National Competitiveness Council

2000

Annual Competitiveness *Report*

Forfás

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National Competitiveness Council

Annual Competitiveness Report 2000

May 2000

Forfás

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Foreword by An Taoiseach

The performance of the Irish economy over the past years has been outstanding, and economic growth has brought many benefits to our society. It is our competitiveness, i.e. the ability to win and keep business in domestic and foreign markets, which has underpinned this success. Therefore, in order to build on the success, in order to ensure that living standards continue to rise, it is vital that we maintain and develop the competitiveness of the economy.

Competitiveness is a key focus of Government policy. The Government is determined that the conditions and incentives for enterprises operating in Ireland should be as favourable as possible. This encompasses the skills level of the population, the knowledge capital in the economy, the physical infrastructure, the costs that businesses face, the telecommunications and other services that businesses need, the regulatory environment, the efficiency and effectiveness of public administration and other factors. In these areas, the Government is promoting competitive improvement through strategic thinking, investment and the implementation of forward-looking change. In this regard, the *National Development Plan 2000-2006* represents an enormous investment in the future. Another important initiative from the Government is the on-going programme of liberalisation of the telecom, energy and transport sectors, which is already yielding lower costs for businesses and consumers.

A central element of our success in recent years has been the on-going partnership between workers, employers, the Government and the community and voluntary and farming sectors. The most recent expression of this partnership is the *Programme for Prosperity and Fairness*, to which the Government is fully committed as the best foundation for economic stability and social progress for the future. The National Competitiveness Council was established in 1997 under the previous agreement, *Partnership 2000*. The Council provides a vital input to Government policy on competitiveness through its compilation of comparative data, its overview of the complex of factors that determine competitiveness, its analysis of key issues and its identification of actions required to maintain and develop competitiveness.

I am very pleased to introduce both the *Competitive Challenge* and the *Annual Competitiveness Report 2000*, which is the third in the series. The Government greatly appreciates the work of the Council, and the relevant Ministers will give careful consideration to its recommendations.

An Taoiseach, Bertie Ahern.

Third Annual Competitiveness Report

This report is the third *Annual Competitiveness Report* published by the National Competitiveness Council. It compares Ireland's competitiveness with that of our main trading partners and competitors using a broad range of statistical indicators drawn from authoritative sources such as Eurostat and the OECD. The current report contains over 160 indicators, including over 40 new indicators. The organisation of the data in the detailed tables is consistent with previous years to facilitate continuity and ease of reference. The commentary is divided in accordance with the critical competitiveness priorities that have been identified by the Council. These are as follows:

- Social Partnership,
- People,
- Costs,
- Infrastructure,
- Telecommunications and E-Business,
- Competition and Regulation, and
- Science and Technology.

Understanding competitiveness

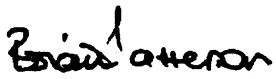
Our understanding of what constitutes competitiveness has matured in recent times. We now recognise that competition happens at the level of the individual enterprise - or even at the level of a strategic business unit within a larger enterprise. The enterprise competes on a range of factors including not just price, but also design, quality, marketing, customer service and that special factor at which Irish companies excel - relationships.

But public policy is also extremely important as it creates the framework and the environment within which enterprises compete in an ever more intense and global market. Public policy spans an inter-locking complex of factors – ranging from the creation of effective infrastructure (itself a large area, including such issues as roads, public transport, housing and the planning process) to education and the development of skills. It affects our success in markets, which in turn determines the standard of living that our population can enjoy.

We now face a new challenge. As the pace of change in the marketplace accelerates, speed of action is itself a critical competitiveness factor. As well as identifying the actions that are needed, we also have to improve the speed at which they are put into place. For example, the National Development Plan contains the means of alleviating bottlenecks in our infrastructure - bottlenecks which threaten to choke off even more modest rates of growth (and in so doing, constrain the resources needed to implement the Plan). It is therefore critical that important projects are brought to conclusion on time.

Future success not guaranteed

While the performance of the Irish economy over the last decade has been remarkable, this does not of itself guarantee future success. The Competitiveness Challenge document, published now by the Council in parallel with this year's Annual Competitiveness Report, outlines a number of concerns and challenges for the future, leading to 31 recommendations for action by the Government on issues which the Council believes are of critical importance. If implemented, these measures will strengthen Irish competitiveness. This, and only this, will enable us to consolidate the successes we have already achieved - and then to move on to a new growth path, strongly rooted in enduring competitive advantage.



Brian Patterson

Chairman

National Competitiveness Council

May 2000

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Summary and Overview

The Annual Competitiveness Report (ACR)

- This is the third Annual Competitiveness Report. Its purpose is to monitor Ireland's competitiveness from an international perspective. This is achieved by highlighting areas that contribute to Ireland's competitiveness *potential* (the inputs). The competitiveness *performance* (the outputs) is also monitored. In this way we measure the overall competitiveness of the economy, both at present and in the future.
- Improving productivity enforces competitiveness: that is the quantity of desired outputs generated by any given amount of inputs. This can be measured at the macro-level, in terms, for example, of income per person or output per head in the economy (important measures of Ireland's convergence performance), and also at the micro-level by many of the competitiveness indicators (both inputs and outputs) set out in the body of this report.
- Therefore, in assessing the results of the international benchmarking and analysis undertaken in the Third Annual Competitiveness Report, the question that comes sharply into focus is the extent to which higher competitiveness inputs are being, or are likely to be, reflected in improved competitiveness outputs.
- In order to do this the Third Annual Competitiveness Report (ACR 2000) is based on a broad number of statistical indicators which measure and provide the context for the inputs and outputs. The National Competitiveness Council has identified seven competitiveness priorities, which help to focus the discussion and provide the backdrop for the main issues that are facing the Irish economy at present and into the future.
- The notion of competitiveness priorities as agreed by the Council is an important one, as it helps to point to areas in which increased policy emphasis may be necessary. Many of the indicators included are in per capita or percentage of GNP terms, so allowing meaningful comparisons with other countries that are much larger than Ireland in terms of population or national wealth (GNP).
- Taken as a whole, there can appear to an inconsistency in the indicators in this report, as between those, on the one hand, that rank low government expenditure and taxation as preferable to higher government expenditure and taxation and those, on the other hand, that rank high government expenditure in areas such as healthcare, R&D and education as preferable to lower government expenditure in these areas. However, the scope of this report is to highlight needs, from a competitiveness perspective, rather than to suggest a programme for public expenditure. A number of further points can be made here. **Firstly**, increased public expenditure in a particular area may be financed from a re-allocation of resources within the existing public budget rather than through a taxation adjustment. **Secondly**, increased effectiveness and efficiency in the expenditure of public resources can allow for more of one output to be purchased without loss of any other output or recourse to additional taxation. **Thirdly**, it is a limitation of many indicators for public expenditure that we are obliged to use inputs as a proxy for outputs. A recommendation for more public expenditure on education, to take a random example, is really a recommendation for more 'education output', which could possibly be achieved without any additional expenditure if there is scope for improvement in the effectiveness and efficiency of existing expenditure. **Fourthly**, routes to improved competitiveness are not mutually exclusive: some progress is needed in all areas of public policy that directly or indirectly determine competitiveness.

Key competitiveness indicators

- This Summary and Overview section is intended to assess Ireland's competitiveness using a smaller group of critical competitiveness indicators (both inputs and outputs) chosen under each of the Council's competitiveness priorities (and also some indicators summarising Ireland's competitiveness performance overall in relation to productivity, trade and investment). This section is intended to provide an overview of Ireland's competitiveness that draws together the detailed statistical analysis and international benchmarking presented in the main report.
- The table overleaf sets out Ireland's quarter ranking in relation to the selected group of key competitiveness indicators for each competitiveness priority. The best-performing, or first-ranked, country is also given in each case.
- The 33 key competitiveness indicators presented in this section were selected in order to reflect what are considered critical dimensions of Ireland's competitiveness potential and competitiveness performance.
- The distribution of the key competitiveness indicators presented in this section among the four quarters of international rankings is set out in the table below.

Table 1 Distribution of key competitiveness indicators by quarter

Quarter	Top	Second	Third	Fourth
Percentage of indicators in each quarter	12	33	21	33

- The distribution of these 33 key indicators between the four quarters illustrates in broad terms the state of Ireland's overall competitiveness at this time. Moreover, the set of indicators chosen under each competitiveness priority appears to present a fairly representative picture of the competitiveness position in relation to the priority, consistent with the larger set of indicators presented in the main report.
- Ireland's international ranking in terms of the key competitiveness indicators is set out in sections 1.1 to 1.7 below. A context for the discussion of each group of key indicators is provided at the beginning of each sub-section by a brief recapitulation of the importance of each Council priority in terms of supporting and enhancing overall competitiveness.

Table 2 Key competitiveness indicators

		Quarter				
Priority	Indicator	1	2	3	4	Best
Social Partnership	GDP* per capita/EU GDP per capita				✔	Luxembourg
	Income inequality ratio: share of richest 20 per cent to poorest 20 per cent				✔	Finland
	Standardised Unemployment Rate		✔			Luxembourg
People	School expectancy for a 5 year-old child (years)				✔	Australia
	Net enrolment in tertiary education (age 18-21, per cent)	✔				Canada
	Science and engineering degrees awarded as per cent of total degrees		✔			Finland
	Total tax wedge, (single person)		✔			Japan
	Female activity rate (per cent pop,15-64)				✔	Iceland
Costs	Unit labour costs in the total economy (per cent increase)			✔		Japan
	Interest rate spread (Absolute)				✔	Canada
	Industrial Electricity prices (large users)			✔		Norway
	Building costs (offices)				✔	Turkey
	Producer prices		✔			France
	Consumer prices (annual change)				✔	Japan
Infrastructure	Average time commuting to and from work			✔		Italy
	Rail infrastructure indicator				✔	Austria
	Road infrastructure indicator				✔	France
Telecoms and e-Business	Internet hosts per capita			✔		Finland
	Mobile subscriptions per capita			✔		Finland
	2 Mbit/s leased lines national circuits (annual rental, 100km)		✔			Finland
	Internet use (30 mins)		✔			Canada
	Cost of calls: Business basket			✔		Canada
	OECD national (GSM) mobile basket				✔	Austria
Competition and Regulation	Overall regulatory environment	✔				US
Science and Technology	Business R&D expenditure as per cent of GDP		✔			Sweden
	Inventiveness coefficient (resident patent applications per capita)		✔			Japan
	ICT expenditure as per cent of GDP		✔			New Zealand
Economic Environment	Productivity (annual average change)	✔				Ireland
	Non residential fixed investment as per cent of GDP				✔	Japan
	Export performance for total goods (per cent change from last period)	✔				Hungary
	FDI inflow as per cent of GDP		✔			Finland
	FDI outflow stock as per cent of GDP			✔		Switzerland
	Cumulative venture capital raised as per cent of GDP		✔			UK

* GNP for Ireland

1.1 Social partnership

Why is this issue important for competitiveness?

- Social Partnership has been one of the cornerstone of Ireland's economic and social transformation.
- It has been a successful working model providing a framework and an effective process for developing a shared understanding of the forces and trade-offs driving economic and social progress.
- The long-term viability of the social partnership model is dependent on its capacity to evolve in line with the transformation of the economy over the last decade. The continued extension of social partnership to enterprise level will be an important evolution in this regard.
- This can manifest itself in the need for wage moderation, for institutional reform, for greater competition and efficiency in previously effectively protected sectors, and in a sense of urgency and result orientation in much-needed investment projects.
- Fostering a genuine sense of social cohesion must be central to all of these objectives.

How Ireland fares

- Ireland has almost reached the EU average level of **GNP per capita**, but remains in the fourth quarter of the seventeen countries presented.
- R&D and infrastructure investment must continue. The alleviation of the bottlenecks in areas such as housing and transport and continued investment in R&D capabilities needs to be emphasised over consumption, if Ireland is to build on its current success and prolong its income growth into the future.
- The level of **unemployment** is a useful measure of the extent to which the growth in the economy is reaching all members of society.
- Ireland has improved dramatically in this regard from an unemployment rate of 10.7 per cent in the ACR '98 to 5.9 per cent in this report reflecting the position in the fourth quarter of 1999. The figure for the first quarter of 2000 is likely to be less than 5 per cent. This, however, would not change Ireland's rank, of 10 (24)[1], in the current list.
- Even long-term unemployment is now yielding to the rapid output growth. However, gross figures hide the existence of localised unemployment black-spots such as the Border region with a rate nearly two thirds higher than for the whole country.
- On the other hand, the economy is now experiencing labour and skills shortages, jeopardising low inflation and the infrastructural investment projects planned in the National Development Plan.

[1] 10th out of 24 in the sample for the indicator in question

- Serious attention should continue to be paid to the country's unfavourable position with regard to **income inequality**. Ireland's richest 20 per cent earns six times as much as the poorest 20 per cent. This is twice the ratio of the best performing country, Finland, and twenty per cent worse than the EU average.
- The realisation of true social cohesion clearly must encompass all members of society, not only those who have jobs or are members of unions or business organisations. Even from a solely economic perspective, social exclusion leads to a waste of valuable human resources and under-performance relative to overall growth potential

1.2 People

Why is this issue important for competitiveness?

- The education levels and skills of the people in Ireland feed directly into the country's ability to produce exports at competitive prices and to attract investment from overseas companies.
- If Ireland continues to foster a well educated and highly skilled labour force, then a crucial building block for future competitiveness will be in place.
- Falling behind in these areas would make it harder for firms to produce high quality goods at competitive prices and would make Ireland a less attractive destination for investment both domestic and foreign.
- While Ireland prides itself on having a world-class education system, certain gaps are being identified, such as for example, recently highlighted literacy problems. Solving such problems quickly must be considered a priority.
- Incentives are crucial to effective work. An unbalanced tax burden can fuel higher wage demands, thus hurting productivity, and competitiveness. The proper balancing of the tax system in line with social inclusion is essential to future competitiveness.

How Ireland fares

- In Ireland, a five year old child can expect to spend 15.6 **years in school**, on average. An OECD survey of 1996 data ranked Ireland 19 (24) falling from 15 (23). However the number of years has slightly increased from 15.2 years.
- This is significant as the number of years spent in school is positively related to future earnings, labour market success and literacy.
- More than 31 per cent of Irish **18-21 year-olds** enrol **in third-level education**. This is a good result, placing Ireland 6 (24) similar to the position in previous reports and with a slight improvement of one percentage point.
- However, from the point of view of social cohesion, attention must be drawn to the very small extent to which increasing entry into tertiary education has reduced socio-economic inequalities of opportunity.
- Just as with unemployment, so with figures showing the huge expansion of educational participation over the last two decades: while gross figures may be impressive, localised problems of low levels of participation in third level education remain quite serious.

- In order to compete effectively in the increasingly technological world market-place, it will be necessary for Ireland to produce graduates qualified in the appropriate areas.
- The **proportion of science and engineering degrees awarded relative to total degrees** can be viewed as a useful yardstick of the extent to which the country is adapting to the evolving market environment.
- At 6 (22), Ireland is not in a bad position, but consideration should be given, on an ongoing basis, to quality and changing skills needs. There is an improvement of only two positions from the ACR '98 when considering the same countries in both reports, with an increase of just one percentage point in the number of science degrees as a percentage of the total number.
- Again, post-graduate research is an area in which significant progress is required in Ireland, if full advantage is to be taken of the overall level of education in the population.
- Rewards for work are an important determinant of the labour market. The measure chosen for the **total tax wedge**[2] is *Employees' and Employers' social security contributions and personal income tax less transfer payments as a percentage of gross labour costs for a single person*.
- This measure acts as a representation of both the disincentive to employers to employ and to employees to work; it is the difference between what an employer pays for certain labour services and what the employee gets.
- Here, Ireland scores 10 (28), a second quarter ranking. While ongoing progress in tax reform will contribute to improve Ireland's relative standing, clearly other countries are not standing still in seeking to improve work incentives.
- In Ireland, the rate of **female participation** in the work-force is relatively low, particularly among older age cohorts.
- Whereas 49 per cent of women between 15 and 64 are active in the Irish labour market, an average of almost 58 per cent of the women in the EU 15 participate. If Ireland was to have an equivalent percentage of women working as the EU this would be an extra 160,000 women in the work force or about nine per cent of the total work force.
- Therefore, in the context of current labour and skills shortages, increased female participation would be welcome in the economy. The availability of adequate and affordable child-care is of crucial importance to this issue.

2 The tax wedge is the difference between what a firm has to pay to hire labour and what a worker takes home. The higher the tax wedge the higher the cost to business from hiring workers and the higher the disincentive to workers to taking up employment.

1.3 Costs

Why is this issue important for Competitiveness?

- With respect to the ability of enterprise located in Ireland to trade competitively internationally, a competitive cost base is crucial. Export growth has largely driven Ireland's rapid economic growth over the past decade and more. Enterprises both domestic and foreign will continue to invest and locate here so long as they are cost competitive and can make profits taking into account the available inputs located in this economy.
- Certain costs are quite obvious, such as the costs of labour, property, energy, physical inputs and finance. These can be measured easily, and increasingly so with the advent of euro pricing, thus making progress in these areas even more crucial.
- Others are less obvious and less easily measured, such as the costs accruing as inconvenience and inefficiency as a result of inadequate transport infrastructure or excessive red tape. It would be a mistake, however, to ignore these costs, as their effect will become swiftly obvious in export and investment inflow figures.

How Ireland fares

- On an aggregate level, **unit labour costs** are rising at a rate slightly higher than the average of the countries compared.
- It is instructive to compare Ireland's rank in the ACR 2000, at 15 (24), with the rank of 10 (24) in the ACR '99 and of 2 (23) in the ACR '98. There is a clear pattern here of Ireland losing ground on the competitiveness of its unit labour costs.
- Pay related to productivity and performance has to play a more important role in the Irish pay structure in future. It is necessary to promote greater efficiency, especially in the public and non-traded sectors.
- The **interest rate spread** measures the gap between wholesale borrowing and lending rates. A large gap suggests that the banking sector enjoys a degree of monopoly power; increased competition would cause the gap to be bid down towards the best levels available internationally.
- Ireland has fallen from 9 (24) to 20 (24). No new data taking into account the Ireland's membership of the euro zone is available but it is likely to show a reduced spread. It is essential that Irish enterprises, especially SMEs, do not face higher financing costs than their competitors in other euro zone countries, in order to ensure their successful future.
- A more competitive banking sector is required to give firms the best rates and so help them compete internationally.
- Greater international competition in the banking market is welcome since it should allow Irish firms (especially smaller ones) to compete more effectively internationally.
- **Industrial electricity tariffs** are higher than average in Ireland for large users, ranking in the third quarter. Ireland has remained mid table for this indicator at 8 (15) and 7 (15) respectively for the ACR '99 but a disimprovement is apparent in the ACR 2000. This indicator will be useful in tracking competition in supplies in the future, since the market has been opened up for supply of electricity to larger firms.

