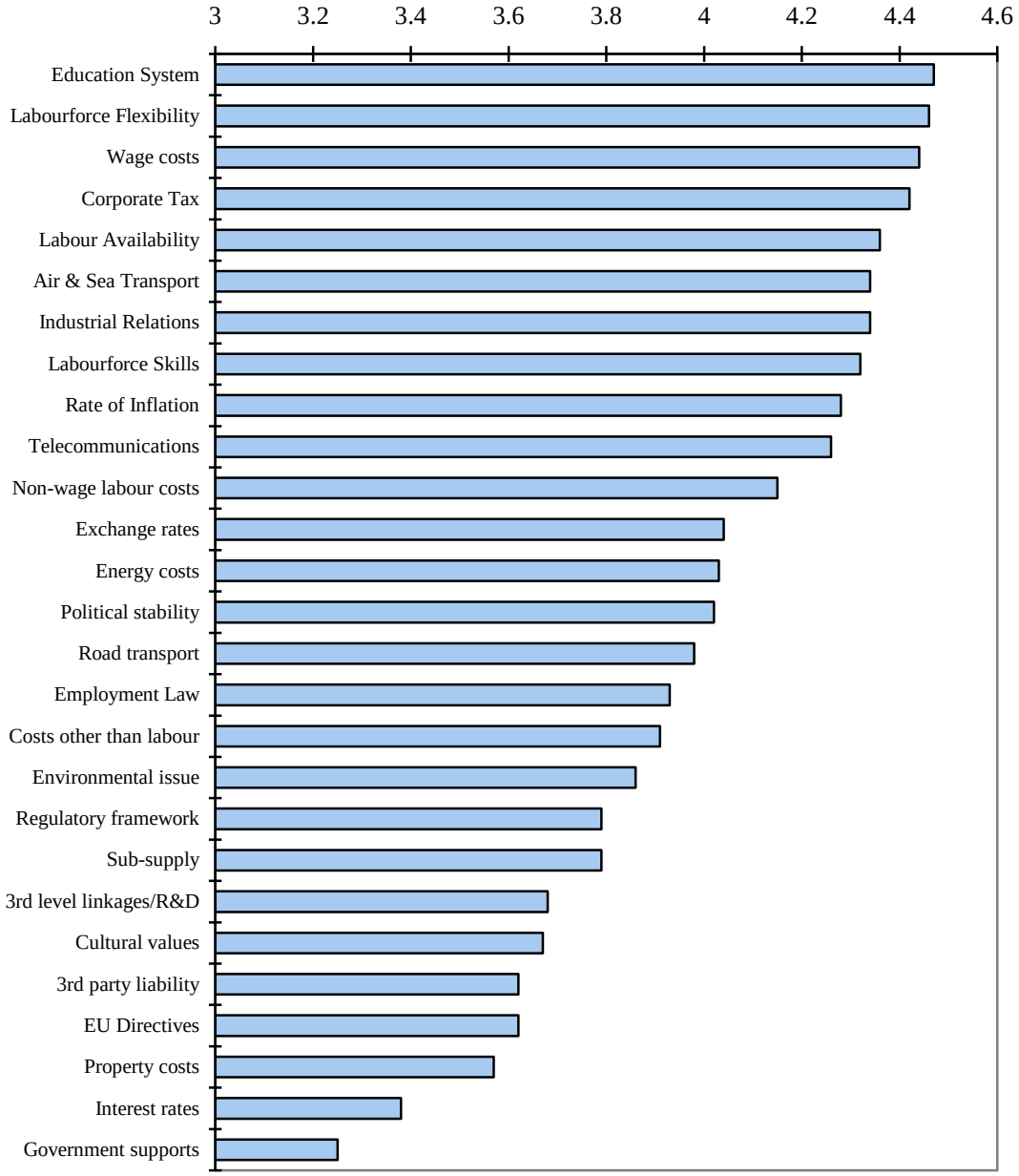
The key issues in terms of determining the competitiveness of the Irish economy as a location for MNCs are those related to the quality and costs of the labour force, with the rate of corporate taxation also being important along with transport and telecommunication infrastructure. Two other issues that are worth noting also emerge from this table[10]. The first is the considerable consistency of the rankings across years. This is demonstrated by the fact that almost all the factors in the top 10 overall were also placed in the top ten in each year. The second is that within this consistency there is a trend. This is seen where these results are observed against overall developments in the economy. Basically, as the labour market tightened in the late 1990s, factors related to the availability of labour skills rated most highly. However, as the surveys progress and the rate of inflation increased in the economy, factors related to costs, in particular wage costs, tended to be ranked highest.

The overall scoring of factors in relation to their importance to MNCs for the whole period is illustrated in Figure 5. In terms of the factors that were identified as the most important, the most striking aspect is the very high importance that is attached to labourforce characteristics. 5 of the 6 factors that are identified as falling into this category appear among the 8 most important factors that were identified. In addition, wage costs and non-wage labour costs – which could be considered to be labourforce issues – are also identified as particularly important. Among cost factors, wage and non-wage labour costs are important along with the rate of inflation and energy costs. However, other cost areas such as energy costs, insurance costs and property costs are well down in terms of their perceived importance to competitiveness, although both insurance and energy have been assigned a higher ranking in more recent years.

Among industrial policy areas, Ireland's low rate of corporate taxation is clearly by far the most important issue. Other areas of policy such as improving the regulatory framework, the development of 3rd level linkages and government supports to industry are rated low in terms of their importance. Among other factors, Air and Sea Transport and Telecommunications are clearly important and MNCs also place considerable importance on stable exchange rates. However, interest rates receive a low rating in all years, as do legislative areas such employment law and the impact of EU directives.

[10] While the survey has produced consistent scores in relation to the factors of most importance, there has been more variation in terms of Ireland's performance with the average values accorded falling over the period of the surveys.

Figure 5: Ranking of Factors by Importnace in Determining Competitiveness

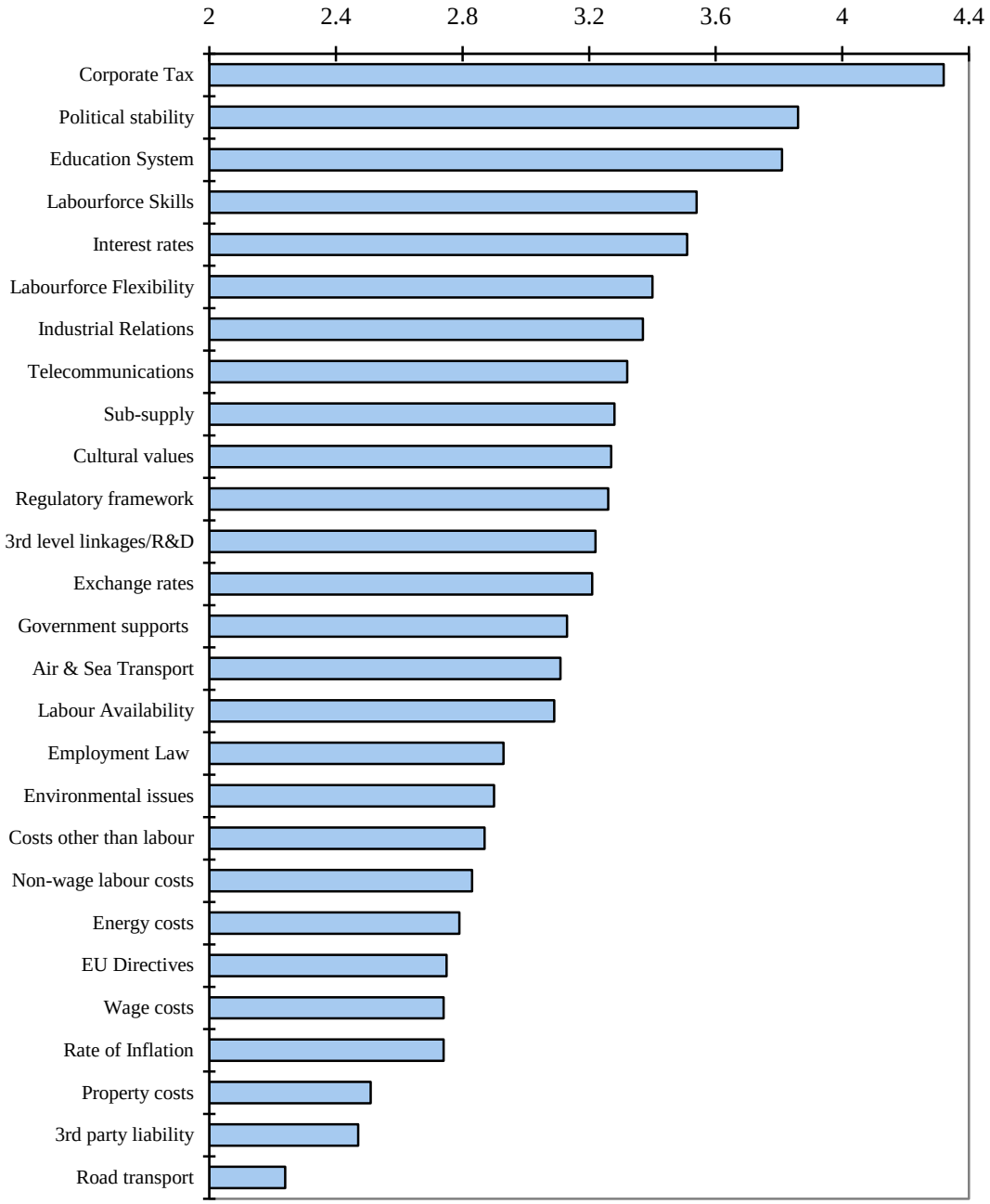


Ireland's Performance in Relation to these Factors

Ireland's performance in relation to these factors provides an indication of the competitiveness of the Irish economy from the point of view of the MNCs. The ranking of each factor overall is shown in Figure 6 with details provided in Tables A2 in the Appendix. Perhaps the most important message from Tables A1 and A2 is the very high rating that is attached to Ireland's repeated commitment to maintaining the low rate of corporate taxation. From this, it appears reasonable to conclude that this element of