- Ongoing deregulation of the market should reduce prices further.
- However, as only the top 30 per cent of the market will be deregulated initially, this will give an even greater advantage to larger firms who already benefit from substantially more competitive rates for electricity, gas and finance than their smaller market counterparts.
- Unsurprisingly, **building costs** are very high in Ireland at present. Ireland is the seventh most expensive country for office construction out of the twenty measured.
- Through high levels of output growth, demographic and social change, demand for property has increased significantly. Supply, on the other hand, particularly the supply of building land, has not responded adequately, causing a substantial rise in construction costs, leading to huge increases in final prices.
- Supply side issues that need careful attention are those of zoning, provision of serviced land, speed of planning procedures, effects on infrastructural bottlenecks, and the possible existence of uncompetitive practices in the property market.
- On the demand side, a major issue is the continuing very rapid growth in household indebtedness, which is contributing to overheating in the economy and especially in the property market.
- **Producer prices** represent the input costs of firms. These rose by 4.8 per cent between 1995 and the end of 1999. Prices in many European countries have fallen over the period, leaving Ireland in an average position overall.
- Manufacturing **output prices** are rising by 5.2 per cent, year-on-year to March 2000. This is the fastest rate of increase since the devaluation of the Irish pound in early 1993.
- Sharp rises in oil prices and the weakness of the exchange rate are contributing to this poor performance.
- The combination of this and the current pressure on wages will cause margins to be squeezed and make it more difficult for Irish firms to compete abroad.
- **Consumer price inflation** has remained for some time at or near the European average, measuring 1.2 per cent on a HICP[3] basis in July 1999, compared with 1.1 per cent in the EU 15.
- Lately, this has been rising, with a current rate of 5 per cent for the year to March 2000. Certain portions of this increase can be put down to budgetary changes in tobacco taxation and to relatively high international oil prices. The residual factors include high inflation in the services sector.
- Continuing inflation at three percentage points above the EU average over a number of years would leave Irish prices considerably higher than those in other countries, with possible serious effects on competitiveness. Wage and price increases can potentially develop into a mutually reinforcing inflationary spiral if not brought in check.

3 Harmonised Index of Consumer Prices

1.4 Infrastructure

Why is this issue important for competitiveness?

- The exceptionally strong economic growth of the past ten or so years has shown much of the country's physical infrastructure to be quite inadequate and in need of substantial modernisation.
- Despite many years of European funding, Irish roads, in general, continue to be of poor quality, and do not provide adequate capacity for the country's burgeoning transportation requirements.
- The imperative of connecting the major cities and towns by consistent, high quality roads has yet to be realised.
- The supply of appropriately zoned and serviced land (actually coming on stream for development) has proved inadequate for the current and near-future housing needs of the economy.
- The combination of urban sprawl, the vastly increased rate of car ownership and poor public transport services are generating transport and economic bottlenecks and exerting a detrimental effect on competitiveness.

How Ireland fares

- Ireland has hovered close to the bottom of the rankings on both **road and rail infrastructure indicators** calculated by the *EU Commission*; the latest figures show Ireland in last place for both indicators.
- While improvements in the road network are required, it must be remembered that improvements in public transport, particularly in urban areas, can provide an alternative to private car use consistent with environmental concerns.
- Integration and strategic planning must be seen as of primary importance in the development of a transport infrastructure more in keeping with Ireland's current and future economic needs.
- In Ireland, the average **time spent commuting** to and from work, according to the European Commission, is 40 minutes. This is slightly worse than the EU average, which is surprising for a small country with such a low population density. Furthermore, these are 1996 figures; the situation is likely to be worse by now.
- It would be instructive to take note of the scale of the increased investment required to improve Ireland's infrastructure so that it begins to approach the standard that prevails in the best-performing countries. The top-performing quarter of countries spent an average of almost 2.7 times as much on infrastructure per capita, as did Ireland, over the period 1990 to 1996.

1.5 Telecoms and e-business

Why is this issue important for competitiveness?

- As the international marketplace becomes more services-driven, more information and electronics orientated, and more high tech, the areas of telecommunications and e-business advance inexorably in importance.
- As new products are developed, so are new ways of buying and selling already familiar products. The extraordinarily rapid pace of change in the global electronics and communications technology industries demands a significant increase in investment each year, merely to keep up the pace.
- While private enterprise drives this change, government must provide the appropriate climate for it to occur.
- Multinationals will choose locations that give them a comparative advantage; local firms will meet with greater or less success internationally depending, in large measure, on domestic competitiveness considerations.
- In this context, the development and maintenance of a first-rate telecommunications infrastructure must be viewed as a prerequisite of the leadership role that Ireland is seeking to forge in the global high-tech marketplace.

How Ireland fares

- The number of **internet hosts per capita** in a country says something about the extent to which business, and indeed the public, have taken e-business on board in the work place and the home. The level of international interconnectedness reached so far has prompted the recycling of expressions such as Global Village to suggest the ease with which far-flung markets, information and people can be reached.
- The number of internet hosts in Ireland in January 2000 shows a 67 per cent increase over the figure for September 1997. However, this represents almost no change in our ranking relative to the other countries measured. It is striking to note that Ireland has only 14 per cent of the internet hosts per capita of the top-performing country, Finland.
- Two major obstacles to progress appear most crucial: the existence of a national physical telecommunications network (high capacity and high speed); and sufficient competition in the market to force tariffs down to internationally competitive rates.
- The number of **mobile subscriptions** per capita provides a measure of how widespread is the use of one new telecommunications technology. While the figure for August 1999 is more than four times that for November 1996 and represents an increase of almost 38 per cent compared with as recently as January of 1999, Ireland has slipped in the rankings and is now positioned in the third quarter of countries.
- Ireland has half the mobile subscriptions per capita of Finland, the best performing country. This is an improvement from only a quarter of Finland's figure in the ACR '98. Ireland has the same mobile penetration as the UK, which is a significant improvement in relative terms since the ACR '98, where Ireland had only 50 per cent of the UK level.

- High **telecommunications costs** contribute directly to firms' cost bases and also reduce their ability to adopt high tech communications solutions for the future. This is a serious competitiveness disadvantage.
- The annual rental charge for (100 kilometres of two Megabits per second capacity) **leased lines** ranks Ireland 10 (28), but it is over three times the tariff charged for the same service in Finland.
- The **cost of using the internet** for half an hour in Ireland is about two thirds of the average of the 28 countries included. This represents a tariff of almost twice the average for the first quarter of countries.
- A composite basket of **national and international business calls** (calculated by Teligen) places Ireland at 16 (28) countries. This is more than 1.6 times the average for the first quarter of countries and almost twice as much as Canada, the best performing country.
- Mobile tariffs in Ireland are some of the most expensive in the OECD, with Ireland ranking 25 (27) countries on the OECD **National (GSM) Mobile Basket**. On this measure, Irish charges are more than three times the rate in the best performing country, Austria.

1.6 Science and technology

Why is this issue important for competitiveness?

- The world economy is increasingly technology driven. If Ireland is to obtain a position in the vanguard of technological progress, domestically located Research and Development is essential.
- If Ireland allows itself to follow the lead taken by other countries and to rely on technological advances made abroad, productivity improvements will be limited in the future.
- Thus more and more of the research behind the products that are manufactured, assembled and packed here must be carried out here too.
- Such efforts should be directed at both domestic firms, multinationals and academia; at all of these levels there now exist clear deficits in the area of R&D.

How Ireland fares

- Ireland ranks just outside the top third of countries compared for **business R&D expenditure** as a percentage of GNP. Between 1996 and 1998, Ireland maintained its ranking and slightly increased R&D as a percentage of GNP. With economic growth proceeding apace, this represents a sizeable absolute increase in R&D spending.
- The caveat here is that the majority of R&D in Ireland is conducted by foreign firms and that even among these, the vast majority conduct none at all. Clearly, there is some need to encourage a more widespread involvement in research.
- In an increasingly knowledge-based economy, the more people involved at the cutting edge of technological research and development, the better for the overall knowledge base of the economy. Thus, the country would become even more attractive for FDI with higher levels of advanced expertise available.

- The vulnerability to asymmetric shocks which results from an over-reliance on foreign firms would be reduced if they become more embedded in the Irish economy. One way of moving in this direction would be to encourage them to conduct increasing quantities of R&D in Ireland. Spin-offs for indigenous firms would also be likely to increase.
- Similarly it is important that Irish owned enterprises are able to avail of the high calibre of graduates and expenditure on R&D in the economy.
- The **inventiveness coefficient** tells us how many patents were applied for per capita in Ireland during 1997. It is thus a measure of the ability of those in Ireland to come up with new ideas suitable for business applications.
- The levels of scientific education and of research and development are very important here, as is the climate for entrepreneurship. The right climate encourages people to innovate and invent for the future.
- The average number of patents registered by people in the first quarter of countries is 3.6 times the number registered by Irish people.
- **Expenditure on information and communication technologies** as a percentage of GNP is increasingly significant in the context of the current fast pace of technological progress. Ireland ranks 12 (26) on this indicator. While this is a revised indicator from last year, in the ACR '99 Ireland's expenditure was less then half of the lead country. In the ACR 2000 Ireland's expenditure is three quarters that of the lead country, New Zealand, and above the EU average.
- At the same time, growth in the Irish Information Technology market is slow, at an average annual rate of 1.1 per cent between 1992 and 1997, with Ireland ranking 20 (26).
- As a country which prides itself on its high tech enterprise and its educated work-force, Ireland must keep up with the pace of change in this rapidly evolving industry.

1.7 Competition and regulation

Why is this issue important for competitiveness?

- A certain, stable and predictable regime for regulation in the economy creates a business environment supporting investment, wealth creation and productivity growth. The credibility of the regulatory structures is the second critical component of a successful regime. These goals demand the construction of transparent, open and accessible regulatory procedures, decision-making and enforcement frameworks.
- A transparent, effective and efficient structure of competition and regulation policy is necessary to ensure a competitive economy. The right framework for competition and regulation policy has become increasingly important due to the constraints on traditional mechanisms for adjusting for loss of competitiveness arising out of Ireland's EMU membership.
- National economic policy management must therefore ensure that the framework for competition and regulation policy allows for the most effective and efficient use of scarce resources and eliminates cumbersome regulations imposed on enterprises lacking a clear and justifiable public policy objective. This in turn would enhance the adaptability, flexibility, and dynamism of the economy.
- The introduction of a programme of regulatory reform has to be undertaken on a systematic basis in order to ensure that it is appropriate to the needs of the economy and does not introduce any further restrictions and rigidity. Therefore, there is a need for continuous monitoring of the programme of reform to ensure that it enhances economic performance.

How Ireland fares

- Ireland's **overall regulatory environment** is composed of various dimensions of the regulatory regime, based on data from the product market, the labour market and competition policy. Ireland is ranked 2 (20). However, there are considerable variations between these dimensions.
- Five indicators make up the overall product market regulation indicator. There are three thematic summary indicators, state control, barriers to entrepreneurial activity, and barriers to trade and investment and two functional summary indicators, administrative regulation and economic regulation. Ireland is ranked 2 (26) for this indicator. However, in areas such as size and scope of state control and lack of transparency in the regulatory and administration process, Ireland performs less well.
- In terms of employment regulation two further indicators have been used. These are the overall strictness for temporary employment and the overall protection against dismissal. For the first indicator Ireland is ranked 1 (25) while for dismissal Ireland is ranked 7 (26).

- Finally in the effectiveness of competition policy, which is analysed in three separate dimensions; range and potential of the law, scope of exemptions and the enforcement potential, Ireland performs less impressively. Effective competition policy is assumed to be characterised by extensive coverage of potential anti-competitive behaviours, few exemptions and a high enforcement potential. Ireland is ranked 6 (25) and would be characterised by average legal coverage and exemptions and high enforcement potential.

1.8 Economic environment

Why is this issue important for competitiveness?

- In this section, we deal more with the outcomes of competitiveness than the inputs. It is important to combine with a discussion of competitiveness inputs some treatment of the results of past competitiveness potential.
- Output indicators, such as labour productivity and export performance provide information about the success of previous efforts to make the country a more competitive place.
- The success of measures taken on foot of recommendations in the present Report will be judged in years to come by looking at indicators such as those included in this section.
- It is crucial to be clear about this point: current success is a result of past efforts; future success depends upon current action; using current progress as a justification for complacency can only lead to a loss of competitiveness in the future.

How Ireland fares

- **Labour productivity** continues to grow strongly, placing Ireland 1 (17).
- This growth, however, is driven by large foreign firms; smaller, indigenous firms are not performing particularly well. Irish owned firms' productivity is only 45 per cent of the national average while productivity of foreign firms is 60 per cent higher than the national average.
- Such high productivity figures allow quite high wage increases; however, ignoring the sectoral differences in productivity would lead to increasingly uncompetitive wages in sectors that can ill afford them.
- It is important to note how dependent the gross figure here is on the performance of overseas firms and thus the extent to which the economy may be at risk from shocks in foreign economies, such as the United States.
- While Ireland's overall **venture capital** performance is relatively good, it remains difficult for some smaller firms and potential start-ups to get finance.
- Ireland's venture capital market is rather narrowly based, with banks and public sector finance predominating.

- Notwithstanding the economic growth and prosperity which have resulted from the policy of attracting foreign firms to Ireland, it makes sense now to concentrate additional efforts on encouraging smaller, indigenous firms to emerge and grow.
- Irish **exports** are growing at the second fastest rate in the OECD. However, it must be noted that a certain vulnerability to asymmetric shocks exists in Ireland, as exports tend to be narrowly diversified both sectorally and geographically. Indigenous firms are particularly exposed, as they continue to rely to a large extent on the UK market; multinationals are concentrated in a small number of sectors.
- Improvements in export performance, both in terms of growth and diversification, are largely accounted for by the activities of foreign enterprises. Over half of Irish exports were accounted for by 50 enterprises.
- Indigenous firms have neither expanded nor diversified their exports significantly compared with the overall figures.
- Ireland has been very successful in attracting **inflows of FDI**; much of our current economic boom is driven by the export growth generated by the foreign firms that have invested here.
- Initially, the focus of policy was to attract investment that would help create employment. This is no longer the sole priority and a change in emphasis is under way, focusing on productivity, higher value added and the development of more high-level R&D and balanced regional development.
- While policy has clearly been favourable to large, foreign firms, it is important now to pay more attention to the needs of smaller, indigenous enterprise, which is disadvantaged in many respects. In terms of the differences in productivity and export performance, highlighted above, indigenous and foreign enterprises clearly perform very differently and this needs to be rectified.
- Following on from the above, a look at Ireland's **FDI outflow stock** figures re-emphasises the imbalance between indigenous and foreign firms. A diversification of Irish enterprise into other countries would provide a welcome stabiliser against asymmetric shocks.
- Furthermore, an increased inflow of factor payments from abroad would narrow the gap between GDP and GNP.
- It is also possible that an increase in FDI outflow would help in the process of narrowing the gap between indigenous and foreign firms, allowing the former to expand and take advantage of international markets for finance, telecommunications etc.
- **Non residential fixed investment** is very low in Ireland, as a percentage of GNP. The very significant investment plans announced under the NDP should lead over time to some improvement in Ireland's relative position in international terms. Consideration is required, however, of the appropriate balance between the share of total income generated in the economy allocated to consumption (private and public) and that apportioned to investment (particularly, public investment) in order to ensure the realisation of the economy's medium-term growth potential.

2 Progress and Performance

2.1 Overall performance

Building on the ACR '99, the ACR 2000 looks at 166 indicators. There has been a significant increase in the number of indicators, largely due to the restructuring of the report according to the National Competitiveness Council's seven competitiveness priorities. This has necessitated further research into the availability of indicators in areas such as social cohesion, infrastructure, and competition and regulation.

One straightforward method of looking at Ireland's performance is to identify the proportion of the indicators in each quarter. Under a quarter of the active[4] indicators are in the first quarter, while just over a third are in the second quarter with around 22 per cent in the third quarter and 20 per cent in the fourth quarter. This is broadly in line with what was seen in the ACR '99.

The same two methods used to examine Ireland's performance in the ACR '99 are used to measure performance for this report, viz:

- Looking at the change in Ireland's international ranking[5]; and
- comparing Ireland's value to the "best performing" or first ranking country[6].

The combination of these two methods highlights Ireland's overall international competitiveness standing, highlighting the change in Ireland's ranking but also progress made in closing the gap with the leading country.

As can be seen from the table below, Ireland has improved its ranking in 24 indicators, disimproved in 29 and remained constant in a further 14. As a percentage of the "best-performing" country, Ireland has improved in 29 indicators; however, Ireland has disimproved for 33 indicators and remained constant in only 2 indicators.

Table 3 Progress in Ireland's competitiveness performance

	Ireland's Position Relative to Change in Ranking	Ireland's Position Relative to the Best Performing Country 1995
Improved	24	29
Disimproved	29	33
Unchanged	14	2
Not applicable	2	5
No update available	48	48
New	49	49
Total	166	166

4 Active indicators refer to those that have been updated since the previous report.

5 In assessing the ten most improved and disimproved indicators, account was taken of the improvements solely reflecting changes in the numbers of countries included in the comparison.

6 For a small number of comparisons this method was not feasible.

2.2 Main competitiveness improvements

The table below sets out the ten largest improvements in Ireland's competitiveness rankings. Some significant improvements have been made in areas such **as interest rates, youth unemployment,** and **export performance**. However, these improvements often reflect a reversal of adverse movements reported in the ACR '99.

- **Interest rates** now reflect monetary policy decisions taken by the ECB and the level of interest rates no longer signifies the credibility of domestic macroeconomic policy management. Therefore, Ireland's ranking for the short term interest rate is 3 (28)[7] along with all euro-zone members. Long term interest rates for Ireland carry however, a slight premium over and above the core rate. Therefore, euro zone countries' long term rates range from 4.5 per cent to 4.9 per cent. Ireland is at the higher end at 4.7 per cent, 0.1 per cent above the euro zone average of 4.6 per cent.

Table 4 Ten most improved indicators – ranking

	ACR '98	ACR '99	ACR 2000
Marginal tax rate, single	17 (19)	26 (28)	10 (28)
Short term real interest rates	15 (22)	18 (27)	3 (28)
Percentage of SMEs who export	16 (16)		7 (19)
Level of youth unemployment	21 (28)	20 (28)	13 (28)
Business R&D researchers	13 (27)	13 (27)	7 (25)
Average income tax rate, single	15 (19)	22 (28)	17 (28)
Income tax, single	13 (19)	19 (28)	14 (28)
Per capita NO_X emissions	16 (26)		11 (28)
Producer prices	14 (25)	14 (23)	10 (23)
Long term unemployment	25 (28)	25 (28)	21 (28)

- Good progress in reducing high levels of **youth unemployment** reflect the high prioritisation of this objective over recent years, increased participation in education among younger age cohorts and the buoyant economic climate. **Long term unemployment** as a percentage of the labour force has also seen a significant improvement over the period, falling from 5.8 per cent in the ACR '99 to 3.8 per cent in the ACR 2000. However, this data refers to 1998, the latest internationally comparable data, the figure for the fourth quarter 1999 is 2.1 per cent.

7 This format refers to the Ireland's rank in the international comparison. Therefore, 4 (28) refers to fourth out of 28 countries compared.

- Ireland has improved significantly in the percentage of **SMEs that export**. In 1996, Ireland was at the bottom of the ranking of sixteen countries. There was no update available for the ACR '99. In the ACR 2000, the number of SMEs who export has increased significantly and Ireland is now ranked 7 (19) with 50 per cent of SMEs exporting[8]. This improved performance holds not only in terms of ranking, but also as a percentage of the first ranked country. In 1996, the number of SMEs that exported was less than 50 per cent of the number recorded for the best performing country, while in 1999, the figure is now over 90 per cent of the best performing country. However, it should be borne in mind that this estimate is derived form survey evidence of SMEs and should therefore, be regarded with caution.

- Ireland's strong standing in relation to **export performance** reflects past competitiveness in attracting FDI, and while it does provide a platform for the future success, cannot necessarily be assumed to reflect current competitiveness. Over half of exports were accounted for by foreign enterprises in two sectors, chemicals and electronics. Similarly, 50 enterprises account for half of total exports.

- A similar picture is evident in relation to **income tax**[9] for single people. In the ACR '98, Ireland's rank was 13 (19); this fell to 19 (28) in the ACR '99. This year Ireland's rank improved to 14 (28). However, when looking at the best performing (or top ranking) countries, Irish income tax rates for both married and single people are in the category of indicators that are the worst performing (see page 22). The overall value for this indicator (viz., income tax of single people being taken by government) for Ireland has decreased from 31 per cent to 26 per cent. The corresponding reduction for a married couple with two children is 20 per cent to 15 per cent. It should be noted that this data does not take into account recent tax changes including the reduction in the top rate of tax from 48 per cent in 1997 to 44 from April 2000.

- Tax rates for single people have improved dramatically between the ACR '99 and ACR 2000. However, for both these indicators progress is regaining ground lost from the ACR '98 and in both cases Ireland's ranking has not returned to the position held in that year.

- The **marginal tax rate** has improved significantly over last year. It has improved the ranking it held in the ACR '98, now standing 10 (28). The marginal tax rate performance for married people, in terms of the international ranking, has remained slightly better than for single people. The gap between married and single positions, in terms of average and marginal income tax rates has been reduced to one or two places from five last year. Previously the married rate performed far better than the single rate, now both perform well at 12 (28) and 10 (28) respectively.

8 While the standard definition of SMEs implies all enterprises between 1 and 250 employees, this particular survey does not include enterprises employing below 10 employees. This therefore, excludes one third of SMEs in Ireland for 1997. Also over 60 per cent of all Irish owned firms employ under 20 employees. Therefore the results would tend to be biased towards larger and foreign owned enterprises.

9 Defined as income tax plus social security contributions less cash transfers for a single person on the average industrial wage with no children.

Table 5 Ten most improved indicators – % of best performing country

	ACR '98	ACR '99	ACR 2000
Percentage of SMEs that export	49%		91%
Per capita expenditure on telecoms		64%	94%
Standardised unemployment rate	32%	28%	47%
2 Mbit/s leased lines to US	58%	68%	82%
Business R&D researchers	31%	39%	49%
Cumulative employment growth	100%	62%	72%
Per capita NO_X emissions	24%		34%
Recycling activity: paper/board	6%		16%
Level of youth unemployment	27%	37%	46%
Long term real interest rates	37%	30%	38%

- **Cumulative employment growth** has improved by 10 percentage points on the best performing country between the ACR '99 and the ACR 2000, reflecting the enormous growth in the Irish economy since the mid-1990s. Ireland's performance is around five times that of the EU and OECD averages.
- The **level of youth unemployment** has shown significant improvement over the period from the ACR '98 to the present. There has been a significant narrowing of the gap on the best performing country over this period. There has been a consistent improvement in Ireland's performance from 27 per cent of the leading country in the ACR '98 to over 46 per cent in the present report. Ireland has also improved dramatically in the ranking measure from 21 (28) in the ACR '98 to 13 (28) in the ACR 2000.
- A third indicator that has shown significant improvement over this period as a percentage of the best performing country is that of **NO_X emissions per capita**. There has been a 10 percentage point increase in Ireland's performance compared with the best performing country, Japan, and Ireland has also improved its ranking from 16 (26) to 11(28). However, even at that, Ireland's absolute value is only a third of that of the best performing country. Ireland is at present at the EU average for NOx emissions. However, Ireland is well below average for other environmental indicators.
- In terms of the **telecoms expenditure per capita** there has been a significant disimprovement in the best performing country. However, Ireland's performance has improved. This, unlike other telecoms indicators that have severely disimproved over the past year, has in fact improved. However, only 28 per cent of the closure of the gap is accounted for by an improvement in Ireland's value, while the remaining 72 per cent was accounted for a fall in the performance of the best performing country, represented by different countries in the two reports.
- In terms of **recycling board and paper**, the improvement in Ireland's performance significantly outperformed the best performing country. The best performing country increased its performance by 51 per cent while the Irish performance increased 3 fold.
- In relation to the **standardised unemployment rate**, the best performing country has remained relatively constant while the Irish figure has fallen 2 per cent points since the ACR '99 and 5 per cent points since the ACR '98.

2.3 Main competitiveness disimprovements

There are a number of areas where a significant deterioration has occurred in Ireland's international ranking, including labour costs, spending on R&D, innovation performance, telecommunications costs and FDI. These weaknesses, in some critical dimensions of the emerging knowledge economy, do not present a favourable prospect for building up enduring competitive strengths in the Irish economy.

Table 6 Ten most disimproved indicators – ranking

	ACR '98	ACR '99	ACR 2000
2 Mbit/s leased lines – annual rental 50 km		5 (28)	14 (28)
2 Mbit/s leased lines – annual rental 100 km	8 (10)	4 (28)	10 (28)
Compensation per employee	5 (15)	8 (15)	13 (17)
Unit labour costs in the total economy	5 (24)	10 (24)	15 (24)
R&D expenditure in higher education and government institutions	19 (27)	18 (28)	23 (26)
FDI inflows as a percentage of GDP	7 (25)	6 (27)	11 (27)
Cost of call to the US (1st minute peak time)		6 (27)	10 (27)
Inventiveness Coefficient		11 (28)	14 (28)
Gas prices – large users	6 (11)	1 (11)	4 (10)
Average debtor days	11 (16)		14 (19)
Consumer prices	6 (28)	20 (27)	23 (28)
Cost of local call		23 (28)	26 (28)
Analogue leased lines – annual rental 100km	7 (10)	6 (25)	9 (25)

The most disimproved indicators in terms of ranking are grouped together in four distinct areas. These include five indicators in **telecoms**, two in **R&D**, two in **labour market** and a range of other areas. A range of indicators for **telecoms costs**, which were among the best performing indicators in last year's report, have disimproved considerably this year. This, in the context of achieving the objective of a leadership position for Ireland in telecommunications and e-business, is a serious cause for concern, particularly in view of the high priority afforded to market liberalisation and increasing competition in the telecommunications sector. It is clear that the pace of progress in building a highly competitive environment for information intensive industries through low telecommunications costs and superior telecommunications infrastructure and services is too slow.

- The rental charges for **leased lines**, both analogue and high-speed have disimproved significantly since last year's report. In terms of the high-speed, 2 Mbit/s leased lines, Ireland's relative position has disimproved significantly this year, falling from the first to the second quarter. Similarly the analogue leased lines over 100 km have fallen 3 rankings this year. While these figures may appear acceptable it must be remembered that the telecoms market is rapidly changing and if Ireland falls behind, it will be difficult to make up the lost ground.

- **Unit labour costs** have experienced a considerable disimprovement reflecting an acceleration in wage inflation and a slowdown in productivity growth in the business sector of the economy. Ireland's international standing dropped 5 places to 15 (24) as compared to the position in the ACR '99. This represents a progressive deterioration from a strong showing in the ACR '98, where Ireland was ranked 5 (24), with the rate of increase in unit labour costs increasing from just 0.3 per cent to the 3.1 per cent projected increase for 1999 in the ACR 2000 - over two thirds higher than the OECD average.

- Ireland's **R&D expenditure and performance** has also deteriorated since the ACR '99. R&D expenditure by government and higher educational institutions has fallen from nearly 0.5 per cent of GDP to 0.4 per cent. The value of the ratio for Ireland is now three times lower than the best performing country leading to a decline in Ireland's ranking from 18 (28) to 23 (26). This outcome should be contrasted with the 40 percent increase since 1996 in business R&D researchers per 1000 of the labour force, as highlighted in section 3. In this respect, Ireland's performance is now just under half that of the best performing country, up from over a third in 1996.

- The weakness of Ireland's scientific and technological infrastructure is also sharply illustrated by the decline in ranking for innovation as measured by the **inventiveness coefficient** – the number of patent applications per 10,000 population. Ireland's ranking has now slipped three places to 14 (28) – the bottom of the second quarter.

- **Consumer price inflation** for the year to December 1999 was 3.4 per cent, almost twice the EU and OECD average. There has been a steady increase over the period of the three reports from 1.4 per cent in the ACR '98, 2.4 per cent in the ACR '99 to 3.4 per cent in this report. This represents a fall in ranking from 6 (28) two years ago to 23 (28) in the ACR 2000. In relation to the EU and OECD average, Ireland's relative position has fallen from significantly below these averages, to slightly above, to almost double in this report. While there has of course been a significant deterioration in Ireland's inflation performance over recent months due to excise duty on cigarettes in the Budget 2000, increases in the international price for oil and the weak euro, this trend is still worrying.

Table 7 Ten most disimproved indicators – % of best performing country

	ACR '98	ACR '99	ACR 2000
Cost of calls to the US		64%	27%
Compensation per employee	72%	58%	21%
Government surplus as percentage of GDP	50%	91%	57%
Income tax plus employees social security less cash transfers, single	57%	35%	5%
2 Mbit/s leased lines – annual rental 100 km	23%	56%	29%
2 Mbit/s leased lines – annual rental 50 km		53%	29%
Cost of calls to the UK		73%	49%
Tax as a percentage of GDP	96%	98%	76%
Income tax plus employees social security less cash transfers, married	38%	28%	9%
FDI as a percentage of GDP	21%	52%	35%

- One of the worst performing indicators measured by the change in the proportion of the best performing (or first-ranked country) is **compensation per employee** a six year annual average. Japan's compensation per employee rose only by 0.8 per cent, on average, over the period 1993 to 1998. However, Ireland's rose by over 3.8 per cent. Ireland now stands at just 21 per cent of the best performer in the ACR 2000, having reached 72 per cent in the ACR '98 two years ago. This type of comparison applied to percentage changes can exaggerate the scale of changes on a year-to-year basis. Therefore, when comparing Ireland to the best performing country, Ireland's value has remained constant at under 4 per cent, on average, over 6 years, however, in terms of international ranking, Ireland has also performed badly and has slipped 10 places over the period – from 5 (13) to 15 (17). When you compare Ireland to the second best performing country, Belgium, Ireland's performance is much better, at over 50 per cent.
- As discussed above, **telecoms performance** in the ACR '99 was among the best performing indicators, but it has subsequently fallen back. The cost of calls to the US and the UK, have all deteriorated significantly compared to the lead country. The cost of calls to the US is 3.7 times higher than in the best country, while those to the UK are twice as high. Ireland has, in the ACR 2000, reached the level of the lead country in the ACR '99 for calls to the UK, however, the Netherlands, the lead country in both reports has halved its figure. This shows that in the telecoms sector the goal posts are continually moving and while Ireland has taken some significant steps it is not time to be complacent. This has significant implications for Ireland's endeavours to achieve a first quarter ranking for e-business.

- Ireland's **FDI**[10] performance, which has been one of the main contributors to Ireland's economic boom, has deteriorated both in terms of the best performing and ranking methods. In terms of ranking, Ireland has fallen from 7 (27) in the ACR '99 to 11 this year. In relation to the best performing country for this indicator, Ireland's position has declined from over a half of the best performer to a third. This is due to a 70 per cent increase in the figure for the first ranked country, Finland, in this report, over that of the first ranking country in last year's report. It should be emphasised that the main focus of industrial development policy is now firmly oriented towards the quality rather than the quantity of investment. In particular, due emphasis must be given to the objective of balanced regional development and the attraction of FDI that helps Ireland move up the value chain, creating higher value-added employment. The repositioning of policy with respect to FDI inflows is in keeping with the long-term competitiveness needs of the economy, to strengthen core competitiveness capabilities.

As was also the case for the indicators experiencing the greatest disimprovement on a ranking basis, the most disimproved indicators as a percentage of the best performing country are divided into four well defined groupings. These include the **telecoms** sector, **labour markets, Government finances**, and **FDI**. For the telecoms market, the cost of local calls, calls to the US and the UK, and leased lines, are all included in the most disimproved group and therefore require considerable attention in order to support the achievement of Ireland's position as a world leader in this sector.

Due to the strong improvement in employment growth and the reduction of the number of unemployed, Ireland's position in terms of compensation per employee and unit labour costs is among the worst performing indicators.

10 This indicator has been recalculated for the ACR '98 taking into account the most recent data for the same period as used for the measurement of other countries.

3 Social Partnership

Key points

- While Ireland has grown faster than any other country in the group compared, **income inequality** persists at one of the highest levels in Europe.
- **Employment** growth remains at an extremely high level; the seasonally adjusted unemployment rate for December 1999 is estimated at 5 per cent[11]. However, a high proportion of the unemployment that does exist is long-term, relatively unresponsive to economic growth.
- Significantly, **labour shortages** are becoming increasingly worrying. This is of particular importance in the light of infrastructural improvements envisaged in the National Development Plan, as much of the massive investment involved could feed into higher wages and prices in the sector.
- **Expenditure on health-care** in Ireland is only average, while the proportion of this that is public expenditure is less than average.
- The position of women in Ireland is relatively bad. It may be hoped that increasing **female labour market participation**, in response to current and future labour shortages, will help to redress this situation.

3.1 General performance

Table 8 General performance indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Real GDP* Growth	1 (28)	1 (28)	1 (28)
Tax as % of GDP*	3 (15)	2 (17)	3 (15)
Government spending	1 (15)	1 (17)	2 (15)
		Second Quarter	
		Third Quarter	
		Fourth Quarter	
GDP* per capita	10 (17)	14 (17)	14 (17)
Income inequality ratio			13 (15)

[11] CSO

* GNP for Ireland

- Ireland has had the highest **real GDP growth** out of the twenty-eight countries measured for the past six years.
- **GNP per capita** is closing on the EU average, but we still rank in the fourth quarter of the seventeen countries included.
- Not only does Ireland have a growing gross income level, but the **overall tax rate** is one of the lowest around, ranking 3 (15). This, however, must be viewed in the context of the relatively high proportion of the tax burden borne by workers, especially PAYE workers. Wealth and capital taxes are not a big contributor to the overall yield in Ireland. Some commentators have, for example, pointed to the abolition of residential property rates as a factor in the explosion of house prices.
- **Government spending** as a percentage of GNP has been one of the lowest in the countries measured for the past three years. However, Ireland's current extremely high output growth and the expectation of a slowdown over the next few years indicate that the country is at a peak in its business cycle. Unfortunately, history shows Irish fiscal policy to be quite pro-cyclical.
- The current condition of the economy, however, with emerging bottlenecks becoming ever more prominent, makes it imperative that substantial focused investment is carried out in line with the plans set out in the National Development Plan (NDP) in areas such as the provision of transport infrastructure and serviced building land and in Research and Development (R&D). If action is geared towards achieving a certain amount of expenditure rather than specific goals, this can create inflationary pressure and undermine the objectives of the NDP
- It is striking to note that despite the remarkable performance of the economy, a measure of **income inequality**, calculated as the ratio of the share of wealth owned by the richest 20 per cent divided by that owned by the poorest 20 per cent, shows Ireland to have one of the worst income inequality ratios in the EU. In Ireland, the richest 20 per cent enjoy six times as much income as the poorest 20 per cent; only Portugal and Greece have worse records in this regard. In the best performing country, Finland, the ratio is only 3.1.

3.2 Employment and unemployment

Table 9 Employment and unemployment indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Cumulative employment growth	1 (28)	1 (28)	2 (28)
		Second Quarter	
Share of general Government in total employment	11 (24)	11 (24)	
Standardised unemployment rate	16 (20)	12 (21)	10 (23)
Level of youth unemployment	21 (28)	20 (28)	13 (28)
		Third Quarter	
Long-term unemployment	25 (28)	25 (28)	21 (28)
		Fourth Quarter	
Days lost in industrial disputes	19 (27)	21 (27)	

- While Ireland's **employment growth** has been extremely high over the past number of years, it must be borne in mind that only a short time ago, we had very high and persistent unemployment. Output growth can be of considerable benefit in eradicating unemployment, but the more long-term and entrenched is the problem, the less effect have macro-economic changes and the more need there is for a focused approach to tackle specific issues in particular areas.
- Ireland now has an average **level of unemployment**, down to 5.9 per cent as of the fourth quarter, 1999 (the latest period for which comparable data is available); the current figure is 5 per cent. This figure is just over twice the level achieved by the best-performing countries. The improvements in this area must not be viewed as cause for complacency. Continuing structural change in the economy will put pressure on more traditional sectors while favouring services and high-tech activities. Furthermore, the continuing strength of sterling can only be cushioning much of the indigenous enterprise, which exports mainly to the UK, from the full force of competitive progress in the world economy.
- The number of **days lost in industrial disputes** fell approximately 25 per cent between 1995 and 1996. This highlights the importance of consensus in labour relations in Ireland and points to the need for continuing effective wage restraint, especially in the light of recent inflation figures which see Irish prices rising more than twice as quickly as the European average.

3.3 Health and equality

Table 10 Health and equality indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
		Second Quarter	
Total expenditure on health			13 (28)
		Third Quarter	
Seats held in parliament by women			18 (29)
Public expenditure on health			18 (28)
Administrators & managers (% women)			21 (28)
		Fourth Quarter	
Earned income share (% to women)			24 (26)

- In Ireland, women do not appear to hold a very **equal** position in **society**. Women hold only 13.7 per cent of the **seats in the** Irish **parliament** and account for only 17 per cent of the administrators and managers in the country. In the best-performing country, Sweden, almost 43 per cent of parliamentary seats are held by women. In Italy, almost 54 per cent of administrators and managers are women.
- Not only do women appear to hold a less than equal share of powerful jobs, but they earn a good deal less than men. In Ireland, **women earn** just over a quarter of total income, whereas Swedish women earn 45 per cent of the total income in their country.

- Ireland spends almost 8 per cent of **GNP on health-care**. Almost three quarters of this is public expenditure. The US spends the largest share of GDP on health-care of the 27 countries included, but its **public expenditure** is little more than the percentage of GNP spent by Ireland.

3.4 Crime and social problems

Table 11 Crime and social problems indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
		Second Quarter	
		Third Quarter	
Prisoners			15 (22)
Drug crimes			13 (22)
Injuries and Deaths from Road Accidents			13 (25)
		Fourth Quarter	

- A look at some of the social problems in society can give an idea of the level of social cohesion present.
- Ireland has more **prisoners per capita** than average and more **drug crimes** than average. These statistics are important indicators of social exclusion with entrenched unemployment and poverty providing fertile breeding grounds for crime and drug abuse.
- Ireland also has an above average incidence of **serious road accidents**. As economic growth continues and car ownership accelerates, it becomes more important to focus on this area with policies directed at better road design, more rigid enforcement of existing laws and encouragement of greater respect among drivers for proper driving practices. National car testing, which began this year, should facilitate some improvement in road safety if it succeeds in causing a shift in vehicle maintenance practices. Infrastructural investment features strongly in the National Development Plan and has the potential, if targets are met, to improve both journey times and safety on many major routes.

4 People

Key points

- With respect to **primary and secondary education**, one stark result emerges, our performance is average at best and frequently worse.
- In the light of the less than impressive performance in primary and secondary education, Ireland scores surprisingly highly on tertiary education. All of the indicators included here rank above average.
- The overall share of tax in GNP is relatively low. However, the **tax burden on labour**, and specifically on employees, is relatively high. This suggests a need for broadening the tax base, especially in the light of cost competitiveness concerns related to possible increasing wage inflation.
- The indicators referring to the labour market suggest the existence of some flexibility, with relatively **low non-wage labour costs** and at least average levels of **part-time and temporary employment**. A low **female participation** rate is also a feature, and this appears to conform with other indicators.