policy is the key aspect that underpins the competitiveness of the Irish economy from the point of view of the MNCs. Overall, however, performance in relation to industrial policy is considered to be quite good, although the increasingly expressed commitment to developing R&D and 3rd level linkages in Ireland is not perceived to be effective and the rating assigned to performance in this regard has been falling.

Figure 6: Ranking of Factors by Performance



It is not possible to ascertain if the low rating assigned to the performance of 3rd level linkages is a result of an absolute deterioration in this regard or that it is increasingly perceived that the reality has increasingly lagged the expressed objective of policy in

recent years to improve Ireland's performance in R&D. Current Irish policy is that Ireland should aim at becoming a centre of excellence in ICT and biotechnology sectors, that supporting polices be introduced, and that a fund to support R&D should be developed[11]. Targets are being developed for Irish R&D expenditure up to 2010[12]. The indicated policy target is to raise expenditure on R&D by foreign owned firms in Ireland so that over 50% of firms are engaged in R&D activity. The overall expenditure target is that R&D investment in Ireland in 2010 will amount to 2.8% of GDP. Along with sustained support from the public sector, a key area will be to ensure that the required human resources are available. Kearns and Ruane (1999) found that higher levels of R&D activity in foreign-owned firms increased the value of those firms to the economy by leading to the creation of higher value employment in those firms and also by increasing the average period over which the firms would remain located in Ireland. The IDA concurs with these conclusions and estimates that nearly 50% of all IDA supported companies in Ireland already have some expenditure on R&D with 7,300 people engaged in this activity. O'Sullivan (2000) underlined the importance of R&D for the sustainability of the performance of the 1990s and identified innovation within a context of competitive industrial districts as a vital requirement. However, Barry (2002) showed that the level of R&D currently undertaken in Ireland is related to the overall design of industrial policy and specifically to the impact of the low corporate tax rate. Policy is based on the finding that the level of R&D is low compared to the sectoral industrial structure of the economy. However, when the impact of the tax rate in providing an incentive for transfer pricing is included in the analysis, Ireland does not appear to be as much of an outlier as the initial research might suggest. One implication is that it could prove difficult to greatly increase the level of R&D under the existing structure of taxes. This explanation is in line with the relatively low ranking assigned to R&D supports.

A second important result is that Ireland is perceived to have performed well in relation to some of the most important labourforce factors. Performance in relation to education and the availability of skills is good while labourforce flexibility and industrial relations are supporting strengths. An additional related question that was added to the survey in 2004 also indicated that executives have a positive attitude to social partnership and generally support this system of policymaking. However, the performance results also point to the glaring weakness that has emerged in the economy. Cost factors are important for performance but performance in relation to all factors is rated as poor. Overall, cost factors take up all the lowest performance rankings, apart from the low rating given – unsurprisingly – to road transport and the impact of EU Directives.

Performance in relation to cost factors has also deteriorated considerably in this period. This development is illustrated in Figure 7. This shows that the performance rating assigned to cost factors has fallen consistently over the period while that of labourforce factors has remained reasonably constant and above the average rating.

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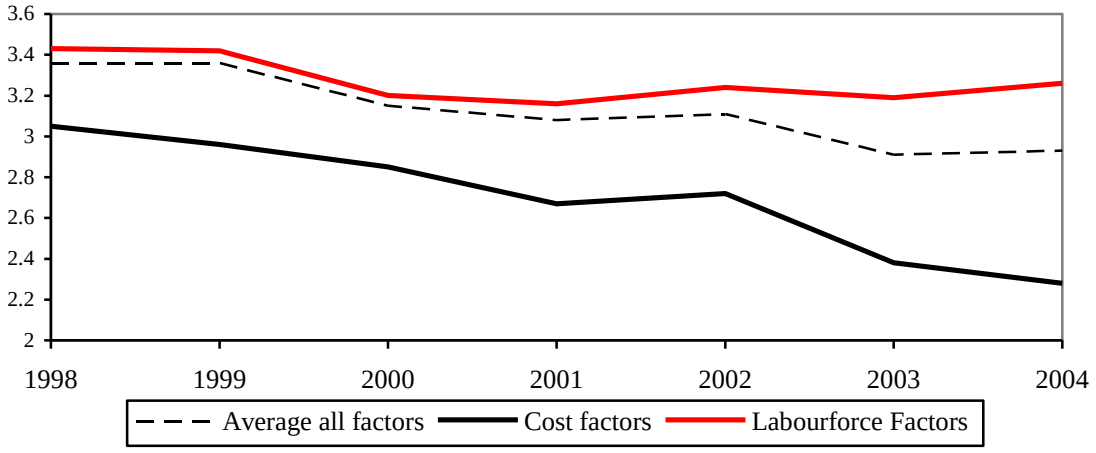
[11] Forfas (1999) *ICSTI Technology Foresight Report*

[12] *Building Ireland's Innovation Strategy: An Action Plan for Raising R&D Intensity to 2010*. ERA Steering Group, Draft Report, March 2004

Figure 7: Performance of Cost-related and Labourforce Factors



This is important for a number of reasons. The decline in the rating of performance for cost factors has continued in 2003 and 2004 although, as discussed, general inflation fell in these years. Indeed, executive's perception of the performance of inflation improved markedly in the 2004 survey but this was not reflected in cost issues as they relate to firms. The lowest rating was assigned to insurance costs but there have also been important declines in the performance of wage costs and non-wage labour costs. A second important issue is that the ratings of cost and labour force issues have diverged. In one sense this is in keeping with expectations of an economy that is moving up the value chain: costs increase but the performance of the labourforce increases to preserve overall competitiveness.

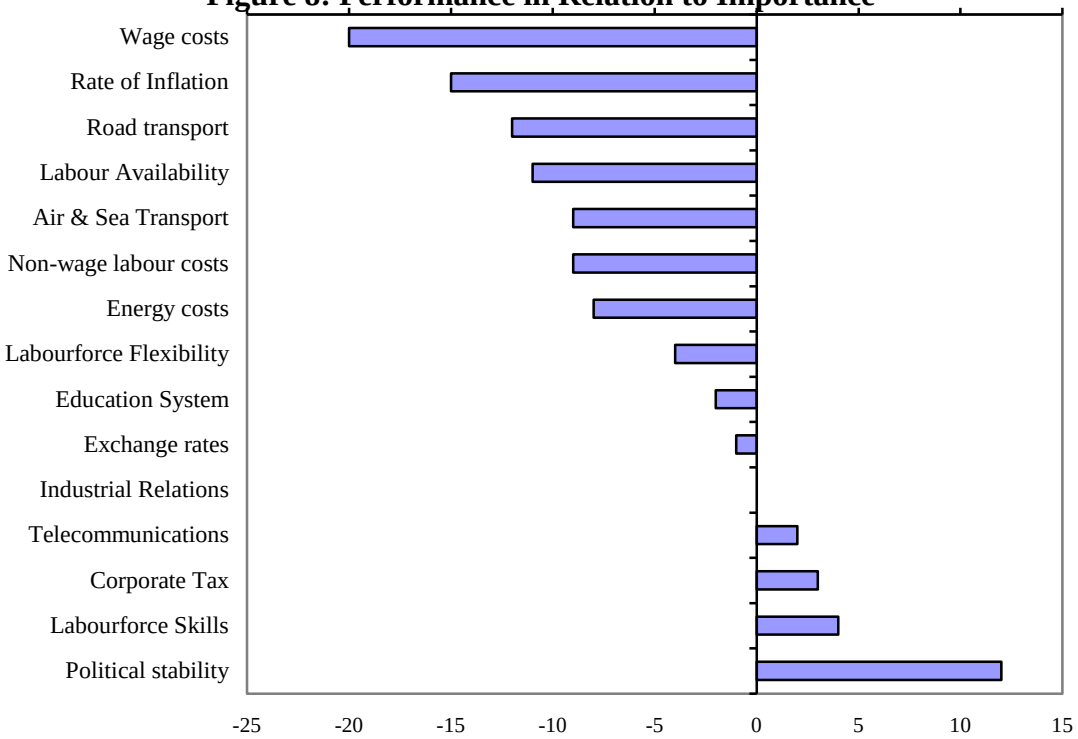
These results give rise to some important questions. First, has the decline in the cost factors been offset by improvements in performance elsewhere. The results would tend to answer this in the negative. This is indicated by the fall in the overall average score for performance as shown in Figure 7. However, this does not take into account that some factors are more important than others. This gives rise to the second question, whether Ireland has performed well in terms of the factors that really matter. An indication of this can be found by subtracting the performance ranking from the importance ranking for these factors. The results of this calculation are shown in Figure 8. In interpreting this figure:

- The best outcome is a value close to zero as this indicates a similar rating to importance and performance;
- A large positive suggests that Ireland has performed well in respect of some measure but that this is not perceived by executives to be important;
- A large negative indicates weakness with respect to a variable to which a relatively high importance is attached.