4.1 Primary and secondary education

Table 12 Primary and secondary education indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Ratio of educational expenditures to non-residential fixed investment	3 (16)		
Teacher salaries in lower-secondary education			3 (21)
		Second Quarter	
Public expenditure on educational institutions			11 (26)
Public & private expenditure on educational institutions			7 (20)
Number of teaching hours per year in lower secondary education	8 (18)	9 (19)	
Average achievement in maths (age 11-12)	11 (23)	11 (23)	
Average achievement in science (age 11-12)	7 (23)	7 (23)	
		Third Quarter	
Ratio of students to teaching staff (secondary education)	16 (19)	13 (19)	
Educational participation (age 16; %)	14 (25)	16 (26)	
		Fourth Quarter	
Average number of foreign languages per pupil		14 (14)	18 (18)
School expectancy for a 5 year-old child	15 (23)	19 (24)	
Percentage of population with upper secondary level education	17 (22)	19 (25)	

It should be noted, at the outset, that the indicators for education presented in the above table relate primarily to educational inputs. There are much fewer indicators for educational outputs. In any event, the general nature of the indicators – both inputs and outputs – is such that they provide only an indication of Ireland's standing internationally in this area. In the case of the inputs, the strength of the correlation between any particular input measure and a desired educational outcome will depend on a broad range of mediating factors. Clearly, the allocation of resources to education must be considered in tandem with the question of the effectiveness of resource allocation in order to improve educational performance.

- The **ratio of educational expenditures to non-residential fixed investment** provides a crude measure of the relative importance accorded education and skills compared with fixed investment goods, such as machinery and equipment. The higher the ratio the more investment there is in educational skills rather than capital equipment. Ireland performs well in this regard, ranking in the first quarter.
- According to internationally comparable OECD statistics (which take account of differences in national price levels) **teachers' pay** at secondary level compares very favourably to that in other advanced economies. Ireland holds a first quarter position for this indicator, ranking 3 (21).
- In Ireland, the **Government spent** over 5 per cent of **GNP on educational institutions** in 1995. This ranked Ireland 11 (26).
- However, with respect to **public and private expenditure**, Ireland fairs better, at 7 (20). Ireland with a greater number of people in education compared with the EU and the OECD and would therefore require higher investment with less noticeable results in terms of per student data. However, in light of changes in the demographic profile, it is essential that future investment is sufficient to meet the requirements of making the Irish educational system a world leader.
- The absolute **number of teaching hours** per year in lower secondary education in Ireland has remained constant. However, the rank has slipped slightly since the ACR '98 and is now only three quarters that of the top performing country. Ireland's performance is in the second quarter internationally, ranking 9 (19).
- The **average achievement in maths** of students between the ages of 11 and 12 shows Ireland in an average position among the twenty-three countries included. The **average achievement in science** is slightly better, in relative terms.
- In light of the importance of these indicators in the future take up of science and technology degrees, it is important to improve this position and the standing of these subjects within the educational system.
- It is also worth noting that there is a drop off in the average achievement in maths from that which is achieved earlier in the pupils' educational career and this has to be reversed in order to ensure the better take up of these subjects in tertiary education.
- The **average number of foreign languages** per pupil rates in the bottom quarter of countries. This is a serious competitive disadvantage in the light of the imperative of strengthening the trade performance of indigenous Irish firms (in particular SMEs) in the Single European Market (SEM).

- Performance in relation to the **ratio of students to teaching staff** at secondary level is poor by international standards - 13 (19). However, in absolute terms Ireland's position has improved with the ratio now above that recorded in the ACR '98. In absolute terms the pupil teacher ratio at primary level is a good deal better, with Ireland performing much closer to the OECD average.
- The **educational participation of students aged 16** decreased slightly over the period. Ireland has a below average ranking on this measure. This is a concern in view of the entrenched and long-established inverse relationship between low educational attainment and favourable labour market/employment experience.
- Although no new information is available since ACR '99, it bears repeating that **school expectancy for a 5-year-old child** in Ireland is 15.6 years, a marginal increase from the level recorded in ACR '98 remaining in the bottom quarter of 24 countries. The number of years of full-time and part-time education that a 5 year-old child can expect to receive over his or her lifetime was lower in Ireland (15.6) than the OECD average (16.4) and lower that every EU country except Greece. The reasons underlying Ireland's weak performance for this indicator were discussed in detail in ACR '99. Most of the variability across countries in school expectancy comes from differences in enrolment rates in upper secondary education.
- Another interesting feature of the data in relation to educational participation relates to the **percentage of the population aged 25-64 years** that has **obtained**, at least, educational qualification to **upper secondary level**. One third of Ireland's population aged 25-34 years had not completed upper secondary education in 1996. This stood at 50 per cent for the population aged 15-64 years in ACR '99, standing in the second quarter of countries, ranked 8 (25). This percentage is set to continue to increase in the years ahead given the long-term impact of the (relatively late by European standards) introduction of free secondary education in the late 1960s. This is illustrated, as discussed further below, by the high proportion of younger people educated to an advanced level.
- The second report of the International Adult Literacy Survey, *Literacy Skills for the Knowledge Society*, shows Ireland to rank effectively second last when compared with eleven other countries on the basis of the percentage of the adult population (between 16 and 65) who reached certain comparable functional reading standards in their native language. While younger age groups tend to achieve higher standards of literacy than older groupings across all countries, Ireland still rates very poorly, even when two age cohorts (16-25 and 46-55) are used.
- The International Adult Literacy Survey, 1994-1995, shows Ireland ranking second last out of the twelve countries included. Recent Irish research[12], however, suggests, at least in relation to the UK and Northern Ireland, that Ireland's less than impressive position is explained by a cohort effect, that is by the fact that free secondary education was not introduced here until 1966. Allowing for this, the paper finds that Republic of Ireland literacy is slightly better, in some respects, than that in the UK and Northern Ireland; further, that the benefit, in terms of literacy achievement, gained from each stage of schooling, is greater in Ireland.

[12] Literacy and Education in Ireland, The Economic and Social Review, July 1999

- Bearing in mind the link between school expectancy and literacy, earnings and labour market success, it is interesting to ask how we can square such disappointing results with the fact that educational participation has expanded rapidly since the early eighties. Part of the answer might be that the gross expansion in participation at all levels has not benefited all groups in society equally[13], thus leaving the problems of early school-leaving and equal opportunities to education largely unresolved. It is to be hoped that recent Government initiatives to combat these difficulties will meet with some success.
- A forthcoming Department of Education and Science survey, carried out by the Educational Research Centre, shows that the "mean level of performance in English reading has not changed since 1980."[14]

4.2 Tertiary education

Table 13 Tertiary education indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Net enrolment in tertiary education (18-21 years)	7 (24)	6 (24)	
Percentage of people aged 25-34 with higher education qualifications	2 (15)	4 (25)	
		Second Quarter	
Science and engineering degrees as percentage of total degrees	11 (27)	7 (22)	6 (22)
Business R & D researchers	13 (27)	13 (27)	7 (25)
Bachelor degrees in science and engineering as % of 24 year olds		8 (25)	
Percentage of population (25-64 years) that has attained 3rd level education	14 (22)	8 (25)	
		Third Quarter	
		Fourth Quarter	
Researchers in higher education and government institutions		23 (27)	22 (25)

- In terms of **business researchers** as a proportion of the labour force, Ireland has steadily increased its share from 1.8 per 1000 recorded in ACR '98 to 2.3 in ACR '99 and to 3.3 for ACR '2000, helping to maintain Ireland's position in the second quarter of countries surveyed. However, Ireland still falls significantly behind world leaders. The best performing countries for this indicator - the US and Japan - have increased their shares of business researchers in the labour force from 5.9 and 5.6 in ACR '98, respectively, to 6.7 and 6.0.
- With respect to **researchers in higher education and government institutions**, Ireland performs badly, ranked 22 (25) – a fourth quarter ranking. The number of public research personnel has not increased significantly, rising from 1.5 per 1000 of the labour force in ACR '99 to 1.6 per 1000 for ACR 2000. These figures do not control for the quality of research.

13 Educational Inequalities Among School Leavers in Ireland, The Economic and Social Review, July 1999

14 The 1998 National Assessment of English Reading, (Summary pre-publication release), Educational Research Centre, Dublin, 1999.

- More than 31 per cent of Irish **18-21 year-olds were enrolled in third-level education** in 1996. This is a good result, placing Ireland 6 (24). However, in the interest of social cohesion, attention must be drawn to the very small extent to which increasing entry into tertiary education has reduced socio-economic inequalities of opportunity. Clearly, while gross expenditures can produce impressive overall figures, focused policy is required to respond to more localised problems.
- In Ireland, nearly a third of the **total degrees awarded** are in the area **of science and engineering**. Ireland's international ranking is 6 (22) for this indicator. Continued progress in relation to this indicator should be a good guidepost for building Ireland's competitive strengths for the knowledge economy.
- Similarly, the fact that almost 6 per cent of those aged 24 years in the population as a whole are **educated to degree level in science or engineering**, provides a good base for continuing to build up essential technological capabilities in the economy. Ireland is ranked in the second quarter at 8 (25).
- The compositional effect discussed in the preceding section on account of the relatively recent introduction of free education is highlighted in this section by the high proportion of younger **people aged between 25 and 34 educated to a level in excess of upper secondary standard**. Ireland's performance for this indicator places it in the first quarter, 4 (25). This is a key indicator for future competitiveness. Ireland should aim to further improve its good international ranking.

4.3 Work incentives

Table 14 Work incentives indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
		Second Quarter	
Income tax plus employees' social security contribution rate, (married)	11 (19)	14 (28)	13 (28)
Income tax plus employees' social security contribution rate (single)	13 (19)	19 (28)	14 (28)
Employers' compulsory social security contributions (married)			9 (26)
Employers' compulsory social security contributions (single)			9 (26)
Employees' & employers' social security contributions (single)			10 (28)
Employees' & employers' social security contributions (married)			8 (28)
Marginal tax rate (single)	17 (19)	26 (28)	10 (28)
Marginal tax rate (married)	8 (19)	13 (28)	12 (28)
		Third Quarter	
Average income tax rate (married)	12 (19)	17 (28)	16 (28)
Average income tax rate (single)	15 (19)	22 (28)	17 (24)
Top rate of income tax	16 (27)	18 (28)	
		Fourth Quarter	

The indicators presented in this section refer largely to 1997 and so do not reflect tax changes over the past two years (or indeed tax changes introduced in April 2000). However, they provide a detailed and definitive snapshot of the structures of work incentives in the Irish economy as compared to its international competitors in trade and FDI. The programme of tax reform undertaken over recent years will of course improve Ireland's standing relative to the rankings presented in the above table. However, it cannot be assumed for the range of indicators set out in the above table, that Ireland has moved out of the second quarter of countries surveyed since it cannot be assumed that other countries have been standing still.

- Personal income tax policy in Ireland is of crucial importance, not only in ensuring low wage demands, but also in its contribution to the success of the social partnership approach that has helped to underpin the economic boom in recent times.
- The **average income tax rate** as a percentage of average earnings for a **married couple** on the average industrial wage (with two children) has decreased significantly from 15.5 per cent in the ACR '98 to 14.1 per cent in this report. However, Ireland's rank remains around mid-table, at 16 (28).
- A similar picture can be seen in the **average income tax rate** as a percentage of average earnings for a **single person** on the average industrial wage (with no children). This rate has fallen from 23.1 per cent in ACR '98 to 20.5 per cent in this report. The rank has also risen from 22 last year to 17 this year. However, this data refers to 1997 and therefore would not take into account recent budgetary improvements. Mexico the lead country shows a small negative tax payment because workers are entitled to tax rebates
- **Income tax plus employees' social security** contribution (minus transfer payments), as a percentage of average earnings, shows exactly how much tax each person pays. For a married couple on the average industrial wage (with two children), 14.6 per cent of their income goes on taxes, while, for a single person, the figure is 26 per cent. Ireland continues to be ranked mid-table in this regard.
- Another important issue in relation to tax is the **tax wedge** (here including employer's social security contributions) which is the difference between the cost for employing a worker and the take home pay of that worker. This therefore increases the cost for firms of hiring employees while also increasing the disincentive for employees to take up work. For a married couple, this amounts to 23.8 per cent, which is significantly higher than the best performing countries such as Iceland, Luxembourg and Australia. Likewise, for a single person, the tax wedge of 33.9 per cent.
- Differences in tax/GDP ratios and the varying share of personal income tax and social security contributions in national tax mixes go far to explain the wide variation in the size and make-up of tax wedges on labour in the comparison countries. Recent tax changes are likely to have addressed the high tax wedges in Ireland, to some extent.
- Treated separately, **employers' social security contributions** amount to 12 per cent of gross wages for both married and single workers earning the average industrial wage. Here we see Ireland rank just above average, very close to the UK. Notably, many EU countries tend to have much higher percentages than Ireland. It is clear that the requirement to pay high social security contributions is a disincentive for employers to take on workers.

- Associated with this is the effect of the **marginal income tax rate** (income plus employee's social security), which is the amount of tax one has to pay for each additional pound of income. For a married couple on the average industrial wage (with two children), this rate is nearly 33 per cent and for a single person it is nearly 31 per cent, putting Ireland in the second quarter of countries compared. Ireland also had a top rate of nominal income tax of 48 per cent in 1997, which put Ireland 18 (28) however this was reduced to 46 per cent for 1998 and has been reduced again, to 44 per cent, for 2000, which would rank Ireland 13 (28) if all other countries remained constant.

4.4 Labour market

Table 15 Labour market indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Non-wage labour costs	3 (20)		
		Second Quarter	
Incidence of part-time employment	19 (28)	12 (27)	13 (28)
		Third Quarter	
Female participation rate	12 (15)	22 (28)	23 (28)
Incidence of temporary employment	11 (18)		
		Fourth Quarter	

The final section under the Council's priority, *People*, is the labour market. This is closely linked to tax policy, as outlined above, but also has specific issues that should be addressed, including labour market participation and flexibility.

- The **female participation** rate for Sept-Nov 1999 is less than two thirds that of the male rate (and less than 80 per cent of the rate for the total population). The female participation rate among younger cohorts is significantly higher than the average. Taking the age-groups between 15 and 34 together, we see that female participation is 84 per cent of the male rate. However, when you look at the 35-44 and the 45-54 age cohorts, the numbers drop significantly, and the participation rate for the combined cohort 15-64 years is much lower than for the same male age-group. Over time, we are seeing a shift in participation patterns and more women are now working than ever before driven by increased levels of educational attainment. It must be a priority, however, to look carefully at the availability and cost of childcare facilities in order to allow women the freedom to choose to participate in the formal labour force.
- On average, nearly twice as many females are working part-time[15] than the national average and nearly five times as many as males. Over a third of female employees work less than 34 hours per week compared to 8 per cent of males and 18.8 per cent for the total labour force. Female participation has increased in those working 10-29 hours a

[15] Part-time defined as working between 1-19 hours per week.

week by over 40 per cent since April 1997, to account for a quarter of the total female work force. The equivalent figure for males was less than half the increase for women at 15.3 per cent. This still only amounts to less then 5.5 per cent of the total male labour force.

- There has been considerable debate, in recent times, on the nature of labour market flexibility and how it is measured. The debate is often centred on the fact that there are now far fewer jobs for life than has been the case in the recent past. Moreover, there is a belief that fewer people want to take these jobs for life than at any previous time. Therefore, the need for labour market flexibility has become more important. An example of this is where former employees set themselves up as consultants and hire themselves back to the firms, thereby gaining greater freedom and financial benefit, but also taking greater risks. Along with this, people will try and take employment at times and for as long as they require, rather than what the employer desires.

- **Incidence of part-time employment** as a percentage of total employment can give an outline of the structural flexibility of the labour market. This does not take into account the regulations that would apply in these situations. Ireland is ranked 13 (28) for this indicator with an absolute figure of 15.2 per cent of those employed, employed part time in 1998. This is a decrease from 16.7 per cent in the ACR '99, when Ireland's rank was 12 (27). However, when comparing with the ACR '98, which uses data for 1996, Ireland has improved its ranking from 19 (28) and the absolute figure has increased from under 12 per cent of total employment to over 15 per cent.

- In terms of **incidence of temporary employment**, Ireland is ranked again mid table with less than 10 per cent of those employed being so temporarily. It is sometimes argued that these figures are discouraging, as temporary and part time employment are "bad jobs". However, in today's labour market, there are those that do not want permanent employment and seek more flexible hours and are happy with less permanency. The question is not whether those who want permanent full time employment can not get it but whether those, who for other reasons do not want permanent employment, are able to find employment that is more consistent with their needs.

- Ireland's favourable ranking in relation to **non-wage labour costs** – 3 (20) – is based on data that is not particularly contemporary. In any event, the figure appears inconsistent with the second quarter rankings for related indicators reported in section 2.3 above.

- In the context of EMU membership, the consequent removal of monetary policy as an instrument from the central bank, and the constraints on the conduct of fiscal policy under the terms of the Stability and Growth Pact (SGP), much of the traditional response to economic downturn and consequent unemployment is unavailable. With this in mind, labour market flexibility becomes increasingly crucial to Ireland's capability of responding to asymmetric shocks:

  - labour must be flexible in its wage demands in order both to ensure continuing competitiveness and to prevent increases in unemployment;
  - it must be mobile geographically in order to help combat regional bottlenecks; and
  - it must be mobile intersectorally over time in order to keep pace with technological change highlighting the goal of life-long learning.

5 Costs

Key points

- **Labour costs** have, for long, remained relatively competitive, even though **employee compensation** has been increasing quickly, largely because of accommodating improvements in productivity. Labour costs are accelerating lately, however, as the labour market tightens. This bodes badly for small Irish firms.
- **Short-term interest rates** are arguably too low for the state of the economy at present, a consequence of Ireland's EMU membership. Larger companies can often access finance internationally, availing of credit markets where long-term financing products are more developed. Further, the interest rate spread (the gap between wholesale lending and deposit rates) remains large, suggesting a lack of competition in the banking sector. Smaller firms are, in these circumstances, put at a disadvantage.
- **Gas and electricity tariffs** also favour larger users; diesel and oil are relatively expensive.
- The **property market** is one of Ireland's most obvious bottlenecks: significant adverse consequences include pressure on construction costs, infrastructure and labour costs.
- Having remained low for some time, price **inflation** increased rather rapidly of late.This is, to some extent, explained by the budgetary increase in tobacco duties and increased oil prices, but beyond this, it must be seen as a reflection of increasing pressure on wages and of the boom in consumption, fuelled, in part, by the expansion in personal credit. Moreover, services inflation is increasing even more rapidly than overall consumer price inflation.
- The inflation rate now stands at 4.4 per cent, over twice the eurozone average. Given that interest rates cannot be raised to combat overheating in the Irish economy, fiscal policy (taxation and public expenditure policy) must be responsive to the threat to Ireland's cost competitiveness.

5.1 Labour costs

Table 16 Labour costs indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Nominal unit labour costs	1 (15)	2 (15)	2 (17)
Pay for time worked (per hour)	4 (18)	5 (18)	5 (18)
Total per hour labour costs	6 (20)	5 (20)	4 (19)
Social insurance expenditure as a % of total labour costs	4 (16)		
		Second Quarter	
Hourly compensation costs	4 (20)	6 (23)	6 (22)
		Third Quarter	
Real compensation per employee			10 (17)
Unit labour costs in the total economy	5 (24)	10 (24)	15 (24)
		Fourth Quarter	
Nominal compensation per employee	5 (15)	8 (15)	13 (17)

- There has been a significant deterioration in several measures of Ireland's labour cost competitiveness. Ireland's ranking in terms of growth in **nominal compensation** per employee show a marked deterioration and now sits in the bottom quarter of countries while the absolute figure remained relatively constant. In terms of **real compensation** per employee Ireland fares better but is in the third quarter with an increase of just under one per cent in real terms per year between 1994 and 1999.

- The slippage in Ireland's relative position is well demonstrated by its current top ranking in terms of a *six-year* average for growth in **nominal unit labour costs**. While the result for unit labour costs estimate for 1999 has shown a significant disimprovement from 5 (24) in the ACR '98 to 15 (24) in this report. The marked change in labour cost competitiveness reflects pervasive skill and labour shortages in the economy at the present time. The major competitiveness threat in this context is the risk of igniting of a wage-prices spiral. With recourse to an accommodating depreciation of the exchange rate ruled out in EMU, there is a risk of severe competitiveness and job losses.