To simplify the figure only factors that appeared in the top 15 by rank in terms of importance are included. Obviously, this removes most of the positive values but the full table is included in Table A4 in the appendix. It is worth noting, however, that even with this editing a very high positive result emerges in relation to political stability. This is

interpreted as indicating that the MNCs perceive that they could perform in a less stable environment but that Ireland is very good on this score. This is a reflection of the long term consistency of industrial policy and the maintenance of beneficial policies such as social partnership by successive governments.

Figure 8: Performance in Relation to Importance



The overall results suggest that there is a fairly poor correlation between the ranking that is assigned to importance and performance with a rank correlation of less than 0.3. However, on the basis that a difference in rank of 5 or less indicates that there is a balance, this figure shows that Ireland has been getting it about right in relation to a number of very important features of the economy. These include labour skills and flexibility, education, tax, telecommunications and industrial relations. This has been vital for the performance achieved. However, there are a number of important issues where performance has not reflected the importance assigned. These are dominated by cost considerations – wage costs, non-wage labour costs, energy costs and the rate of inflation. Performance shows signs of improving in relation to inflation but the same is not the case for labour costs. There is also a marked weakness in relation to transport. Although road transport was not identified as a leading determinant of competitiveness, the very poor performance means that Ireland is weak in this respect. Finally, there is a particular issue in respect of the availability of labour. This was of most concern in 2000 and 2001 and the issue has receded somewhat since, although there has not been a great increase in unemployment. It is likely that this trend may result from lower recruitment requirements in 2001-2003 and, in any case, it is arguable that some tightness in labour markets – of which the observed trend is a reflection – may be a good point of the economy as it reflects the low rate of unemployment. This somewhat sanguine interpretation is warranted as the availability of skills is not a weakness suggesting that

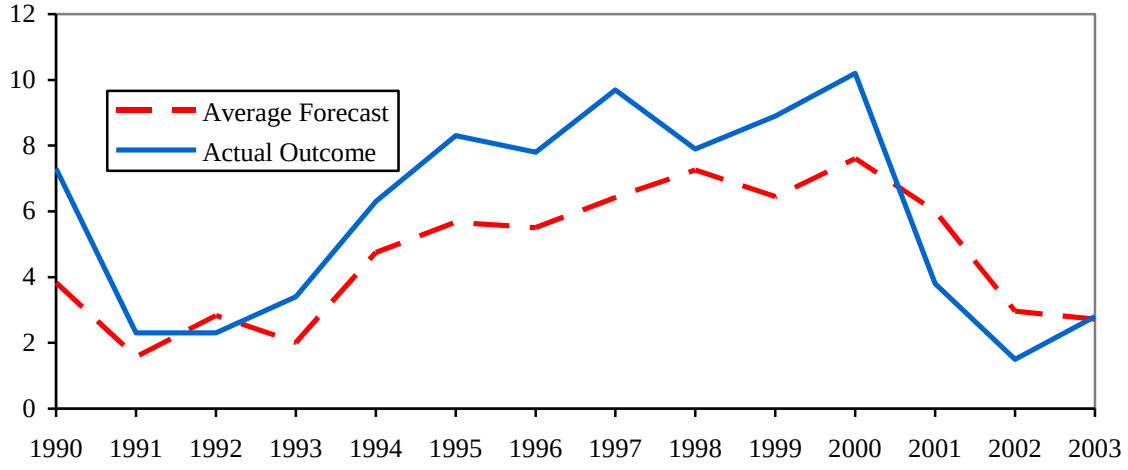
the greatest difficulties may have been experienced at low skill levels and that the problem eased once the pressure to meet increasing demand from the booming global economy of the late 1990s was reduced.

3. Forecasting, Executives' Expectations and Uncertainty

3.1 Forecasting the Irish Economy

Forecasts are required in assessing the potential for future returns during investment decisions. However, forecasting is, by its nature, subject to error and any results produced should be read with recognition of the probabilities that should be attached. Three independent economic forecasting models have been constructed for the Irish economy although numerous other forecasts, which are based on interpretations of the output of these models, are also produced. Figure 9 shows forecasts of real GNP growth produced by these models alongside the actual outturn[13]. The forecast shown is the average of those available.

Figure 9: Comparison of Forecast Real GNP Growth and Actual Outcome, % per annum (1990-2003)



It is clear that the available forecasts consistently underestimated growth in the 1990s and did not foresee the extent of the slowdown from 2001. This is a not uncommon occurrence and often leads to criticisms that economic forecasts appear to underestimate the changes in growth that can occur from year to year. It should be noted that these forecasts were produced at the mid-point of each year in question so that it can be expected that they will be based on more timely information than forecasts for a year or more ahead. Indeed, the published forecasts for any particular year do undergo considerable revision as time passes. Similar features are observed in forecasts of other economic variables. For example, inflation forecasts have consistently over-estimated

[13] These forecasts are drawn from the *Annual Economic Review and Outlook* produced by the Department of Finance, the *Quarterly Economic Commentary* (QEC) from the ESRI and the *Quarterly Bulletin* from the Central Bank of Ireland. IN each case, the forecast relates to that contained in the mid-year edition in relation to the year in question i.e. the forecast for 1998 is from the Summer Bulletin of the Bank and the QEC. The annual review of the Department of Finance is also published mid-year.

inflation in Ireland. In the high growth period, this may have resulted from a tendency to associate high growth with rising inflation – as demand side theories of the economy tend to do – and to under-estimate the impact of the social partnership agreements in controlling costs in the Irish economy for many years.

This conclusion does not imply a criticism of Irish forecasting models as similar outcomes have been observed in virtually all countries. An additional feature that has been observed in the UK, where a range of independent forecasts are available, is a tendency to converge over time – although analysis indicates that this convergence does not improve accuracy. However, it does mean that there is room for improvement in the forecasts that are available in Ireland in respect of major economic variables.

Forecasting and Uncertainty

The extent to which outcomes diverge from forecasts can be interpreted as an indication of uncertainty in the economy. A considerable body of work has grown over the past decade building on the work of Dixit and Pindyck (1994) which illustrated the importance of uncertainty at the microeconomic level in reducing investment by increasing the hurdle rates required i.e. the rates of return required before a positive investment decision is reached. Some international work has indicated that there is a macroeconomic aspect to this also in that uncertainty over the future course of the economy can impact on performance, particularly in relation to investment decisions[14]. However, while there has been only limited work at a macroeconomic level, Honahan and O'Connell (1994) observed that uncertainty over the likely future direction of the Irish economy had inhibited investment by increasing perceptions of risk in addition to the more direct route of pushing up Irish interest rates. Since EMU, this latter impact is likely to have been reduced. NESC (1998) also found that the inclusion of a measure of uncertainty regarding future performance improved the performance of models that explained the performance of the investment in Ireland over the previous decades. One difficulty however with such a measure is that there are a limited number of independent forecasts of the economy available and the measure of uncertainty should be based on dispersion in the forecasts[15].

Given the relatively small size of the Irish economy, it is unlikely that many more independent forecasts will emerge. As a result, it can be expected that there would be benefits from having available new indicators of expectations, although these are generally derived from quite different methodological approaches than the macroeconomic modelling that underlies the forecasts produced by the main economic research organisations. Rather than the explanatory modelling approach, these indicators are generally based on expectations or sentiments of identified groups.