- As can be seen from the relative hourly earnings index compared to Ireland's major trading partners (a wage cost based real exchange rate measure), produced by the Central Bank, the 1990s showed a strong improvement in Ireland's international competitive position with relative costs falling by 7 per cent from 1985 to 1997. However, the relative earnings figure is forecast to be back at its 1985 level for 2000. In terms of the Central Banks relative unit labour costs, Ireland's position compared to the major trading partners has doubled with the unit labour costs now being half of those in the trading partners. However, this outcome is severely distorted by the exceptional productivity performance of a small number of foreign owned manufacturing sectors.

- The favourable figures presented in the table above relating to **pay levels** in manufacturing and total labour costs appear to suggest that the present acceleration in pay costs reflects the *catch-up* of income levels in Ireland to advanced world norms. However, although this may be the case and therefore not represent a severe competitiveness risk from that perspective, it is important to bear in mind that consideration of pay *levels*, in isolation from productivity *levels* can often convey a misleading impression of the underlying competitiveness position.

- **Hourly compensation** costs in manufacturing has remained relatively constant in ranking terms at 4 (20) in the ACR '98 to 6 (22) in both the ACR '99 and the ACR 2000. This fall in ranking is due to the inclusion of two new countries in the comparison in the last two reports that have performed better than Ireland. Ireland's absolute figure has fallen from $14.1 per hour to $13.3 per hour which is roughly equivalent to two thirds the EU average.

5.2 Financial markets, investment (and transport and communications)

Table 17 Financial markets, investment (and transport and communications)

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Short term interest rate	15 (22)	18 (27)	3 (28)
Insurance and freight costs	5 (26)		
		Second Quarter	
Long-term interest rate	11 (20)	10 (23)	7 (24)
Top rate of corporation tax	20 (28)	8 (29)	
Letter costs	9 (15)	4 (15)	4 (15)
		Third Quarter	
Money market rate	11 (22)	14 (22)	
		Fourth Quarter	
Interest rate spread (Absolute)	9 (24)	20 (24)	

- **Short-term interest rates** in Ireland are relatively low. This ignores, of course, the critical broader competitiveness issue of the appropriateness of the current very low level of interest rates to the current cyclically advanced position of the Irish economy.
- The **top rate of corporation tax** is competitive by international standards – ranked in the second quarter 8 (29). The level of corporation tax in Ireland is set to become increasingly competitive in the period to 2003 given the intention to establish a single unified low rate of corporation tax by 2003.
- As highlighted by the Council in several of its reports to date, the **interest rate spread** remains very high in Ireland by international standards reflecting the lack of competition in the banking sector heretofore. The interest rate spread is defined as the different between the wholesale lending rate and the deposit rate. Recent developments, leading to increased competition for mortgages and savings illustrate clearly the vulnerability of the incumbents in the market to Internet/telephone banking.

5.3 Energy

Table 18 Energy indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Gas prices (large user)	6 (11)	1 (11)	4 (10)
		Second Quarter	
		Third Quarter	
Industrial electricity prices (medium user)		11 (16)	10 (14)
Industrial electricity prices (large user)		8 (15)	10 (14)
Industrial electricity prices (small user)		10 (16)	9 (15)
Gas prices (small user)	8 (13)	7 (13)	8 (12)
		Fourth Quarter	
Automotive diesel oil prices for commercial use	6 (11)	20 (25)	
Heavy fuel oil prices for industry	15 (23)	22 (26)	

- Ireland tends to be more competitive on **gas prices** when quantities are larger. This is of no benefit to smaller users. There has been very little improvement for gas prises for small users, falling slightly from €6 to €5.7 between 1997 (ACR '98) and July 1999 (ACR 2000). For large users there has been a greater improvement from €3.8 to €3 between the ACR '98 and the ACR '99, however, this has fallen back to €3.2 in this report. The best performing country, Belgium, has improved from €3.5 last year to €2.7 this year, therefore Ireland is widening the gap between itself and the lead country.
- This point also holds true for **electricity consumption**: larger users pay a lower rate than smaller users, and to this extent that smaller electricity consumers operate in Ireland at a competitive disadvantage relative to larger users. Moreover, deregulation will initially benefit only the largest 30 per cent of users in the market, further increasing their competitive advantage over smaller enterprises.
- **Diesel and oil prices** are relatively high for Irish industry. It is significant that diesel is relatively expensive in Ireland, however, since we are the country second most open to trade in the OECD, and thus rely more than many other countries on transport. This is a clear disadvantage.

5.4 Property and construction

Table 19 Property and construction indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Construction skilled labour costs	4 (17)		
Unweighted average of skilled and unskilled labour costs	3 (15)		
		Second Quarter	
		Third Quarter	
Building costs: industrial	7 (14)	14 (20)	
Average of ranks for building material costs	10 (18)		
		Fourth Quarter	
Industrial occupancy costs	8 (14)	17 (20)	
Building costs: offices	8 (14)	17 (20)	
Office occupancy costs	8 (14)	16 (20)	

- No updates of the international figures are available, at present, in respect of costs of commercial property and building costs. However, given Ireland's poor performance as illustrated in the ACR '99, the continued buoyancy of the **property market** and the intensification of capacity constraints and bottlenecks in the construction sector, it is clear that Ireland's position in relation to these indicators is likely to have worsened further. The very tight state of the construction market is a major concern, given the associated **labour and skills shortages**, especially in the light of the need for increased capacity to successfully deliver in a timely fashion the ambitious investment plans in physical infrastructure announced in the National Development Plan.

5.5 Prices

Table 20 Prices indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
		Second Quarter	
Producer prices	14 (25)	14 (23)	10 (23)
		Third Quarter	
		Fourth Quarter	
Consumer prices	6 (28)	20 (27)	23 (28)

- On face value, in terms of the statistics presented in the above table, Ireland's performance in relation to **output prices** appears reasonable – ranked in the second quarter, 10 (23). However, the recent increase in **consumer prices** has meant that Ireland's ranking has fallen even further then that of last year. At an EU level, inflation is rising, with the HICP at 5 per cent in March, up from 1.1 per cent in July 1999[16]. This may reflect the weakness of the euro, among other things.
- The present position is a good deal less favourable and gives grounds for concern. The continued export boom reflecting a strong decline in the effective exchange rate in Ireland is cause for concern as it creates added inflationary pressure.
- The control of inflation has been central to Ireland's competitiveness. There are grounds for concern that the maintenance of low inflation in the economy is now threatened by a sustained period of economic growth in excess of the economy's supply potential (estimated at about 5 per cent in GNP terms) evidenced by the pervasive capacity constraints and bottlenecks.

The marked deterioration in Ireland's inflation performance is clearcut:

- The EU comparable Harmonised Index of Consumer Prices (HICP) at 5 per cent, in March, is over double that of the euro area as a whole. However, it should be noted that significant portions of the recent increases are accounted for by increases in taxation on tobacco and international oil price inflation.
- Inflation in the services sector is running above 6 per cent (y-o-y) driven by the pressure of demand and labour shortages.
- Wage inflation is accelerating across all sectors of the economy.
- While mortgage interest rates are around 3 percentage points lower than in Autumn 1998, house price inflation is continuing at double-digit rates (between 15 and 20 per cent in 1999). Analysts are now forecasting further increases of up to 20 per cent in 2000.
- Manufacturing output prices are around by over 5.2 per cent year-on-year (y-o-y), the fastest rate of increase since devaluation of the Irish pound in early 1993. The sharp pick-up in *pipeline* inflation is likely to be reflected in the headline rate in the short-term.

While some short-term deterioration in Ireland's inflation may be anticipated, recent analysis suggests a moderation of the rate to under 4 per cent by the end of this year and an average closer to 3 per cent for next year. However, inflationary threats remain.

- International oil prices recently hit a ten year high, reflected in energy price inflation of 15.3 per cent (y-o-y).
- Private sector credit growth is increasing at an high rate (33 per cent y-o-y). Private sector credit as a share of GNP is set to rise to 124 per cent this year.
- Real (inflation adjusted) interest rates now set in light of monetary conditions in the euro -zone as a whole are now clearly inappropriately low for the booming Irish economy.

16 CSO, Consumer Price Index, March 2000

- The strongly expansionary (pro-cyclical) stance of fiscal policy is fuelling domestic demand (consumption and investment).
- Inflation in Ireland, as a small highly open economy is strongly influenced by the level of the exchange rate and international inflationary developments. The weakness of the euro against sterling and the dollar is likely to put sharp upward pressure on consumer prices in the course of the year exacerbating the expected inflationary impetus flowing from the strong performance of the global economy.
- Planned increases in the National Minimum Wage under the new social partnership agreement will add to inflationary pressures in the labour market unless knock-on effects are contained.

6 Infrastructure

Key points

- **Transport infrastructure investment** in Ireland is among the lowest in the EU and has lead to a significant capacity constraint. To overcome these constraints not only significant investment but also institutional and planning reform are required.
- **Commuting time** to and from work in Ireland for 1996 was twice the lead country, due to the nearly three-quarters more vehicles being registered annually compared to 1995, which is reflected in very rapid growth in the car stock over more recent years, Ireland's standing is likely to be even worse than that set out by the data used in this report.
- The state of the **roads** in Ireland lags significantly behind that of the other members of the European Union. In terms of **road infrastructure** Ireland is at the bottom of the international comparison. The very large increase in numbers of vehicles since 1995 is causing more strain on the infrastructure.
- **Rail haulage** is among the lowest in the EU, and is twice as low as the EU average. **Rail infrastructure** is the worst in the EU, and **rail vehicles** are among the lowest per capita in the EU. Without adequate infrastructure, businesses will not use the railways and without sufficient usage of rail services, it is less attractive for investment.
- As would be expected, Ireland performs better in terms of **sea and air transport**. **Port container traffic** is one of the highest in the EU and so too is **air transport of goods**. However, the per capita size of the **merchant fleet** for large ships is only mid table.

Table 21 Infrastructure indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Container port traffic			3 (14)
		Second Quarter	
Buses & coaches per capita			7 (15)
Major airport traffic			5 (15)
		Third Quarter	
Average time commuting to and from work			8 (15)
Merchant fleet			9 (15)
		Fourth Quarter	
Rail infrastructure indicator	17 (18)	17 (18)	13 (13)
Road infrastructure indicator	17 (19)	15 (19)	14 (14)
Transport infrastructure investment per capita			13 (15)
Passenger cars per capita			14 (15)
Road goods vehicles per capita			13 (13)
Rail vehicles per capita			12 (15)
Goods transport by road			14 (15)
Goods transport by rail			12 (15)
Road haulage (per capita)			14 (15)
Rail haulage (per capita)			14 (15)

One of the main capacity constraints facing the Irish economy is that of poor infrastructure. The economic development over the past number of years has lead to a doubling in the size of the economy but has not lead to an equal growth in the physical infrastructure. Poor quality infrastructure has serious implications for an already tightening labour market. Poor infrastructure and growing congestion have resulted in lower labour availability and productivity. Strong employment growth coupled with strong demand for housing has lead to even greater demand for the infrastructure.

As the last remaining country in the EU without a land link to the continent, Ireland's transport sector needs to be one of the most internationally competitive. This is required to offset the extra costs involved, not only for the transport sector, but for the enterprise sector as a whole engaged in exporting. While recent developments in the National Development Plan, the Planning and Development Bill, 1999 and the Cabinet Committee on Infrastructural Development and Public Private Partnerships should significantly improve the present situation, there is also a need to address institutional obstacles and ensure the efficient implementation of these proposals.

- **Transport infrastructure investment** in Ireland over the period 1990-1996 is 13 (15). This is just 60 per cent of the EU average and 26 per cent of the best performing country.
- Over 90 per cent of **total goods transported** domestically go by road, with only 9 per cent transported by rail. This shows Ireland's dependency on road over rail. This is the second highest dependency on road in the EU behind Greece.
- Ireland is ranked 8 in the EU for **time spent commuting** to and from work per day. This is just over the EU average but still nearly twice that of the best performing country. Furthermore, these figures date from 1996 and would therefore reflect a situation that has change dramatically since then. This is due to the massive growth in the stock of cars in the economy. Since 1995, nearly three quarter more new cars have been registered.
- **Air transport of goods** performs well, ranked 5 out of the EU fifteen, with an increase of over 20 per cent on the previous year. While this is close to the EU average, Ireland only accounts for 60 per cent of the figure for the small Nordic countries.
- As would be expected for Ireland, **port container traffic** (million tonnes per capita) is one of the highest in the EU at over 2.5 times the EU average. However, the **merchant fleet** (over 1000 gross tonnage) per capita is only 9 of the EU fifteen. This would suggest that there are a large number of smaller ships in operation in Ireland compared to other EU countries.
- The road **infrastructure indicator** is the worst of all the countries compared in 1996. Ireland is by far the worst performing country and the absolute value is over twice as small as that the second worst country. This indicator is constructed using a combination of measures including the scale of the motorways, main roads, and secondary roads in the total road structure.
- The number of **buses and coaches** per capita is 62 per cent of the best performing country and is ranked 7 (15) for 1997. However, the number of **passenger cars** per capita is 14 (15) and just under 50 per cent of the best performing country. This would have increased significantly due to the recent economic boom.
- **Road haulage** in Ireland is 14 (15) in 1997, only 30 per cent of the lead country. While Ireland is heavily dependent on road usage, the amount of goods transported per capita, and also the number of **goods vehicles** per capita, is poor relative to the EU.

- **Rail infrastructure** remains at the bottom of the EU countries. Associated with this, the number of **rail vehicles** for passengers and goods is over eleven times lower than the best performing country, Luxembourg and three times lower than the EU average. This indicator is composed of a combination of rail indicators including the scale of the electrified rail network and the length and density of the rail network.
- While **rail** usage for goods transportation is under 9 per cent of total goods transportation, Ireland's **haulage** is four times lower than the EU average and only six per cent of the best performing country.

7 Telecommunications and e-Business

Key points

- The pace of change in the telecommunications sector is currently such that quite large annual increases in investment are required merely to keep up with the competition from other countries. While Ireland has increased its investment significantly over the past two to three years, our position relative to other countries has not radically improved.
- While Ireland ranks above average on most of the cost indicators included, it should be noted that we have generally been slipping behind other countries in the rankings. The Irish market is already becoming more open, but significant progress is required if tariffs are to compete successfully with international standards. This requires continuing improvement of the regulatory environment, in order to encourage fair competition, moving away from the historical monopoly position to a new and vibrant market where businesses and private consumers can avail of lower prices in a flexible, and responsive market-place.
- The cost of local calls is one of the highest in the group compared. However, internet use is now charged at a lower rate, improving Ireland's ranking significantly. With PC prices continuing to fall, call charges will increasingly determine people's decisions to access the internet and directly influence the country's connectedness to the global electronic marketplace. Public access points also have much potential for getting more people on-line and are likely to proliferate as call charges fall further.
- A recent survey work by Amárach Consultants and The Bristol Group sees Ireland lagging the UK, Canada and the USA on Internet usage at just over a third of the usage rate of the USA. Ireland has significantly fewer home users as a percentage of all users and significantly fewer home PCs with modems. Furthermore, only half of those domestic PC owners with modems in Ireland use the internet.
- What emerges from the foregoing is that, in order to keep up with, and especially to surpass other economies in the area of Telecommunications and e-Business, the accelerated introduction of substantial competition in the market, with the goal of achieving significant tariff reductions, is critical. In this context, the Office of the Director of Telecommunications Regulation (ODTR) has a central role to play.
- In the absence of decisive action in these areas, Ireland risks not only the loss of an opportunity to establish a meaningful foothold in the competitive global electronic marketplace, but more seriously, we allow Ireland to become uncompetitive and therefore unattractive for enterprise attempting to compete on the ever more ICT[17] - driven world market.

[17] Information & Communications Technology

7.1 Telecommunications and e-business infrastructure

Table 22 Telecommunications and e-business infrastructure

	ACR '98	ACR '99	ACR 2000
		First Quarter	
		Second Quarter	
Per capita expenditure on telecommunications	10 (15)	6 (18)	5 (17)
		Third Quarter	
Internet hosts per capita		16 (29)	16 (29)
Mobile subscriptions per capita		9 (21)	9 (15)
		Fourth Quarter	
Fixed lines	22 (27)	21 (28)	14 (15)

As highlighted by the Council in a number of reports, Ireland's international standing in relation to the provision of telecommunications infrastructure and advanced services remains at variance with the objective of achieving a leadership position in key strategic sectors of the emerging digital or information economy.

- Ireland's position, internationally, in terms of **fixed lines per 100 inhabitants** is in the bottom quarter of countries. While the number of fixed lines per 100 capita rose from approximately 37 to 42, over the period and is now estimated to have reached almost 47 per 100. However, this did not significantly improve the relative position. It should be noted that Ireland possesses only 62 per cent of the number of mainlines per capita possessed by Sweden, the best performing country.
- The number of **Internet hosts** per capita for January 2000 shows an increase of 67 per cent over the figure for September 1997. However, this still represents almost no change in our ranking relative to the other countries measured (i.e. other countries are moving ahead faster). Strikingly, we have only 14 per cent of the Internet hosts per capita of the top-performing country, Finland.
- **Mobile subscriptions** per capita increased enormously between 1996 and 1999 from 7 per cent in 1996 to 30 per cent in 1999 and is now estimated to have reached over 46 per cent in January 2000. The actual rise in mobile phone subscriptions between January and August 1999 amounted to an increase of almost 38 per cent over the seven months. However, we are still significantly behind the Scandinavian countries and Italy, with only about two thirds of their penetration level.
- **Expenditure** on telecommunications, measured on a per capita basis, achieves a second quarter ranking, equivalent to more than 90 per cent of the per capita expenditure of Switzerland, the best-performing country. A high level for this indicator is assumed to be associated with intensive usage of telecommunications services. However, it may reflect an uncompetitive pricing structure.

7.2 Telecommunications and e-business costs

Table 23 Telecommunications and e-business costs

	ACR '98	ACR '99	ACR 2000
		First Quarter	
2 Mbit/s leased lines to USA		5 (25)	4 (25)
Cost of call to the UK		3 (27)	5 (27)
		Second Quarter	
Cost of call to the US		6 (27)	10 (27)
2Mbit/s leased lines (50km)		5 (28)	14 (28)
2Mbit/s leased lines (100km)	8 (10)	4 (28)	10 (28)
Analogue leased lines (50km)		9 (25)	10 (25)
Analogue leased lines, (100km)	7 (10)	6 (25)	9 (25)
Analogue leased lines to the USA		6 (23)	6 (23)
Internet use			13 (28)
		Third Quarter	
Composite Business Basket			16 (28)
Voice grade leased lines connection	8 (14)		
		Fourth Quarter	
2Mbit/s leased lines connection	13 (13)		
Cost of local call	9 (15)	23 (28)	26 (28)
OECD National (GSM) Mobile Basket			25 (27)

- A crude measure of Ireland's overall position with respect to the other countries could be constructed by calculating the average ranking achieved by each country in all the indicators.[18] Ireland emerges from this exercise in 10 (28), representing a 64th percentile ranking.[19] This ranking cannot be considered wholly consistent with the goal of achieving a leadership position in e-business.
- For a year's **rental of a 50km line** (of 2Mbit/s capacity), Ireland just ranks in the second quarter. This rental charge is more than three times as high in Ireland as it is in the best-performing country, Finland.
- The situation for **100km leased lines** (of the same capacity) is only slightly better, with Ireland just a little higher up the second quarter. Here, the cost is, again, more than three times that in the cheapest country, Finland.
- Two Megabits per second **leased lines** to the USA are a good deal more competitive, however, with Ireland in the first quarter of countries monitored. This reflects the need to be competitive for US investments that are often high volume telecoms users.
- When it comes to lower technology **analogue lines**, Ireland achieves a second quarter ranking, but costs are, once again, three times higher in Ireland than in Sweden, where analogue lines (of 100km) are cheapest.

[18] Two alterations are made to this simple rule, in practice: calls and lines to the UK and the US are excluded, as this would bias the results in favour of these two countries; the sum of ranks for each country is averaged only over those indicators for which data were available, in each case.

[19] Ireland rates better than 64th per cent of the countries surveyed.

- **Analogue lines to the USA** are reasonably competitive from Ireland; positioned 6 (23).
- The cost of making a **local call** from Ireland is one of the highest in the group of countries measured. Ireland ranks 26 (28), only Mexico and Australia having more expensive local calls than Ireland.
- On the other hand, **calls to the UK** from Ireland are reasonably cheap, with Ireland ranking in the first quarter of countries, reflecting the very intensive telecom traffic between Ireland and the UK.
- Ireland ranks in the second quarter of countries for the **cost** of **calls to the USA**.

8 Competition and Regulation

Key points

- The changing economic environment and membership of EMU has meant that an efficient, effective and transparent programme of competition and regulation policy is required for strengthening competitiveness.
- While the data represented here refers to the situation in 1998, and overall, Ireland's performance is quite reasonable, other countries have embarked on a sizeable programme of regulatory reform that could significantly worsen Ireland's relative position over time.
- Ireland is among the leading countries in terms of the **index of economic freedom**. However, the recent improvement has mainly been due to reform in terms of fiscal policy. In order to achieve continued improvements, other areas, such as the scale of government intervention in the economy, banking and general regulations, need to be examined.
- Ireland also performs well in terms of the **overall regulatory environment**. This is based on good performances in areas such as **employment regulation**, and **product market regulation**, while areas such as **competition policy** do not perform as well.
- With regard to **employment regulation**, Ireland performs well for temporary employment but not as well in terms of protection against dismissal.
- The overall picture of **product market regulation** shows Ireland in a good light. However, there are significant differences in terms of state control, barriers to trade and investment and barriers to entrepreneurship. The main areas that need improvement are the size and scope of public control in the economy and the transparency of the regulation and administration process.
- An effective **competition policy** is characterised by extensive coverage of potential anti-competitive behaviours, few exemptions, and a high enforcement potential. Ireland performs relatively well in this regard, however more extensive legal coverage and fewer exemptions would improve Ireland's ranking.

Table 24 Competition and regulation indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Overall strictness of regulation for temporary employment			1 (25)
Barriers to trade and investment			1 (26)
Economic regulation			2 (26)
Overall regulatory environment			2 (20)
Overall product market regulation			2 (26)
Scale of state control			3 (26)
Index of economic freedom (1 to 5)			4 (29)
Barriers to entrepreneurship			5 (26)
Competition policy (law, exemptions & enforcement potential)			6 (25)
		Second Quarter	
Overall employment protection against dismissal			7 (26)
Administrative regulation			8 (26)
		Third Quarter	
		Fourth Quarter	

A transparent, effective and efficient structure of competition and regulation policy is necessary to ensure a competitive economy. The right framework for competition and regulation policy has become increasingly important due to the constraints on traditional mechanisms for adjusting for loss of competitiveness arising out of Ireland's EMU membership. In EMU, Ireland no longer can use changes in the exchange rate or monetary policy to offset these losses. *The Stability and Growth Pact* constrains the use of active fiscal policy. National economic policy management must therefore ensure that the framework for competition and regulation policy allows for the most effective and efficient use of scarce resources and eliminates cumbersome regulations imposed on enterprises lacking a clear and justifiable public policy objective. This in turn would enhance the adaptability, flexibility, and dynamism of the economy.

All countries in the OECD have introduced, to different extents, some regulatory reform programme. The UK has long recognised the benefits of regulatory reform and has introduced an extensive programme of reform. This is reflected by the fact that the UK is among the lead countries for nearly all the indicators used in this section. However, other countries have now started to introduce reforms and are now catching up with the UK.

The introduction of a programme of regulatory reform has to be undertaken on a systematic basis in order to ensure that it is appropriate to the needs of the economy and does not introduce any further restrictions and rigidity. Therefore, there is a need for continuous monitoring of the programme of reform to ensure that it enhances economic performance.

- The **index of economic freedom** is compiled from 50 independent variables broken down into broad categories, including trade policy, fiscal and monetary policy, government intervention, banking, wages and prices, property rights, regulation and the black market. Ireland fares well in this indicator ranked 4 (29) with a score that has been

steadily improving over time. The main reason for Ireland's improvement is changes in the fiscal burden. All other measures have remained constant over time. The fiscal burden is calculated using figures for top rate of income tax, average income tax, the top rate of corporate tax and the amount of government expenditure as a percentage of GDP. Therefore, for Ireland to continue to improve its position there will increasingly be a need to look at the other areas of concern. Countries such as New Zealand and Luxembourg have made significant improvements. Therefore, if Ireland wishes to improve its position there will be a need to look at other areas such as Government intervention, banking and general regulations to match the lead countries.

- The OECD produced a similar indicator for the **overall regulatory environment** composed of various dimensions of the regulatory regime, based on data from product and labour markets and competition policy. Ireland is ranked second for this indicator behind the USA, but slightly ahead of the UK.
- The OECD has measured the effectiveness of **competition policy** by analysing it in terms of three separate dimensions; range and potential of the law, scope of exemptions and the enforcement potential. Effective competition policy is assumed to be characterised by extensive coverage of potential anti-competitive behaviours, few exemptions and a high enforcement potential. Ireland is ranked 6 (25) and would be characterised by average legal coverage and exemptions and high enforcement potential. Ireland falls into the same grouping as Nordic countries, Italy, Mexico, Poland, and Turkey. According to the OECD, the UK is among the most effectively regulated economies. However, its performance in this indicator reflects a large amount of exemptions allowed in relation to competition policy. Therefore, this implies that an effective programme of regulatory reform must take into account all aspects of the economy and not just a few selected issues.
- Two further indicators have been used to estimate the regulatory environment for employment. These are **overall strictness for temporary employment** and **overall protection against dismissal**. For the first indicator Ireland is ranked 1 (25) while for dismissal Ireland is ranked 7 (26).
- The **overall product market regulation** indicator ranks Ireland 2 (26) and is based on both thematic and functional criteria. Under the thematic criteria, there are three summary indicators, state control, barriers to entrepreneurial activity, and barriers to trade and investment. In the functional criteria, there are two summary indicators, administrative regulation, and economic regulation.
- In terms of **state control** in the economy, Ireland performs well, ranked 3 (26). However, Ireland would perform even better if not for the relatively high level of public ownership in the economy. In particular, the size, scope and control of public enterprises leads to a poor performance in relation to the public ownership criteria. It should be noted that this indicator relates to the situation in 1998 and does not take into account of the recent commitment to a programme of privatisation.
- Ireland is ranked number one for **barriers to trade and investment** in the economy. The lack of explicit barriers in the economy such as tariffs bias this. The EU sets the tariff agenda for the member states and therefore Ireland does not have an independent policy on tariffs. This is reflected in the fact that the other indicators that make up this measure are all extremely small. Similarly, the explicit barrier measure for Ireland is the lowest in the EU. This suggests that Ireland has no other barriers to trade or investment other that those due to EU membership.

- Ireland is ranked 5 (26) for **barriers to entrepreneurship**. However, this does not reflect the administrative barriers for start-ups or the barriers to competition but mainly the lack of transparency in the regulatory and administration process.
- In terms of functional measures, such as **administrative regulation**, which use the same sub-measures as the thematic measures, Ireland does not perform as well and is ranked only 8 (26). Again, it can be seen that lack of transparency in the regulatory and administration process is the main reason for the relatively poor performance for this indicator, while administrative burdens on start ups are much lower.
- In terms of regulation of **economic structure**, Ireland performs well at 2 (26). Notwithstanding Ireland's good performance, the size and scope of public enterprise exerts an unfavourable effect on the overall performance.

9 Science and Technology

Key points

- While overall **business R&D expenditure** is ranked mid table, Ireland has not closed the gap with the best performing countries over the past number of years.
- **Foreign companies** carry out two thirds of business R&D expenditure in Ireland. However, only around one quarter of all foreign owned companies carry out R&D at all. Therefore, most of the R&D activity is carried out by a small number of large firms. Ten firms account for half of the foreign R&D expenditure.
- R&D expenditure in the **indigenous sector** is considerably lower than in the foreign sector but is more diverse in both number of firms carrying out R&D and also in the sectors in which this is done. Foreign owned enterprises account for two thirds of business R&D expenditure and this is concentrated in two sectors, electrical/electronics and pharmaceuticals.
- **ICT expenditure** as a percentage of GNP is ranked mid table. However, in terms of **average annual growth** Ireland performs more poorly. Most of those countries that are higher than Ireland in relative terms also have higher average growth rates. Ireland's current performance is not likely to close the gap with the best performing countries.
- In terms of **patents** granted at home and in the US, Ireland performs in the second and third quarter respectively. This is not surprising due to the dominance of foreign enterprises in R&D in Ireland, where patents may be filed from headquarters in the US. However, this does not bode well for the indigenous sector's ability to develop new products and become internationally competitive in newer, higher value added sectors.

Table 25 Science and technology indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
ISO 9000 certificates per capita	4 (26)		
		Second Quarter	
Business R&D expenditure	9 (26)	10 (28)	10 (26)
ICT expenditure	18 (24)	17 (24)	12 (26)
Inventiveness coefficient		11 (28)	14 (28)
		Third Quarter	
Number of scientific publications		17 (29)	
Patents granted in US	16 (26)	18 (28)	18 (28)
		Fourth Quarter	
R&D expenditure in higher education & government institutions	19 (27)	18 (28)	23 (26)
Growth in information technology market	13 (24)		20 (26)
Manufacturing R&D as a percentage of sales		12 (15)	

Science and technology has long been recognised as an important factor in the development of a competitive economy and has been one of the Council's the main areas of concern, since it was established in 1997. Research and development, the main contributor to science and technology potential and performance is therefore of prime importance. From the competitiveness prospective, it is highly significant that strong R&D performing firms also have a high propensity to export. R&D performance can be increased by boosting inputs, measures such as educational levels, business and government R&D expenditure, and the number of researchers engaged in R&D. It is hoped that this in turn will be reflected in better outputs measured by for example the number of patents granted and scientific publications per capita.

The rapid advances in science and technology, that are increasingly based on knowledge, and the increased openness of countries, to both goods and ideas, has given rise to new forms of competition between firms and countries. The ability to create, digest, and exploit knowledge and information is one of the most important factors underlying economic growth and prosperity. The competitiveness of firms depends on their ability to use their knowledge assets. The competitiveness of countries depends, therefore, on how well enterprises, governments and the labour force work together to exploit these assets.

- Ireland's ranking in terms of **R&D expenditure** by business as a percentage of GDP has remained constant at 10 (26), (10 (28) in ACR '99). However, the rate has increased slightly.
- Ireland has been very successful in attracting foreign investment, and about one quarter of these firms carry out some R&D activity in this economy. Associated spillovers, such as training of Irish citizens, also add to the science and technology potential of the economy. Foreign owned R&D performing companies account for nearly two thirds of the £535m total business R&D expenditure in Ireland in 1997. This is a similar result to that reported in ACR '99 for the year 1995. The top ten R&D performing foreign owned companies account for nearly 50 per cent of the R&D expenditure, with the top five accounting for over a third of the expenditure. The top ten R&D performers are mainly in two sectors, electrical/electronic and pharmaceuticals.
- There is a need for significant improvement in the performance of the indigenous sector, which only accounts for one third of R&D expenditure. The top five R&D performing indigenous companies account for only 15 per cent of the total of indigenous expenditure on R&D, while the top ten companies account for a quarter of the total. These companies are mainly in the food and software sector.
- In terms of **manufacturing R&D as a percentage of sales**, Ireland is ranked 12 (15), only a third of the best performing country.
- Moreover, R&D expenditure in higher education and government institutions as a percentage of GNP remains at a level only comparable with some of the least developed countries in the OECD. Ireland invested less than a half of one percent of GNP in this way in 1998. Furthermore, the *Irish Council for Science, Technology and Innovation* publication, *Technology Foresight*, has pointed to a lack of world-class research capabilities in key areas such as information and communications technologies and in biotechnology. A major expansion is planned under the NDP in the area of Research, Technological Development and Innovation (RTDI) with annual average expenditure over the Plan period amounting to a near trebling in real terms of estimated 1999 expenditure and cumulative total expenditure amount to almost £2bn, of which over £1.1bn is specifically allocated for fundamental research - £560m through the Technology Foresight Fund and £550m to be channelled through the Department of Education and Science for third level institutions.

- In terms of the **average growth** in the IT market between 1992-97, Ireland is also performing poorly ranked 20 (26). Low growth results in further erosion of Ireland's already weak position.
- Ireland is ranked 12 (26) for **ICT expenditure** as a percentage of GDP in 1997, with a ranking of between 8 and 11 over the period 1992 to 1996, suggesting that Ireland's performance is superior to that indicated by the above indicators.
- In the number of **scientific publications** per capita Ireland is ranked in the third quarter.
- The **inventiveness coefficient** is used to measure the amount of science and technology potential of business in the economy. Ireland is ranked 14 (28) in this years report down slightly from 11 (28) in last year's report, highlighting the current weakness of the knowledge infrastructure in the economy.
- Similarly, in the number of **patents granted in the US**, Ireland is in the third quarter. Ireland is ranked 18 (28). This year is a slight improvement over the previous year in absolute terms but is the same in terms of ranking.
- The number of **ISO 9000 certificates** awarded in Ireland is among the highest in the OECD and Ireland is ranked 4 (26) for this. However, this indicator only identifies standardisation of business procedures and may not reflect innovation activities.

10 Economic Environment

Key points

- While in terms of overall **labour productivity** Ireland is still performing well, this is largely due to strong productivity growth in the larger, foreign owned enterprises. The productivity levels of the smaller, indigenous enterprises are not performing close to the national or international averages.
- The **venture capital market**, while being one of the largest per capita in Europe, is heavily reliant on public sector finance and there are notable gaps in seed and early-stage financing sectors. The venture capital market in Ireland is also very concentrated on a small number of key high tech sectors.
- Ireland's **export performance** over the past number of years has been one of the best in the OECD. However, Ireland's trade performance is highly concentrated in both markets and sectors and is dominated by large, foreign companies.
- Ireland remains among the best performing countries in the OECD in terms of **inward FDI**. However, in terms of **outward investment** Ireland still lags behind the other countries compared.
- Ireland has performed extremely well in relation to **public finances** over the past number of years. However, strong economic performance and the present favourable position of the economic cycle are bolstering this performance.
- There is evidence of growing threats to environmental quality. Ireland's position in relation to the **environment** has not improved significantly over recent years. This will cause serious problems for the sustainability of economic development and in terms of Ireland's Kyoto obligations.

This section of this report, largely deals with competitiveness performance reflecting Ireland's competitiveness potential highlighted by the indicators discussed in the previous sections of the report.

10.1 Business environment

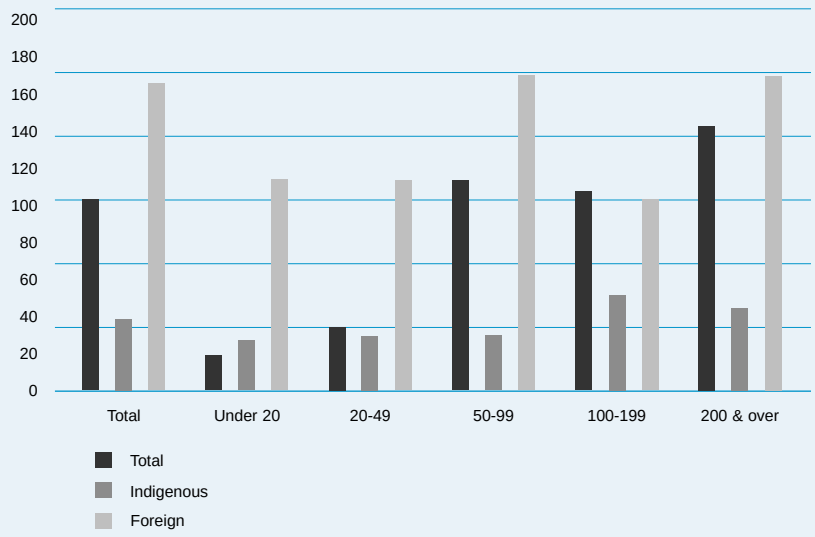
Table 26 Business environment indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Productivity (annual average change)	1 (15)	1 (15)	1 (17)
Total factor productivity			1 (18)
Labour productivity (50-249 employees)	2 (18)		
Turnover limit for VAT registration concession	3 (17)		
		Second Quarter	
Cumulative venture capital raised	5 (14)	5 (17)	
		Third Quarter	
Average debtor days	11 (16)		14 (19)
		Fourth Quarter	
Labour productivity (10-49 employees)	15 (18)		
Labour productivity (0-9 employees)	15 (18)		
Non-residential fixed investment	19 (21)	19 (21)	

The labour market has changed dramatically in the past few years. Previously public policy was strongly focused on employment creation. Today as the economy approaches full employment the objective must change. In order to ensure continued economic success and to achieve improvements in living standards, productivity must take on a more central role.

- **Total factor productivity** in the economy is the productivity of all economic inputs, capital and labour in the economy. Ireland is ranked 1 (15) in this indicator reflecting not only strong labour productivity but also high capital productivity.
- **Total labour productivity**, calculated over a six year period has grown strongly and Ireland remains at the top of the countries compared. However, this performance is largely attributable to strong growth in larger firms. Labour productivity in SMEs remains much lower, close to the bottom of the international rankings. The European Observatory for SMEs defines SMEs as enterprises employing less than 250 employees. These accounted for 96 per cent of all enterprises in Ireland in 1997.
- For very small firms, employing between 0-9 employees, **productivity** is almost three times lower than that of the best performing country, Belgium. For small firms, employing between 10-49 employees, Irelands relative productivity is just over two thirds the best performing country, in this case Luxembourg.
    - As illustrated in the figure below using CSO *Census of Industrial Production* data for 1997, there is a clear disparity between indigenous and foreign owned enterprises in relation to labour productivity. Irish owned firms' productivity is only 40 per cent of the national average while productivity of foreign firms is two thirds higher than the national average

Figure 1 Productivity per employee by size of enterprise and nationality of ownership, 1997

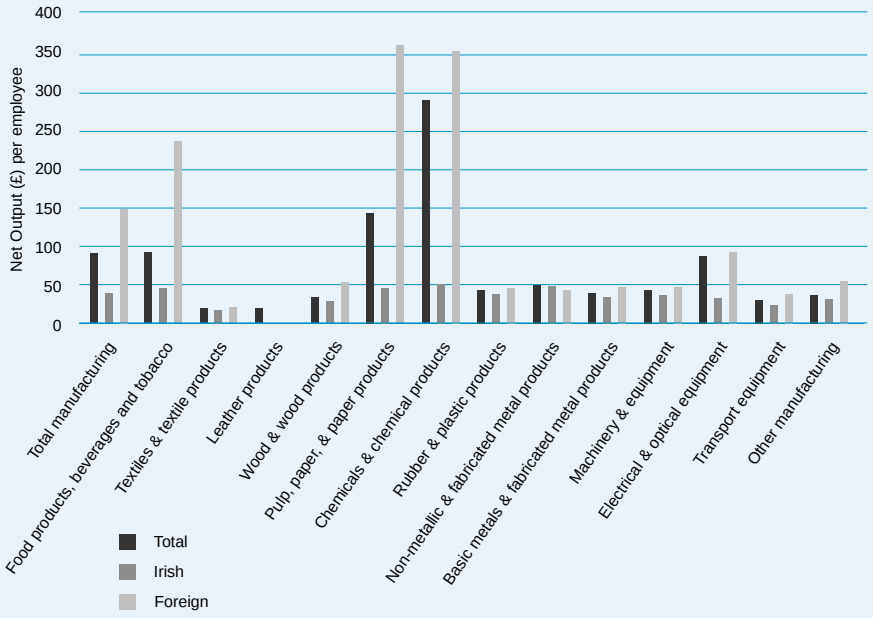


Source: CSO Census of Industrial Production, 1997

Note: Productivity defined as gross output minus materials used per person engaged in enterprises.