There is some empirical evidence to support that a predictive relationship can exist between sentiment and future developments. Measures based on sentiment surveys –

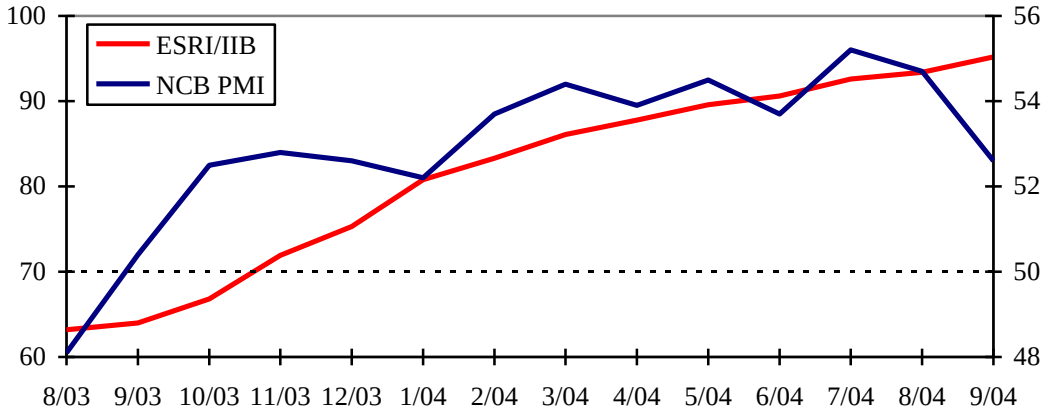
[14] See Driver and Moreton (1992) for an application of these ideas to the UK economy.

[15] This is the approach used in the UK where in the region of 20 independent forecasting sources could be accessed.

such as the University of Michigan's *Index of Consumer Sentiment* – are widely used by economists as forecasting tools which assist them to discover the role of consumer spending intentions in reviving an economy (Warneryd, 1999). The Index has been found to be capable of short-term predictions of changes in interest rates (as far as six months ahead), changes in the Consumer Price Index (three months ahead), and changes in the unemployment rate (nine months ahead). Elsewhere, Linden's (1982) review of fifteen years of consumer sentiment collected by the Conference Board found that responses to questions relating to consumers' expectations for the future had a good record of foretelling subsequent economic events and that consumer sentiment was often a more accurate predictor of business cycle activity than trends in hard data. Lowell and Tien (2000) compared *Okun's Economic Discomfort Index* (often derided as the Economic Misery Index) with the Michigan *Index of Consumer Sentiment* and found that it 'provided a rough and ready estimate of economic malaise as measured by the *Index of Consumer Sentiment*.' Mourougane and Roma (2003) examined the possibility of using indicators of confidence to enhance short term forecasting in a range of EU countries (not including Ireland). They found that confidence indicators can be useful in forecasting short run GDP growth and the models devised proved to be robust. Thus, while such approaches should not be portrayed as a means to replace standard economic forecasting models, there is a role in assisting in the interpretation of results in respect of some short-term forecasts.

Two examples of the development of this approach in Ireland are provided by the ESRI/IIB index and NCB purchasing managers' index[16]. Recent trends in these indices are shown in Figure 10.

Figure 10: Trends in Irish Sentiment Indices, Aug 03 - Sept 04



In the ESRI/IIB index, an increase in the value indicates that an improvement is expected while a value over 50 in the NCB index indicates an expectation of improvement[17]. Despite the different constructions of these indices and the different populations surveyed it is clear that there is a considerable correspondence between their projections with both

[16] Details of the construction and objectives of the ESRI/IIB index are contained in Duffy and Williams (2002).

[17] It is worth noting that the ESRI/IIB index is based at Q41995=100 and peaked at 128.7 in January 2000, thereafter declining to a low of 63.2 in March 2003. All data refer to the 3 month moving average for this index.

indicating a sustained improvement in sentiment over the past year. This is in line with the general direction of economic forecasts in this period which have seen not only an increase on the economic growth rates forecast but also upward revisions of earlier forecasts for growth in 2004 and 2005. Furthermore, National Accounts estimates for the 1st Quarter of 2004 showed GNP growth in Ireland reached an annualised rate of 5.1%. The economy appears to have begun to grow faster in early 2003 with the stimulus coming from increased investment and exports.

3.2 Forecasting Evidence from the IMI Survey

Most of the survey relates to executives' perceptions of current features of the Irish economy but one section asks respondents to address the potential impact of foreseeable developments on their businesses. In addition, executives are asked to indicate if they expect a change in employment over the next year and to indicate a forecast of expected growth in turnover in the next year. Results are shown in Table 2.

Table 2: Expected Change in Turnover and Employment in the Following Year

	Average expected growth in turnover	% of Firms expecting to increase employment	% of Firms expecting reduce employment
1998	9.2	51	9
1999	8.8	45	12
2000	12.9	57	10
2001	7.8	40	23
2002	7.4	30	43
2003	6.4	19	28
2004	8.7	28	29

The results show that there was only a very slight reduction in the forecast change in growth of turnover during the period of the surveys although this coincided with a much slower growing global economy and forecasts of a recession in Ireland. This is somewhat surprising. Indeed, the estimate for 2000 when expectations were very high is an outlier and if excluded there is very little change in the forecasts over the period. However, a much greater alteration occurs in relation to expected changes in employment. In 1998-2000, most firms were expecting to increase employment in the year following the survey with only a small minority forecasting that employment would fall. However, this changed thereafter with a much greater number expecting to reduce employment in 2002, although the main expectation was that employment would stabilise in these years. In fact, this is approximately what happened and expectations among many other forecasters of rising unemployment in Ireland, which gained acceptance in 2002 and 2003, did not prove to be well founded. This analysis would appear to suggest that expectations in relation to the value of activity might not be a good indicator of economic growth in Ireland, but that expectations in relation to employment change in the MNCs might provide a good indication of upcoming developments in labour markets.

Moving beyond sales and employment, executives are asked to indicate how developments in the economy are likely to affect the competitiveness of their companies over the next year under a number of headings. Numerical values were assigned to the responses provided without any allowance for the extent of the impact i.e. if the executive thought that a foreseeable development would improve competitiveness than a value of 1 was assigned with a value of -1 if there was likely to be a detrimental impact on competitiveness. If there was not likely to be any impact or if the executive had no opinion then a value of zero was assigned.

From the results obtained it was possible to develop an indicator of confidence by taking the average of all responses. The results of this for each year are shown in Figure 11. By design this indicator must lie in the range of ±1, but it is to be expected that it would lie in a narrow range each year. Furthermore, since there was no prior calibration of the survey, the actual results lie in the negative range each year. To get around this, the results have been weighted so as to produce a long term average value of zero. This does not affect the values of one year relative to another but provides for a more easily interpreted outcome. Basically, a value greater than 1 can be interpreted as a perception that developments will lead to a better performance by the respondent's business in the subsequent year compared to the past year.

Figure 11: Confidence Indicator 1998-2004

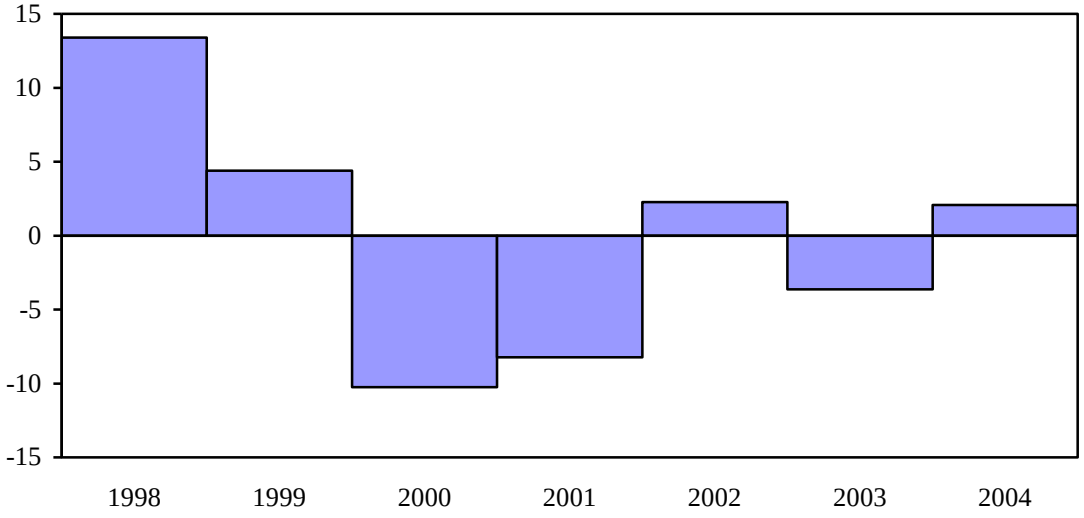


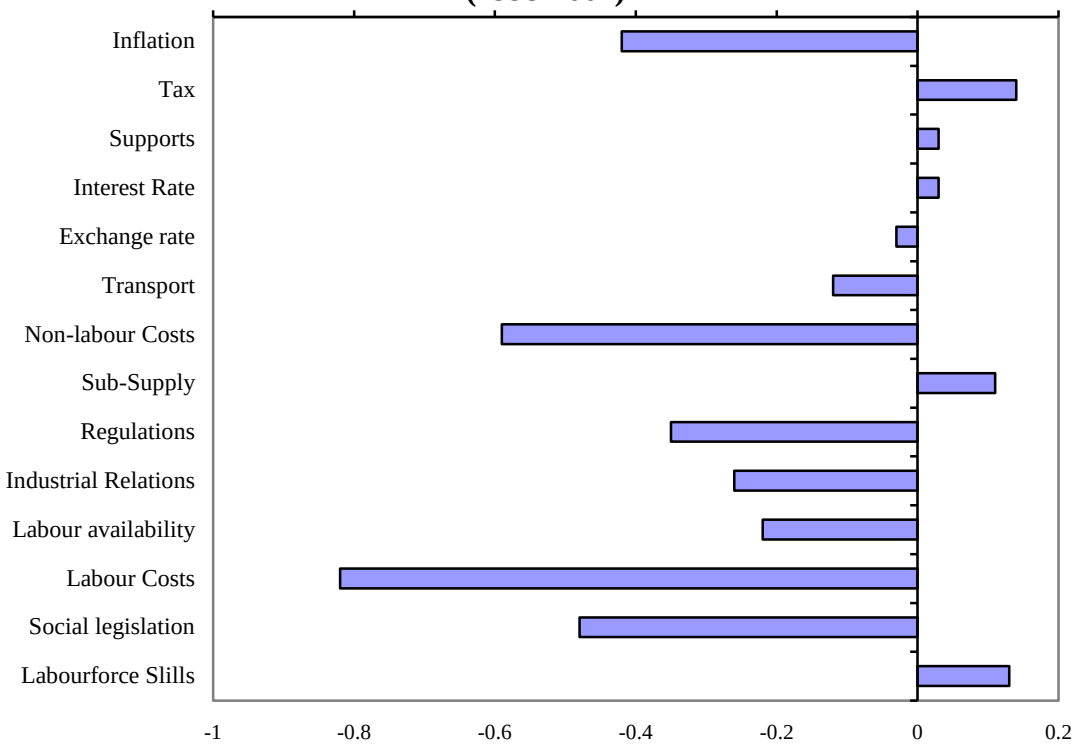
Figure 5 shows that executives were very optimistic in 1998 but that this declined considerably in the subsequent two years. At first glance this appears to be fairly much in line with what has occurred in recent years but closer inspection reveals that there is a considerable forward-looking aspect to this result. Clearly, while remaining positive in 1999, there was a large fall in confidence. In fact, this precedes actual outturns by a year or so and the real downturn did not hit until 2000 and after. Similarly, the results show a return to confidence by 2002, and although there was again a downturn in 2003, the overall results for recent years suggest a fairly neutral outlook. This is interesting since it is not really in line with most of the forecasts that would have appeared around this time which indicated that a major slowdown of the Irish economy was imminent from about 2000 and did not foresee much in the way of improvements until late 2003. What is

particularly notable is that the actual performance of the Irish economy has been more in line with these expectations – lagged a year or so – with many commentators now noting the fact that the recession in as far as it has hit Ireland has been shallow. One interesting interpretation of this is that executives may have interpreted the slowdown as a mixed blessing: while there was the potential of weak demand for products, there was the benefit that the economy would be provided with something of a respite from the clearly over-heating labour markets and rising inflation that was manifest in the late 1990s. This aspect of the business drivers of MNCs is easily lost in analysis that concentrates on economic growth and provides an interesting conclusion. Ultimately, MNCs in Ireland drive economic growth but depend mostly on demand from the global economy, while an excessively high rate of growth in the Irish economy can place a strain on the competitiveness of their Irish operations through pushing up costs.

The values obtained by this indicator in the 2002-2004 period are worthy of comment. These were the years in which the global slowdown finally slowed the Irish economy and employment growth eased in line. There was also a considerable change in expectations leading to moderation of price increases and wage expectations in these years. However, the indicator suggests that executives did not perceive that changes in the Irish economy in these years would have any great impact overall on their firms. There are two possible explanations for this. The first is that the developments expected would comprise both positive and negative factors that would largely cancel out. However, while it is not possible to be definite on this, it would be expected, given the emphasis that is placed on cost factors, that the easing of the pressure in labour markets and the moderating rate of inflation would have been perceived as out-weighing potential negatives. The alternative explanation is that executives did not perceive that developments in the Irish economy were the most important determinants of performance in these years being focussed to a greater extent on developments in the global economy and in their parent firm. This would appear to suggest that demand for output would be the dominant factor determining performance, or that prices of output are determined outside the Irish economy with only partial reference to conditions in the Irish economy. The first part of this explanation is somewhat problematic since the underlying assumption of Irish economic policy in recent years is that demand is not the key issue and that Ireland can sell as much as it can produce provided it does so competitively. The most likely acceptable explanation is probably that executives interpret that performance is determined by pricing and that the prices available are affected by global demand. Thus, the performance of their firms is affected by the global economy in times of downturn to a greater extent than may be the case in a buoyant economy.

Analysis of the results in respect of the individual factors that give this result provide an indication of the issues that may be perceived to cause most problems for MNCs. This is indicated in Figure 12. In this respect, one issue – the cost of labour – stands out in this period as having a damaging impact on performance. This reflects the earlier analysis where the combination of a high importance rating and a rise in costs throughout the period means that this emerges as a key factor that was perceived to be undermining competitiveness.

Figure 12: Expected Impact of Developments on Performance (1998-2004)



The next most important negative developments were the persistent rise in non-labour costs and the impact of social legislation on business performance. In general, MNCs appear to view social legislation and regulations with considerable unease, believing that new interventions will impact negatively on the competitiveness of the economy. A somewhat surprising result is that there is a recurring expectation that the industrial relations climate is about to deteriorate in a manner that will impact negatively on performance. However, this contrasts considerably with the more backward looking results on the previous section in that industrial relations regularly are perceived to be a strength of the economy and one on which a good performance has been achieved.

On the positive side, executives throughout the period perceived the ongoing commitment to Ireland's tax rates, improvements in the ability of the economy to supply inputs to their businesses and the skills of the labour force continued to underpin the attractiveness of the economy as a business location. Perceptions of labour availability are interesting as foreseen developments in relation to this factor were perceived to be likely to have a negative impact in the years 1998-2000 but were perceived as positive thereafter. This supports the conclusion above that the slowdown in the economy provided a benefit to MNCs in allowing them to access labour that had become increasingly scarce in the late 1990s but, interestingly, there is very little evidence that this slight easing of the market had any impact in terms of moderating the impact of labour costs. Other developments in this period that supported the attractiveness of Ireland were the general decline in interest rates and the introduction of the Euro.

3.3 Using Executives' Expectations as Forecasts

Accurate economic forecasts are essential in aiding decision making in modern economies. In addition, forecast errors can be interpreted as uncertainty and increased uncertainty has a negative impact on investment decisions. In line with the broadening of measures of economic performance that is implied by the development of measures of competitiveness, standard forecasts are increasingly being interpreted in the light of surveys of economic sentiment. Research into the potential predictive relationship between changes in sentiment on economic factors and issues measured in hard economic data suggests that these can help in identifying short term economic trends and provide timely input to decision making. Consumer sentiment is one such approach and is increasingly seen as possessing a relatively robust short-term predictive capability. The question therefore is to what extent results based on executive sentiment might possess similar predictive properties. These could relate to developments in the economy but of more interest is the extent to which the results might be interpreted as predicting the main challenges that will face executives in the medium term.

The IMI survey contains some of the required elements to construct such an index and the available data suggest that it is both forward looking and a reasonably good indicator of developments in firms. There are considerable strengths in the design of the survey, the most notable being that it gets directly to the key decision makers whose activities affect such a large part of the Irish economy. While consumer surveys may reflect developments, the performance of the Irish economy is essentially determined by its ability to supply competitively. Consumers are the source of demand and most marginal demand in the Irish economy can be supplied by imports. This is an inherent weakness in the consumer-oriented approach that is addressed in the IMI survey. However, an important weakness is that it is available on an annual basis only. The other surveys discussed are carried out monthly. As a result, ***while there would certainly appear to be potential in the approach more regular surveying is required***. A further requirement is to attempt to recalibrate the survey so that the results are more easily interpreted. The design means that a negative value is almost always going to emerge. In this analysis, the results were simply reweighed to provide an average value of zero but this could hide long term trends if the weight was based on only part of the business cycle. It is possible that this could be avoided if a sufficiently long series was available and the weighting derived from this series was then used for future period. However, with an annual survey it would take a long time to be sure that any bias from economic cycles was fully removed. An alternative would be to re-examine the questions to see if a revision would move the long term average closer to zero. If this is not desirable – or not possible – the results could be presented in the form of an index.