- There is also a significant variation in the productivity associated with the size of enterprises. Indigenous enterprises, employing less than 20 employees, have a lower productivity level than that of both foreign firms and the national average. Smaller indigenous enterprises account for 61 per cent of total indigenous enterprises compared to the 18 per cent of foreign owned firms employing less than 20 employees. Smaller enterprise achieve average labour productivity 41 per cent lower than the indigenous firms on average and only a quarter of the productivity levels in foreign owned firms.
- Labour productivity is highest in the indigenous enterprises employing between 100 and 199 employees. Foreign enterprises employing 200 plus are the most productive. Those employing between 250 and 499 employees have an even higher labour productivity for indigenous and foreign enterprises combined. This clearly shows that the impressive labour productivity performance overall is mainly accounted for by large enterprises that are mainly foreign owned.

Figure 2 Productivity by sector and nationality of ownership, 1997



Source: CSO Census of Industrial Production, 1997

Note: Productivity defined as gross output minus materials used per person engaged in enterprises.

- As can be seen from the figure above the highest productivity indigenous sectors are chemicals, paper and food products. However, even in these sectors productivity is only between 12 per cent and 18 per cent that of foreign owned enterprises in these sectors. The foreign sectors with the highest productivity include paper products, chemicals and the food industry. High productivity in paper products is driven in part by the sub-sector reproduction of computer media.

Figure 3 Net output (£) by nationality of ownership

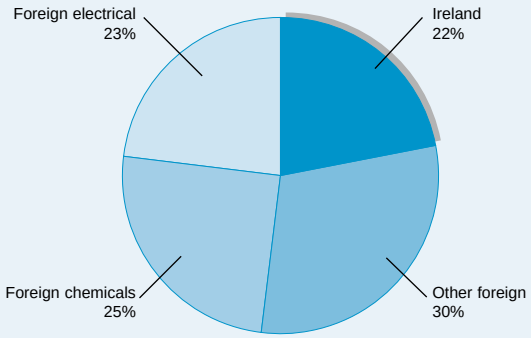
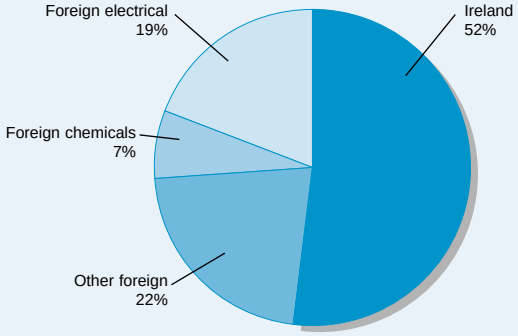


Figure 4 Employment by nationality of ownership



- As can be seen from the figures above, over three quarters of total net output of enterprises in 1997 originated in foreign owned enterprises. However, these firms only account for 48 per cent of the employment. Over 60 per cent of net output for foreign enterprises is accounted for by two sectors, chemicals and electrical equipment, 48 per cent of the total net output in the economy. These two sectors however, only account for a quarter of total employment while other foreign enterprises account for almost another quarter.

Table 27 Stages of distribution of investment

	1996		1997	
	Ireland	Europe	Ireland	Europe
Seed	2.2	1.0	0.0	0.9
Start-up	5.8	5.5	3.8	6.5
Expansion	85.3	40.0	92.3	35.0
Replacement capital	1.4	7.1	0.0	7.6
Buy-out	5.3	46.4	3.9	50.1
Total	100.0	100.0	100.0	100.0

Source EVCA Yearbook, 1998

- Ireland has a relatively well established **venture capital** market by European standards. However, when compared to world leaders such as the US and the UK it is quite underdeveloped with a heavy reliance on public financing and notable gaps in the provision of venture capital for seed and early-stage financing. Over 50 per cent of Ireland's venture capital market are concentrated in the communications, electronics, and biotech sectors. This is over two and half times higher than the European average. This is funded mainly from government agencies and not from the private sector as is usually the case in other countries.

Table 28 Investment by type of investor

	1996		1997	
	Ireland	Europe	Ireland	Europe
Corporate investors	6.7	3.5	5.1	11.3
Private individuals	0.0	7.4	13.8	4.0
Government agencies	16.3	2.3	36.3	2.2
Banks	45.4	29.8	17.2	25.8
Pension funds	6.1	22.7	6.9	25.0
Insurance companies	0.0	11.3	0.0	16.4
Academic institutions	0.0	1.0	0.0	0.7
Others	0.0	6.1	0.0	7.7
Realised capital gains reinvested	25.6	15.8	20.9	6.9
Total	100.0	100.0	100.0	100.0

Source: EVCA Yearbook, 1998

Table 29 Sectoral distribution of investment

	1996		1997	
	Ireland	Europe	Ireland	Europe
Communications	13.3	4.4	14.6	5.7
Computer related	18.9	5.1	19.3	6.6
Other electronic	1.9	4.1	12.1	4.6
Biotechnology	6.7	2.7	7.5	2.6
Medical/health	0.0	3.6	0.0	4.3
Energy	0.0	1.1	0.0	0.8
Consumer related	8.5	18.1	9.7	22.2
Industrial products/services	3.5	15.1	14.3	13.1
Other services	0.0	11.9	0.0	13.1
Chemicals and materials	0.0	3.2	0.0	2.7
Industrial automation	0.4	1.9	0.0	0.9
Transportation	5.2	2.9	0.0	4.1
Financial services	0.0	6.4	0.0	2.4
Other manufacturing	27.1	9.8	7.1	7.2
Agriculture	0.0	1.6	0.0	0.6
Construction	2.8	3.8	15.5	3.8
Other	0.0	3.7	0.0	5.3
Total	100.0	100.0	100.0	100.0

Source: EVCA Yearbook, 1998

- Ireland performs well in concessions for **VAT registration**, ranked 3 (17), however this is still a quarter lower than in the UK. This means that Irish firms have to register and pay VAT at significantly lower turnover levels than their counterparts in the UK.
- Ireland has remained relatively constant in **average debtor days**. In 1997, the number of debtor days was 59; this has fallen slightly in 1999 to 57 days. However, Ireland still ranks 14 (17) with the best performing countries – the small Nordic countries - have average debtor days of just over a month, half the Irish number of days.
- **Non residential fixed investment** is very low in Ireland, as a percentage of GNP. The very significant investment plans announced under the NDP should lead over time to some improvement in Ireland's relative position in international terms. Consideration is required, however, of the appropriate balance between the share of total income generated in the economy allocated to consumption (private and public) and that apportioned to investment (particularly public investment) in order to ensure the realisation of the economy's medium-term growth potential.

10.2 Trade and FDI

Table 30 Trade and FDI indicators

	ACR '98	ACR '99	ACR 2000
		First Quarter	
Export performance for total goods	6 (27)	3 (27)	2 (27)
Trade openness	2 (26)	2 (28)	2 (28)
FDI inflow stock as a % of GDP		6 (28)	5 (28)
		Second Quarter	
Percentage of SMEs that export	16 (16)		7 (19)
FDI inflow as a percentage of GDP	7 (25)	6 (27)	11 (27)
		Third Quarter	
Trade openness in services	8 (12)		
FDI outflow stock as a % of GDP		16 (28)	16 (28)
		Fourth Quarter	
Manufacturing exports concentration (by country)	20 (24)	18 (23)	
Manufacturing imports concentration (by country)		21 (23)	
Manufacturing exports concentration (by sector)	22 (24)	19 (23)	
Manufacturing imports concentration (by sector)		20 (23)	

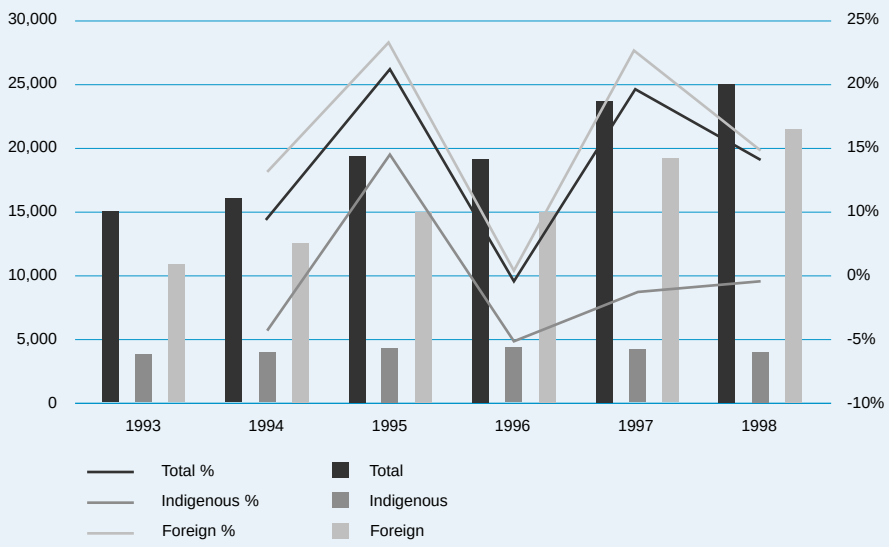
- Ireland's **trade openness** is nearly 160 per cent of GNP, second only to Luxembourg as the most open economy in the OECD. However, Ireland's trade openness in services is far lower, being less than half that of the best performing country. This is a critical weakness in terms of the opportunities provided by information intensive services activities in the digital/knowledge economy.
- Ireland has performed extremely well in the international markets and Irish **export growth**. However, as is well known Ireland's manufactured exports are predominantly sourced in a narrow range of high-tech, foreign owned firms accounting for 86 per cent of exports in 1997. 50 companies together account for half of total Irish exports[20].

20 "Technology Foresight Ireland - An ICSTI Overview", 1999 page 34.

Over 58 per cent of exports in 1997 were generated by foreign enterprises located in two sectors, chemicals and electronics. The exporting performance of Irish owned firms has been relatively strong over recent years, bolstered by a highly competitive level of the euro exchange rate vis-à-vis sterling. However, it still lags significantly behind the performance of foreign owned firms. According to the *Census of Industrial Production 1997*, the food, beverage, and tobacco sector (mainly the food sector) account for 54 per cent of manufacturing exports from indigenous enterprises.

- The nominal effective trade weighted exchange rate provides a good indication as to the change in the competitive position of traded goods in the economy. If this measure increases then Irish goods are becoming less competitive internationally. Ireland's effective exchange rate decreased by around 1.5 per cent between 1998 and 1999 and has decreased by nearly 4 per cent since 1991.
- The **percentage of SMEs that export** has increased from 34 per cent in 1996 to over 50 per cent in 1999. This ranks Ireland 7 (19) but with an absolute figure close to that of the top ranking countries.

Figure 5 Export performance of total, indigenous and foreign firms, 1993-1998



Source: Forfás Irish Economic Expenditure – Preliminary Results for 1998

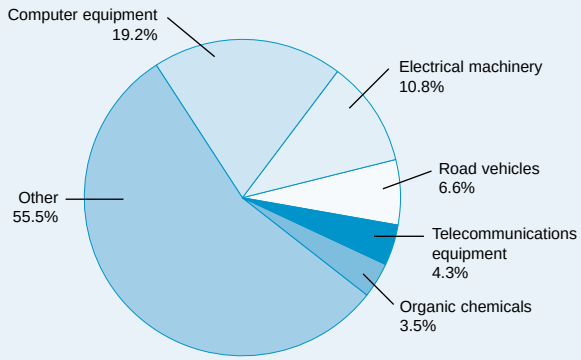
- According to the Forfás *Irish Economic Expenditure*- Results for 1998 total exports, for firms employing more than 19 employees, increased by 68 per cent between 1993 and 1998. Indigenous exports only increased by 4 per cent[21] while foreign exports rose by 91 per cent and accounted for 98 per cent of the total increase. This is similar to results derived from CSO data for the period 1991-1996 showing that foreign manufacturing firms accounted for 94 per cent of the increase in exports over the period[22].
- Ireland's **export and import concentration**, in both terms of markets and sectors, is extremely concentrated reflecting the high dependence of the Irish economy on multinational enterprises and the UK. This highlights Ireland's vulnerability to asymmetric sectoral or geographical economic shocks.

[21] The Forfás report only includes firms employing 20 or more employees receiving assistance from Enterprise Ireland or IDA Ireland. According to the Census of Industrial Production over 60 per cent of Irish owned enterprises employ less than 20.

[22] See NESC (1999) "Opportunities, Challenges and Capacities for Choice" No. 105 page 326.

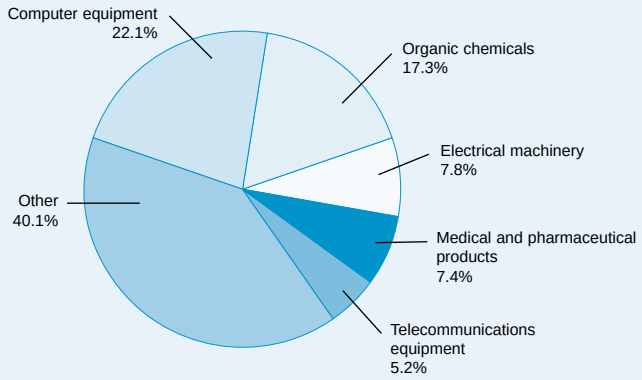
- The top five exporting sectors of manufacturing industries accounted for 59.9 per cent of Irish exports in January to November 1999 compared to 58.2 per cent for the same period in 1998. They also accounted for 72.6 per cent of the export growth over the year. These sectors include computer equipment, organic chemicals, electrical machinery, medical and pharmaceutical products and telecoms equipment. The top five import sectors accounted for 45.5 per cent of total imports in Jan-Nov 1999, compared with 44 per cent the year before. They also accounted for half of the total increase in imports. These sectors are computer equipment, electrical machinery, road vehicles, telecoms equipment and organic chemicals.

Figure 6 Irish import share by sector, Jan - Nov 1999



Source: CSO Trade Statistics, March 2000

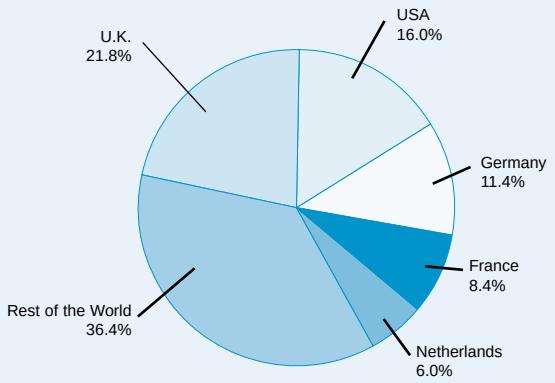
Figure 7 Irish export share by sector, Jan - Nov 1999



Source: CSO Trade Statistics, March 2000

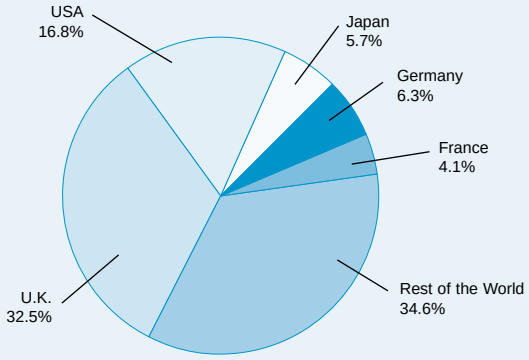
- The top five markets for Irish exports (UK, Germany, USA, France and the Netherlands) accounted for 63.6 per cent of exports in Jan-Nov 1999 compared with 66.1 per cent the year before. These markets also accounted for almost half the increase in exports over this period. The top five import markets (UK, USA, Japan, Germany and France) account for 65.4 per cent of imports in Jan-Nov 1999 down from 66.1 the year before. These five markets also accounted for almost half the increase in imports.

Figure 8 Irish export share by country, Jan - Nov 1999



Source: CSO Trade Statistics, March 2000.

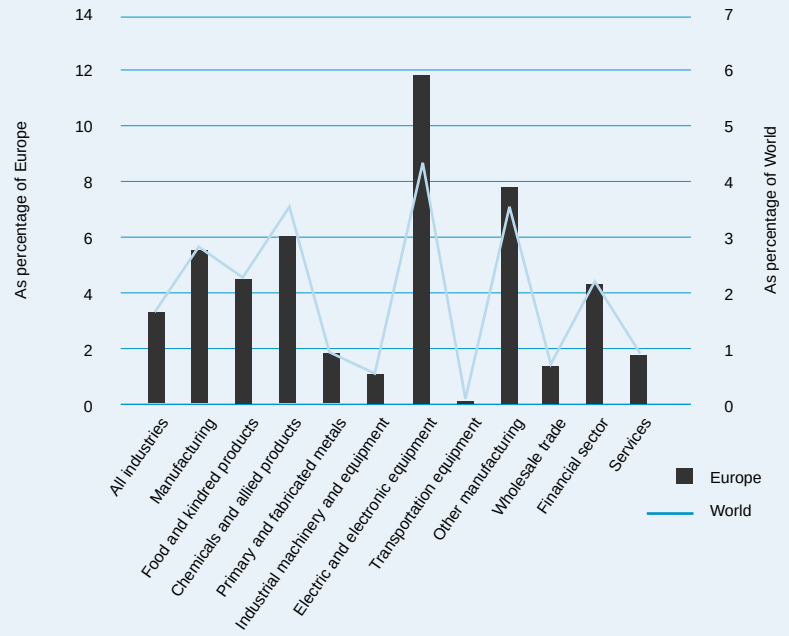
Figure 9 Irish import share by country, Jan - Nov 1999



Source: CSO Trade Statistics, March 2000.

- Strong export growth achieved over the late 1990s appears to be slowing. Exports for the period January to December 1999 rose by 15 per cent over the same period in 1998. However, the equivalent growth for this period between 1997 and 1998 was 28 per cent. Similarly for imports, the growth rates for 1997-1998 and 1998-1999 respectively were 21 per cent and 9 per cent. This trend is also borne out by employment in manufacturing sector where strong growth of on average 3.8 per cent between 1995 and 1998 has slowed to 0.2 per cent, for the year ending June 1999.
- For the first half of the 1990s foreign demand (net trade) and domestic demand accounted for roughly 50 per cent each of the growth in GDP. For the second half of the 1990s, this has significantly changed so that domestic demand now accounts for over 80 per cent of the increase in GDP.
- **Foreign direct investment**, one of the main contributors to Ireland's economic boom, has declined in terms of international ranking since ACR '99. In the ACR '98, Ireland was ranked 7 (25). This ranking improved slightly the ACR '99 to 6 (27). In this year's report Ireland has fallen back to 11 (27). However, the absolute value has increased from 2.7 per cent of GNP to 3.1 per cent in 1998. Ireland has experienced sustained inflows of FDI from abroad over recent years. This is evident in terms of the performance of the build up of **FDI stock position** in Ireland. This is ranked 5 (28), a slight improvement of over the position as set out in the ACR '99 of 6 (28).