4. The Impact of Unfulfilled Expectations on Executives' Perceptions of Key Challenges

4.1 Executive Sentiment and Decision-making

The potential for bias to exist in measures of competitiveness that are based in part on surveys was discussed above and, while it is increasingly accepted that these measures do provide valuable input into assessments of economic performance and into policymaking, this issue remains to be resolved. The concept of executive sentiments such as disappointment has also attracted the attention of some researchers since it may impact on the subsequent decisions of these executives and on the strategies adopted. In other words, executives are not perfectly rational decisionmakers and experiences in one period may lead to an accumulation of sentiment that can affect decisions in a subsequent period in a manner that is not warranted by the actual circumstances (Levine, 1993).

In an early work on the concept and role of disappointment in executives' decisions, Bell (1985) pointed out that disappointment cannot be assessed against a static background. This means that disappointment with performance only has meaning when expectations are included in the assessment. Thus, disappointment arises when performance fails to reach expectations. However, untangling this is very difficult since expectations are not observed and are hard to predict. Furthermore, an executive will take actions to reduce disappointment. This may involve a revision of expectations or a change in strategy, but may also amount to no more than identifying an unavoidable outside factor, that could be neither foreseen nor controlled, but that caused the shortfall in performance. This possibility is explored in the work of Zeelenberg *et. al*. (2000) who distinguish regret and disappointment. Two key features of regret that distinguish it from disappointment are that it tends to be associated with outcomes over which the subject had some control as a result of decisions taken, and that it has a time element in that it tends to increase with the passage of time. Disappointment on the other hand tends to be associated with outcomes that are not subject to control and is more immediate. Over time, regret could arise from accumulated disappointment. In addition, disappointment was more closely associated with goal abandonment and risk aversion.

The concept was further explored in Van Dijk (2002) who distinguished between outcome-related disappointment (ORD) and person-related disappointment (PRD). Research indicates that, in the case of ORD, the normal response of subjects was to try harder to achieve the desired outcome. However, PRD tended to lead to disassociation and withdrawal from the situation. It is fairly easy to translate this to a decision-making situation in a firm. For example, if ORD arises in respect of targets then the focus will essentially be internal taking the environment as given. Targets may be revised if it is accepted that they are inappropriate, but a more likely response is that a renewed effort will be made to improve performance. In this, there is some correspondence between ORD and the definition of regret as used by Zeelenberg *et. al*. in that control over the

factors determining the outcome is assumed. However, if PRD emerges as a result of repeated episodes of ORD then the focus is more likely to shift to external factors as the determinants of the disappointment. In the longer term, this brings the location decision into consideration if the situation is not addressed. Thus, the response of executives in MNCs in the face of disappointment would be first to examine internal operations, then to focus on the external environment and finally to re-examine the locational decision.

The IMI survey causes executives to focus on the performance of the business environment i.e. the factors in question are largely outside their control. As a result, any disappointment could be considered to be PRD with the predicted reaction that ongoing disappointment would lead to the possibility of withdrawal from the situation.

4.2 Evidence from the Survey

The approach taken in this analysis is as follows. Comparison of executives ratings of variables in terms of their importance are compared with perceived performance. It is postulated that where a factor is identified as particularly important on the scale then if the economy has not performed according to the level of importance attached then the executive will be disappointed in terms of their expectations. From this it is hypothesised that this shortfall will impact on the importance that is attached to that variable as measured by the importance rating attached. In other words, where executives perceive a shortfall in performance with respect to a particular variable, this impacts on their perceptions of the relative importance on this variable.

The survey data were analysed to identify a measure of the difference between the value placed on the importance of a variable and the economy's performance in respect of that variable[18]. This is described as the disappointment space. The results were then correlated against the relevant importance rating for each respondent in each year. From this it is possible to identify a measure of the average correlation each year. The results are shown in Table 3. Detailed results by variable are shown in Table A5 in the Appendix.

The results in this table show a consistent positive correlation between the measure of disappointment and the importance that is assigned to each variable. This is consistent across all cells in Table A5. These results mean that the importance that is assigned to factors in the economy by executives is a reflection of the performance of these factors. Thus, where the economy performs only moderately in respect of a factor that is considered to be important then the perceived importance of that factor is increased. This is intuitively appealing since a shock to the economy that may manifest in terms of a poor performance, for example, an increase in energy costs, will make that factor more

[18] It was necessary to weight the performance scores since, as can be seen from comparison of Tables A1 and A2, higher average scores were awarded to importance. This is treated as a bias that would artificially inflate the disappointment measure. The weighting meant that, in total, the disappointment scores would sum to zero.

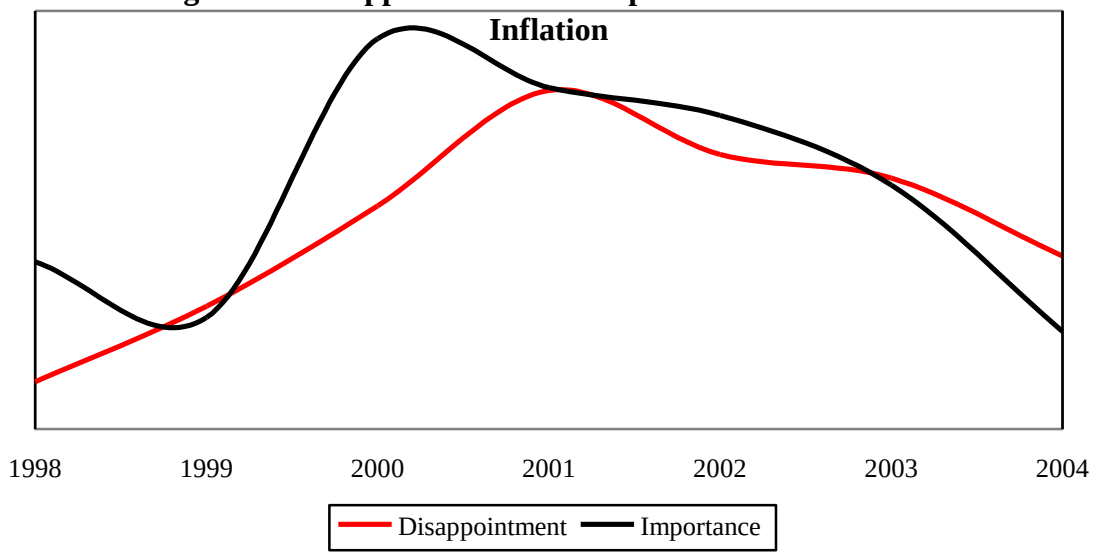
important in determining overall performance. This, again, is a reflection of the uncertainty against which businesses must operate.

Table 3: Correlations Summary

	Average	Std dev
1998	0.53	0.13
1999	0.53	0.11
2000	0.57	0.17
2001	0.56	0.11
2002	0.61	0.14
2003	0.57	0.15
2004	0.61	0.12
All	0.57	0.09

An example of this process is provided by comparing disappointment and the importance attached to inflation. Inflation is one variable where performance varied quite a bit over the course of the survey period. Figure 12 shows the relationship. It can be seen that the importance attached to this variable grew rapidly in 2000 as inflation started to rise and then gradually declined afterwards. The figure is strongly suggestive of a good relationship and also that importance lags disappointment somewhat as the consequences of the change may take time to fully impact on the firms.

Figure 12: Disappointment and Importance in Relation to Inflation



This correlation is not as clear with respect to variables where there was not much change in the period, for example, corporate taxes where the tax rate remained steady and the perception of its importance remained high throughout. However, there are good correlations for variables where changes occurred.

4.3 Interpreting these Results

The central hypothesis that is put forward is that where the economy underperforms in terms of a particular determinant of competitiveness, this will impact on executives' perceptions of the relative importance of the various factors that determine competitiveness. The result will be that areas of relative underperformance will be perceived as being of increasing importance in determining the performance of firms. The results obtained from analysis of the survey data indicate that this is the case. When the economy is perceived to under-perform in respect of a particular determinant of competitiveness, executives respond by perceiving that variable to be of increased importance in determining overall performance. In some respects this could be interpreted as a rather negative approach by executives in forming their views in relation to the economy since it suggests that they focus in on aspects of the economy in which there has been a relatively poor performance rather than concentrating on the parts of the economy that are strong and seeing how these strengths can be exploited. However, there is little evidence from the survey to support this since executives consistently identified Ireland's good performance in relation to tax and key labourforce issues as the most important aspects of the economy.

Three interpretations of the results are possible. First, executives react to the disappointment of unfulfilled expectations by identifying a challenge to be met. In placing a higher weighting on the variable in question, executives are identifying the poor performance as challenging and it is to be expected that this will be transmitted into the strategy formation process. This is a relatively benign interpretation since it implies that poor performance on some variables is to be expected but is not fully incorporated into initial assessments of likely performance as it is not possible to specify which variables are likely to underperform. This interpretation is in keeping with the findings of Levine (1993) that executives' decisions are not formed according to a rational expectations model since this would imply that all information was available. However, while this benign interpretation is possible in relation to the initial reaction to disappointment it is unlikely to describe a sustainable long-term situation. Where consistent disappointment arises then executives are likely to question the fundamental strategic decision which is to persist with operating in an environment that is consistently proving to be more challenging than initially expected. This is discussed further below.

The second possible interpretation is that there is a bias in the survey that prompts executives to view it as an opportunity to express their disappointment in the hope of influencing policymakers. This could be characterised as a lobbying approach where a perceived underperformance in the economy causes executives to attempt to internalise to an extent the factors that led to this performance by assuming that they can influence the environment. As a result, they are exaggerating the importance of factors where performance has been poor in the hope that this will elicit a response. This interpretation cannot be fully dismissed.

The final interpretation is that executives are identifying factors that by definition are outside of their control and blaming these for underperformance. The literature supports

the idea that this is a feasible explanation[19]. This model of executive sentiment relies on asymmetric reactions, i.e. it implies that executives will blame poor performance on outside factors but will credit internal decisions for strong performance. Again, this cannot be dismissed as a possible explanation for the results obtained.

The identification of disappointment as an influencing variable is potentially important in terms of the recent and future performance of the multi-national sector in Ireland. Zeelenberg *et al* (2000) distinguished between sentiments of regret and disappointment. The importance of this distinction is that the performance of MNCs is a function of the location of the investment and the operational performance of the firm. The first is a long term decision and is internal. However, operational performance is measured over shorter time frames and is subject to variables that are outside of control in that timeframe. The discussion here is related to this latter sentiment. Thus, while executives may be disappointed with the performance of the economy in a certain period, it should not be expected that this will translate easily into a re-evaluation of the location of operations. This explains why the relative loss of competitiveness of the Irish economy over the past few years and the economic downturn has not led to a major exodus of investment. However, ongoing disappointment will lead to sentiments of regret in relation to the initial investment. The results of this research suggest that there is an inbuilt mechanism that can promote disappointment to become regret. The measure of disappointment was the difference between the perception of the importance and performance of a particular factor. When this was positive, i.e. when performance fell short of expectations, then the perceived importance of that factor increased. This would translate subsequently into an increase in the measure of disappointment. Thus, a damaging spiral of disappointment can be triggered. The implication would be that a loss of competitiveness would not be easily reversed and could require an adjustment that is greater than the initial impact before the initial state can be reasserted. This is compatible with the idea of reputation and signalling and concepts of agglomeration that have been used to explain the out-performance of the Irish economy in terms of attracting FDI over the past decade. The key point is that these explanations incorporate dynamic processes where a good performance feeds through into subsequent years, but where the losses due to a short term poor performance can be very damaging.

[19] See Lovallo and Kahneman (2003) for example.

Appendix: IMI Multinational Survey Questionnaire

This survey is being undertaken to identify the factors critical for sustaining the development of the multinational sector in Ireland. The survey should be completed by the Chief Executive or Chief Financial Officer of the company. *The confidentiality of individual contributors is assured.*

Company name_____

Respondents name_____ **Position** _____

_____

Section A Company Profile

1. In what sector is your company engaged?_____
2. How many people does your company employ in Ireland?_____
3. What proportion of these are full-time employees?_____%_____
4. What proportion of your workforce are third level graduates?_____
5. Do you expect the number you employ to change in the next year?

   □ increase □decrease □no change

6. Have you experienced difficulties recruiting in the past year? □Yes □No
7. Is your Irish operation unionised? □Yes □No □Partially %
8. In what year did your company begin manufacturing in Ireland? _____
9. Is your company engaged in any function other than manufacturing?

   □ Field Service □ Marketing □ Distribution □ R & D □ Finance and Treasury □ Purchasing □ Other

10. What is the annual turnover of your Irish operation? € million N/A
11. By how much do you expect turnover to grow in the next 12 months?

    □0% □5% □10% □15% □Other □N/A

12. What percentage of turnover is value added in Ireland?_____%_____N/A
13. What percentage of your turnover is exported?_____%_____N/A

Section B Competitive Environment

We wish to discover your views on the impact on competitiveness of various features of the Irish economy. Please rate each variable by circling the appropriate value in terms of its **importance** in maintaining competitiveness and Ireland's current **performance** in this regard. In each case, '1' represents a negative reply while '5' indicates a positive view. Please add further variables you think are important.

1 The Business Environment

	Importance	Performance
Rate of inflation	1 2 3 4 5	1 2 3 4 5
Corporate taxation	1 2 3 4 5	1 2 3 4 5
Government incentives	1 2 3 4 5	1 2 3 4 5
Interest rates	1 2 3 4 5	1 2 3 4 5
Exchange rates stability	1 2 3 4 5	1 2 3 4 5
Political stability and attitudes	1 2 3 4 5	1 2 3 4 5

2 Infrastructure

	Importance	Performance
Road transport	1 2 3 4 5	1 2 3 4 5
Air and sea facilities	1 2 3 4 5	1 2 3 4 5
Broadband availability	1 2 3 4 5	1 2 3 4 5
Energy costs	1 2 3 4 5	1 2 3 4 5
Education system	1 2 3 4 5	1 2 3 4 5
Technology transfer	1 2 3 4 5	1 2 3 4 5

3 Operations

	Importance	Performance
Property / Construction costs	1 2 3 4 5	1 2 3 4 5
Sub-supply performance	1 2 3 4 5	1 2 3 4 5
Regulatory framework	1 2 3 4 5	1 2 3 4 5
Waste management	1 2 3 4 5	1 2 3 4 5
Third party liability	1 2 3 4 5	1 2 3 4 5
Non-labour costs	1 2 3 4 5	1 2 3 4 5
Insurance costs	1 2 3 4 5	1 2 3 4 5

4 Employment and social issues

	Importance	Performance
Wage costs	1 2 3 4 5	1 2 3 4 5
Non-wage labour costs	1 2 3 4 5	1 2 3 4 5
Labour force availability	1 2 3 4 5	1 2 3 4 5
Labour force flexibility	1 2 3 4 5	1 2 3 4 5
Employment legislation	1 2 3 4 5	1 2 3 4 5
Labour force skills	1 2 3 4 5	1 2 3 4 5
Cultural values	1 2 3 4 5	1 2 3 4 5
Industrial relations	1 2 3 4 5	1 2 3 4 5
EU Directives	1 2 3 4 5	1 2 3 4 5
Management talent	1 2 3 4 5	1 2 3 4 5

5 Competitiveness of the Irish economy

Please rate the overall competitiveness of the Irish economy on the five-point scale below.

Very uncompetitive	Uncompetitive	Neither	Competitive	Very Competitive
☐	☐	☐	☐	☐

Section C Views on Future Development

Please indicate the way in which you think developments in the Irish economy are likely to affect the competitiveness of your company in the next year. Please tick (4)

	Improve	Disimprove	No Effect	No Opinion
Rate of Inflation	☐	☐	☐	☐
Corporate taxation	☐	☐	☐	☐
Interest rates	☐	☐	☐	☐
Exchange rates / EMU	☐	☐	☐	☐
Transport facilities	☐	☐	☐	☐
Non-labour costs	☐	☐	☐	☐
Quality of support base	☐	☐	☐	☐
Regulation	☐	☐	☐	☐
Industrial relations	☐	☐	☐	☐
Labour availability	☐	☐	☐	☐
Labour costs	☐	☐	☐	☐
Social legislation	☐	☐	☐	☐
Labour force skills	☐	☐	☐	☐
Quality of life (childcare etc.)	☐	☐	☐	☐
Social partnership	☐	☐	☐	☐

Section D Strategic Role of Your Organisation

How important is your Irish operation to the global performance of your organisation?

Not Important	Somewhat Important	Very Important
☐	☐	☐

How much decision-making power does your Irish operation have?

None	Little	Some	Significant
☐	☐	☐	☐

Data Appendix

Table A1: Ranking of Factors by Importance

		1998	1999	2000	2001	2002	2003	2004	Average
1	Education System	4.50	4.68	4.34	4.54	4.21	4.58	4.44	4.47
2	Labourforce Flexibility	4.57	4.59	4.44	4.56	4.21	4.52	4.36	4.46
3	Wage costs	4.33	4.40	4.44	4.51	4.26	4.56	4.59	4.44
4	Corporate Tax	4.51	4.48	4.35	4.59	4.20	4.39	4.39	4.42
5	Labour Availability	4.49	4.60	4.48	4.45	4.11	4.27	4.14	4.36
6	Air & Sea Transport	4.41	4.46	4.28	4.46	4.05	4.36	4.36	4.34
7	Industrial Relations	4.37	4.47	4.35	4.39	4.23	4.47	4.12	4.34
8	Labourforce Skills	4.35	4.47	4.36	4.33	4.09	4.30	4.29	4.32
9	Rate of Inflation	4.24	4.20	4.21	4.34	3.96	4.64	4.39	4.28
10	Telecommunications	4.45	4.56	4.38	4.61	4.22	3.64	3.99	4.26
11	Non-wage labour costs	4.06	4.12	4.13	4.21	4.05	4.23	4.25	4.15
12	Exchange rates	4.05	4.18	3.89	4.27	3.70	4.18	4.05	4.04
13	Energy costs	3.74	3.88	4.44	3.93	3.84	4.39	4.00	4.03
14	Political stability	4.04	4.11	4.01	4.15	3.78	4.15	3.89	4.02
15	Road transport	3.87	4.04	3.99	4.10	3.71	3.98	4.16	3.98
16	Employment Law	4.04	4.04	3.86	3.91	3.80	3.94	3.91	3.93
17	Costs other than labour	3.72	3.94	3.70	3.88	3.72	4.24	4.20	3.91
18	Environmental issue	3.68	3.79	3.81	3.78	3.83	4.20	3.91	3.86
19	Regulatory framework	3.66	3.89	3.86	3.72	3.59	4.06	3.75	3.79
20	Sub-supply	3.70	3.79	3.61	3.73	3.54	4.29	3.85	3.79
21	3rd level linkages/R&D	3.90	3.79	3.75	3.86	3.55	2.92	3.96	3.68
22	Cultural values	3.78	3.71	3.68	3.63	3.61	3.82	3.48	3.67
23	3rd party liability	3.27	3.61	3.63	3.32	3.66	3.79	4.07	3.62
24	EU Directives	3.65	3.80	3.53	3.54	3.63	3.58	3.61	3.62
25	Property costs	3.43	3.59	3.61	3.63	3.39	3.77	3.58	3.57

26	Interest rates	3.44	3.35	3.39	3.27	3.22	3.56	3.42	3.38
27	Government supports	3.38	3.11	3.11	2.89	3.21	3.50	3.58	3.25
	Annual averages	3.99	4.06	3.99	4.02	3.83	4.09	4.03	4.00

Table A2: Ranking of Factors by Performance

		1998	1999	2000	2001	2002	2003	2004	Average
1	Corporate Tax	4.28	4.38	4.29	4.56	4.22	4.47	4.02	4.32
2	Political stability	3.82	3.91	3.70	3.85	3.78	4.00	3.95	3.86
3	Education System	3.84	4.02	3.88	3.91	3.64	3.64	3.73	3.81
4	Labourforce Skills	3.57	3.62	3.53	3.48	3.53	3.45	3.58	3.54
5	Interest rates	3.29	3.64	3.65	3.46	3.49	3.52	3.53	3.51
6	Labourforce Flexibility	3.65	3.6	3.24	3.28	3.32	3.36	3.38	3.40
7	Industrial Relations	3.52	3.72	3.39	3.18	3.38	3.10	3.29	3.37
8	Telecommunications	4.01	4.02	3.64	3.66	3.37	2.21	2.34	3.32
9	Sub-supply	3.32	3.32	3.26	3.20	3.20	3.47	3.22	3.28
10	Cultural values	3.45	3.54	3.36	3.39	3.21	2.88	3.05	3.27
11	Regulatory framework	3.32	3.39	3.29	3.32	3.25	3.24	3.01	3.26
12	3rd level linkages/R&D	3.32	3.36	3.31	3.36	3.32	3.00	2.87	3.22
13	Exchange rates	2.96	3.67	3.10	3.29	3.61	3.18	2.66	3.21
14	Government supports	3.35	3.01	3.22	3.05	3.14	3.08	3.07	3.13
15	Air & Sea Transport	3.26	3.33	3.11	3.10	2.91	2.98	3.11	3.11
16	Labour Availability	3.43	3.12	2.69	2.49	3.11	3.41	3.40	3.09
17	Employment Law	2.99	2.91	2.84	2.84	3.00	2.97	2.99	2.93
18	Environmental issues	3.30	3.27	3.03	2.96	3.00	2.30	2.44	2.90
19	Costs other than labour	3.16	3.16	3.08	2.95	2.89	2.52	2.33	2.87
20	Non-wage labour costs	3.24	2.98	3.09	2.68	2.87	2.55	2.38	2.83
21	Energy costs	2.85	3.13	2.98	2.88	2.82	2.33	2.55	2.79
22	EU Directives	2.96	2.82	2.65	2.70	2.72	2.71	2.66	2.75
23	Wage costs	3.54	3.27	2.90	2.39	2.57	2.18	2.32	2.74
24	Rate of Inflation	4.24	3.59	2.74	1.89	2.25	1.50	2.95	2.74
25	Property costs	2.94	2.72	2.53	2.29	2.59	2.24	2.27	2.51
26	3rd party liability	2.56	2.51	2.49	2.80	2.60	2.47	1.84	2.47
27	Road transport	2.57	2.59	2.24	2.18	2.20	1.82	2.08	2.24
	Annual averages	3.36	3.36	3.15	3.08	3.11	2.91	2.93	3.13

Table A3: Classification of Factors

Cost-related factors	Industrial Policy
Costs other than labour	Corporate Taxation
Non-wage labour costs	Regulatory framework
Energy costs	Government supports
Wage costs	3rd level linkages/R&D
Rate of Inflation	
Property costs	**Other policy and non-policy areas**
3rd party liability	Road transport
	Interest rates
Labourforce factors	Exchange rates
Labourforce Skills	EU Directives
Labourforce Flexibility	Political stability
Labour Availability	Telecommunications
Employment Law	Sub-supply availability
Education System	Air & Sea Transport
Industrial Relations	Environmental issues
	Cultural values

Table A4: Comparison of Importance and Performance

Importance rank	Performance rank		Difference
3	23	Wage costs	-20
9	24	Rate of Inflation	-15
15	27	Road transport	-12
5	16	Labour Availability	-11
6	15	Air & Sea Transport	-9
11	20	Non-wage labour costs	-9
13	21	Energy costs	-8
2	6	Labourforce Flexibility	-4
23	26	3rd party liability	-3
1	3	Education System	-2
17	19	Costs other than labour	-2
12	13	Exchange rates	-1
16	17	Employment Law	-1
7	7	Industrial Relations	0
18	18	Environmental issues	0
25	25	Property costs	0
10	8	Telecommunications	2
24	22	EU Directives	2

4	1	Corporate Tax	3
8	4	Labourforce Skills	4
19	11	Regulatory framework	8
21	12	3rd level linkages/R&D	9
20	9	Sub-supply	11
14	2	Political stability	12
22	10	Cultural values	12
27	14	Government supports	13
26	5	Interest rates	21

Table A5: Correlations: Disappointment Space and Change in Importance

	1998	1999	2000	2001	2002	2003	2004	Average
Inflation	0.29	0.58	0.5	0.62	0.78	0.72	0.71	0.6
Tax	0.38	0.36	0.09	0.49	0.38	0.64	0.41	0.39
Supports	0.49	0.45	0.6	0.44	0.34	0.51	0.64	0.5
Interest	0.71	0.57	0.48	0.69	0.36	0.48	0.58	0.55
Exchange rate	0.59	0.41	0.58	0.28	0.41	0.56	0.62	0.49
Political	0.39	0.39	0.24	0.46	0.4	0.25	0.51	0.38
Roads	0.61	0.38	0.7	0.61	0.74	0.67	0.62	0.62
Air & Sea	0.41	0.54	0.67	0.43	0.65	0.51	0.42	0.52
Telecom	0.33	0.33	0.56	0.39	0.63	0.8	0.74	0.54
Energy cost	0.74	0.57	0.98	0.68	0.72	0.69	0.71	0.73
Education	0.32	0.56	0.35	0.55	0.44	0.6	0.41	0.46
3rd level R&D	0.4	0.48	0.41	0.44	0.65	0.59	0.67	0.52
Property Cost	0.65	0.62	0.71	0.69	0.68	0.73	0.78	0.69
Sub-supply	0.57	0.61	0.56	0.7	0.65	0.39	0.53	0.57
Regulation	0.65	0.62	0.54	0.6	0.68	0.54	0.66	0.62
Environment	0.57	0.59	0.63	0.47	0.57	0.54	0.75	0.59
Insurance	0.59	0.7	0.75	0.66	0.69	0.54	0.68	0.66
Non-Labour Cost	0.65	0.66	0.59	0.62	0.76	0.76	0.73	0.68
Wages	0.56	0.49	0.6	0.66	0.76	0.68	0.71	0.64
Non-wage costs	0.65	0.54	0.68	0.61	0.76	0.77	0.72	0.68
Labour Supply	0.39	0.41	0.56	0.65	0.72	0.44	0.63	0.54
Labour Flex	0.36	0.45	0.56	0.51	0.55	0.35	0.44	0.46
Legislation	0.69	0.68	0.7	0.67	0.73	0.49	0.64	0.66
Skills	0.6	0.54	0.53	0.54	0.48	0.35	0.38	0.49
Culture	0.5	0.54	0.65	0.54	0.61	0.67	0.61	0.59
Industrial Relations	0.47	0.49	0.41	0.49	0.53	0.36	0.54	0.47
EU Directives	0.66	0.75	0.73	0.67	0.76	0.67	0.69	0.7

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