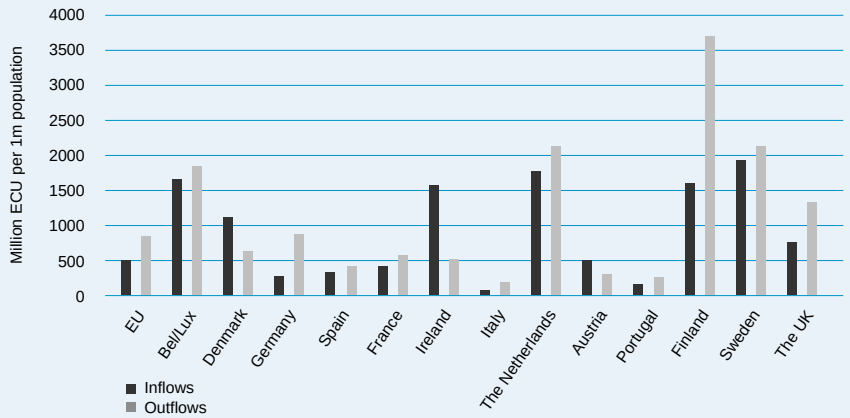
Figure 10 US direct investment in Ireland as a percentage of total US investment in Europe and World, 1998



Source US Dept. of Commerce, Bureau of Economic Analysis

- As can be seen from the graph above, Ireland's share of US investment in both Europe and the world is concentrated in several sectors including financial services, chemicals, and electronic equipment. In all sectors, it can be seen that there is a strong correlation between the amount of FDI in Ireland as a percentage of both the European and world share. Europe accounts for half of US investment abroad while Ireland accounts for over 1.6 per cent of total US investment and 3.3 per cent of US investment in Europe. In some sectors such as electronic equipment, Ireland has over 12 per cent of the European share and over 4 per cent of the world share. Ireland is attracting less US investment in the chemical sector in relative terms than Europe is as a whole.
- In terms of **outward investment** – a crucial requirement to grow Irish firms to an internationally competitive scale – Ireland's performance is relatively weak. Ireland is currently ranked 16 (28) and the absolute level of outward FDI from Ireland - 9 per cent of GNP - equating to only 14 per cent of the best performing country, Switzerland.
- Outward and inward FDI is becoming more important in relation to the new environment that has been created by the completion of the Single European Market. This has led to significant increases in mergers and acquisitions, which are becoming an increasingly important form of investment opportunity. This trend is likely to continue with the accession of Eastern European countries into the EU and will make it more important for Irish firms to be able to compete on an international scale.

Figure 11 EU inflows and outflows of FDI per capita, 1998



Eurostat Statistics in Focus, Economy and Finance, no 19/99: "European union Direct Investment Flows – First Results for 1998".

- As can be seen from the graph above, Ireland performs very well in relation to FDI inflows per capita compared to the EU average. Ireland is 4 (15) accounting for 3.2 per cent of EU inward flows, similar to that reported for the US investment above. However, in terms of outward flows, Ireland is 9 in the EU with only 0.6 per cent of EU outward flows and 61 per cent of the EU average. Other small EU countries such as Belgium, the Netherlands, Finland and Sweden have far superior performances in relation to FDI, and in particular outward investment. In fact all EU countries bar Denmark, Austria and Ireland experience stronger outward flows than inward. No other country in the EU has as low a level of outward investment as a percentage of inward investment than Ireland.

10.3 Public finances

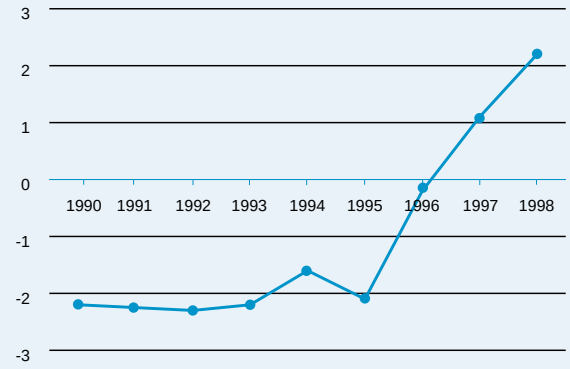
Table 31 Public finance indicators

Indicator	ACR '98	ACR '99	ACR 2000
		First Quarter	
Net lending or borrowing of general government	3 (15)	2 (17)	3 (17)
		Second Quarter	
General government gross debt	12 (15)	3 (15)	4 (15)
		Third Quarter	
		Fourth Quarter	
Non residential fixed investment	19 (21)	19 (21)	
Government bond yields	15 (20)	16 (21)	

Ireland's very strong performance, as set out in the table above, in relation to various measures of the public finances, is heavily influenced by the very robust performance of the economy over recent years. When adjusted for the effects of the economic cycle, in order to derive structural or underlying measures of the Government's fiscal position, the picture is somewhat less favourable. There is, however, a high degree of uncertainty associated with calculations of this nature.

- Ireland has performed extremely well in the area of **gross government debt** as a percentage of GDP over the past few years. The absolute figure has fallen from 80 per cent in 1997 to 47 per cent for 1999. Ireland has also shown a significant movement in terms of the ranking, moving from 12 (15) to 4 (15). Luxembourg, the best performing country in all three years of the ACR to date, has a debt ratio of under 10 per cent of GDP. The second and third best performing countries, Finland and the UK, have similar debt ratios to Ireland of between 42-46 per cent.

Figure 12 General government balance surplus (+)/deficit (-) as % of GDP



- The **net lending or borrowing of general government** has remained relatively constant, in ranking terms, over the past few years. Ireland has however moved from a deficit of 1 per cent to a surplus of 2 per cent for 1999, which is 3 per cent of GDP above the EU average. However, given Ireland's point in the economic cycle this strong performance is not surprising.
- **Non-residential fixed investment** is an estimate of the commitment to expanding the physical productive capacity of the economy. Ireland has a ranking of 19 (21), with an absolute figure of less than 50 per cent of the best performing country.
- **Government bond yields** are the cost of government borrowing and on international capital market. In EMU bond yields of all participating member states have converged, and therefore, they no longer reflect the cost for a single member state but the perceived stability of the whole currency area. There is still an additional premium, based on the perceived ability of each country to repay public debt but this is much smaller than previously.

10.4 Environment

Table 32 Environment indicators

Indicator	ACR '98	ACR '99	ACR '2000
		First Quarter	
		Second Quarter	
Per capita NO_X emissions	16 (26)		11 (28)
		Third Quarter	
CO_2 emissions from	17 (27)		18 (28)
Per capita SO_X emissions	19 (25)		20 (28)
Recycling activity: Glass	10 (14)		15 (21)
		Fourth Quarter	
Recycling activity: Paper/board	18 (18)		20 (21)

Sustainable development is a vital issue in relation to the international competitiveness of economies. International competitiveness relates to the ability of a country to ensure a high standard of living for its citizens now and in the future. Sustainable development is focused on ensuring that present economic growth does not incur environmental or social costs which would reduce the quality of life in the future.

There are three equally important aspects of the sustainable development agenda; economic, social and environmental. The economic and social aspects of sustainable development have been discussed in earlier sections of this report. Hence, in this section the environmental aspects are outlined. A proper balance is required between these three aspects in order to ensure sustainable development.

- Ireland's performance in relation to **CO_2 emissions** has deteriorated in both absolute and relative terms. In the ACR '98, Ireland was ranked 17 (27). In this report, Ireland's ranking has fallen to 18 (28) due to the inclusion of Poland which performs better than Ireland in this indicator. In absolute terms, the level of emissions from energy use per tonne per capita in Ireland has increased from 9.7 to 10.3. While this may seem only a minor disimprovement, under the Kyoto Agreement Ireland is required to limit its absolute level of emissions to 13 per cent above the 1990 levels by 2008-12. Recently predictions[23] suggest that if growth rates continued at the estimated levels that emissions would be 35 per cent above the 1990 levels. This could have serious implications for future growth.
- In the case of **NO_X emissions**, Ireland's position has improved since the ACR '98. Ireland was ranked 16 (27) then and is now ranked 11 (28). Ireland has reduced the level of emissions to 32 kg per capita from 37 kg per capita. However, in Japan, the best performing country, emissions are still only 11 kg per capita.
- In relation to **SO_X emissions**, Ireland has improved in absolute terms but not in relation to the rankings, having fallen to 20 (28).

23 Review of greenhouse gas emissions compiled by the EPA, the ESRI, the ESB and the Department of Public Enterprise.

- **Recycling activity in paper and board** has increased dramatically from 3 per cent in the ACR '98 to 12 per cent. However, Ireland is still at the bottom of the international ranking with less than 16 per cent of the recycling activity of the Netherlands, the best performing country.
- **Recycling activity** in glass has increased by 10 percentage points to 39 per cent. However, this is still under 50 per cent of the best performing country, Switzerland.

A1 Annex 1

Competitiveness Indicators: Definitions and Sources

Table A1 - Education Levels

1. **Educational participation - age 16 (%)**
   Total participation (net enrolment in all levels of education) for age 16 in public and private institutions (based on head counts).
   Source: OECD, Education at a Glance, 1998

2. **Mean years of schooling - age 25+ (years)**
   Source: UNDP, Human Development Report, 1994

3. **Net enrolment in tertiary education - age 18-21 (%)**
   Net enrolment in public and private tertiary education for persons aged 18-21 years of age (based on head counts).
   Source: OECD, Education at a Glance, 1998

4. **Percentage of population (25-64 years) that has attained 3rd level education**
   Percentage of the population 25 to 64 years of age that has completed third-level education.
   Source: OECD, Education Database

5. **Percentage of population (25-64 years) that has attained upper secondary level education**
   Percentage of the population 25-64 years of age that has completed at least upper second-level education.
   Source: OECD, Education Database

6. **School expectancy for a 5 year-old child**
   Number of years a five year-old entering the education system currently may expect to remain in the educational system.
   Source: OECD, Education at a Glance, 1998

7. **Percentage of people aged 25-34 with higher education qualifications**
   Source: OECD, Education Database

Table A2 - Education Policy and Performance

1. **Number of teaching hours per year in lower secondary education**
   Number of teaching hours per year in public institutions.
   Source: OECD, Education at a Glance, 1998

2. **Ratio of students to teaching staff - secondary education**
   Ratio of students to teaching staff in public education (calculations based on full-time equivalents).
   Source: OECD, Education at a Glance, 1998

3. **Average achievement in maths (11-12 years)**
   Overall student achievement in mathematics, eighth grade based on tests administered as part of the Third International Mathematics and Science Study (TIMSS) undertaken by the International Association for the Evaluation of Educational Achievement (IEA).
   Source: OECD, Education at a Glance, 1996

4. **Average achievement in science (11-12 years)**
   Overall student achievement in science, eighth grade based on tests administered as part of the Third International Mathematics and Science Study (TIMSS) undertaken by the International Association for the Evaluation of Educational Achievement (IEA).
   Source: OECD, Education at a Glance, 1996

5. **Average number of foreign languages per pupil**
   The average number of (modern) foreign languages studied per pupil during the course of general secondary education in 1995. (The Irish language is excluded.)
   Source: Eurostat, UOE

6. **Public expenditure on educational institutions as % of GDP**
   Source: OECD in Figures 1999 edition

7. **Public and private expenditure on educational institutions as % of GDP**
   Source: OECD in Figures 1999 edition

8. **Teacher salaries in lower-secondary education after 15 years of experience US$ PPP**
   Source: OECD in Figures 1999 edition

Table A3 - Labour Costs and Productivity

1. **Nominal compensation per employee (annual average change 1994/1999)**
   Source: EC economic data pocket book No. 1 2000

2. **Real compensation per employee (annual average change)**
   Source: EC economic data pocket book No.1 2000

3. **Nominal unit labour costs (annual average change 1994/1999)**
   Rate at which unit labour costs have been increasing.
   Source: EC economic data pocket book No.1 2000

4. **Labour costs in the total economy (percentage increase)**
   Percentage change from the previous period.
   Source: OECD Economic Outlook, December, 1999

5. **Pay for time worked (per hour) for manufacturing workers (Swedish Krona)**
   Denotes basic time and piece rates, shift and overtime premium, other work-related premium, incentive pay, and bonuses paid regularly.
   Source: Swedish Employer's Confederation, Wages and Total Labour Costs for Workers, 1999

6. **Total per hour labour costs for manufacturing workers (Swedish Krona)**
   Represents pay for time worked, pay for time not worked, other cash payments, employer social security expenditure and labour cost reductions from employment subsidies.
   Source: Swedish Employer's Confederation, Wages and Total Labour Costs for Workers, 1999

7. **Hourly compensation costs for production workers in manufacturing (US$)**
   Total compensation costs include pay for time worked; other direct pay; employer expenditures for legally required insurance programmes and contractual and private benefit plans; and, for some countries, other labour taxes.
   Source: US Bureau of Labour Statistics

8. **Productivity (annual average change 1994/1999)**
   Growth rate in productivity.
   Source: EC economic data pocket book No.1 2000

Table A4 - Work Incentives

1. **Average income tax rate (percentage of average earnings)**
   Married, 100, 0, 2 ch - the average income tax rate as a percentage of average earnings for a married couple, with only one spouse earning 100 per cent of the average production wage and with 2 children.
   Source: OECD, The Tax/Benefit Position of Production Workers

2. **Average income tax rate (percentage of average earnings)**
   Single, 100, no ch - the average income tax rate as a percentage of average earnings for a single person, earning 100 per cent of the average production wage and with no children.
   Source: OECD, The Tax/Benefit Position of Production Workers

3. **Employees' & employers' soc. sec. contrib's and personal inc. tax less transfer payments as % of gross labour costs (married)**
   Source: OECD, The Tax/Benefit Position of Production Workers

4. **Employees' & employers' soc. sec. contrib's and personal inc. tax less transfer payments as % of gross labour costs (single)**
   Source: OECD, The Tax/Benefit Position of Production Workers

5. **Income tax plus employees social security contribution rate**
   As a percentage of average earnings - married, 100, 0, 2 ch - income tax plus social security contributions (PRSI) as a percentage of average earnings for a married couple, with only one spouse earning 100 per cent of the average production wage and with 2 children.
   Source: OECD, The Tax/Benefit Position of Production Workers

6. **Income tax plus employees social security contribution rate**
   As a percentage of average earnings - single, 100, no ch - income tax plus social security contributions (PRSI) as a percentage of average earnings for a single person, earning 100 per cent of the average production wage and with no children.
   Source: OECD, The Tax/Benefit Position of Production Workers

7. **Marginal (income plus employees social security) tax rate - married, 100, 0, 2 ch**
   The marginal tax rate (incorporating both income tax and employees social security (PRSI) for a married couple with only one spouse earning 100 per cent of the average production wage and with 2 children.
   Source: OECD, The Tax/Benefit Position of Production Workers

8. **Marginal (income plus employees social security) tax rate - single, 100, no ch**
   The marginal tax rate (incorporating both income tax and employees social security (PRSI) for a single person earning 100 per cent of the average production wage with no children.
   Source: OECD, The Tax/Benefit Position of Production Workers

9. **Employers' compulsory social security contributions as % of gross earnings - Married, 100, 0, 2 ch**
   Source: OECD, The Tax/Benefit Position of Production Workers

10. **Employers' compulsory social security contributions as % of Gross Earnings - single, 100, no ch**
    Source: OECD, The Tax/Benefit Position of Production Workers

11. **Non-wage labour costs - PRSI, pension, and holidays (Swedish Krona)**
    Includes vacation, public holidays, irregular bonuses, pay-in-kind, employers social security contributions and other labour taxes.
    Source: Swedish Employers' Confederation, Wages and Total Labour Costs for Workers, 1996

12. **Social Insurance expenditure and other labour taxes as a percentage of total labour costs**
    Employers social security contributions (PRSI) and other labour taxes as a percentage of total labour costs.
    Source: Swedish Employers' Confederation, Wages and Total Labour Costs for Workers, 1996

13. **Top rate of income tax**

The top rate of income tax liable on personal income. Note this indicator does not take into account the level of income at which this rate is payable.

Source: International Tax Summaries, Coopers and Lybrand, 1998

Table A5 - Employment

1. **Days lost to industrial disputes per 1000 civilian employment**

The data for Ireland are taken from the CSO, Industrial Disputes at least one day or where more than 10 workdays are lost. The methodology differs among the various entries.

Source: ILO, yearbook of Labour Statistics, 1996 and 1997

2. **Female participation rate**

Labour force participation of women aged 15-64.

Source: OECD Main Economic indicators, Feb 2000

3. **Incidence of part-time employment**

As a percentage of total employment

Source: OECD Employment Outlook, June 1999

4. **Incidence of temporary employment**

Source: OECD Employment Outlook, 1996

5. **Level of youth unemployment (15-24)**

Level of unemployment for those aged 15-24.

Source: OECD Employment Outlook, June 1999

6. **Long-Term unemployment**

Long-term unemployment is defined as unemployment in excess of 12 months, as a percentage of the total labour force.

Source: OECD Employment Outlook, June 1999 and CSO QNHS

7. **Overall employment protection against dismissal**

Source: OECD Employment Outlook June 1999

8. **Overall strictness of regulation for temporary employment**

Source: OECD Employment Outlook June 1999

Table A6 - Technological Innovation Potential

1. **Science and engineering degrees awarded as a percentage of the total number of degrees awarded**

University-level qualifications by subject category as a percentage of total university-level qualifications.

Source: OECD, Education at a Glance, 1998

2. **Bachelor degrees in science and engineering as a percentage of 24 year olds in the population**

Source: NSF Science and Engineering Indicators 1998, CSO data for Ireland

3. **R&D expenditure in higher education and government institutions as a percentage of GDP***

Source: OECD, MSTI,2,1999

4. **Researchers in higher education or government institutions as a percentage of GDP***

Source: OECD, MSTI,2,1999

5. **Number of scientific publications per thousand population**

Source: EU Report on S&T Indicators, 1997

Table A7 - Technological Performance

1. **Business R&D expenditure as a percentage of GDP***
   Source: OECD, MSTI,2,1999

2. **Business R&D researchers per 1000 of the labour force**
   Source: OECD, MSTI,2,1999

3. **Manufacturing R&D as a percentage of sales**
   Source: OECD STAN Database

4. **ISO 9000 certificates per million capita**
   Total to December 1995 quality indicator
   Source: Mobil Survey, 1996

5. **Inventiveness coefficient – resident patent applications per 10,000 population**
   Source: OECD, MSTI,2,1999

6. **Patents granted in US (per million capita)**
   Source: US Patent and Trademark Office Annual Report 1998

7. **ICT expenditure as a percentage of GDP**
   Source: OECD, Science, Technology and Industry Scoreboard 1999

8. **Growth in information technology market**
   Average annual growth rate, 1992-1997
   Source: OECD, Science, Technology and Industry Scoreboard 1999

Table A8 - Trade

1. **Manufacturing export concentration, standard deviation of exports by country**
   This indicator measures the degree to which a country's exports are concentrated in one market or a small number of markets. The more evenly spread the export pattern of a country the lower the standard deviation.
   Source: OECD Database

2. **Manufacturing export concentration, standard deviation of exports by industry**
   This indicator measures the degree to which a country's imports originate from one or a small number of countries. The more evenly spread the import pattern of a country the lower the standard deviation.
   Source: OECD Database

3. **Manufacturing export concentration, standard deviation of exports by sector**
   This indicator measures the degree to which a country's industrial exports are concentrated in one sector or a small number of sectors. The more evenly spread the export pattern of a country the lower the standard deviation.
   Source: OECD Database

4. **Manufacturing import concentration, standard deviation of imports by sector**
   This indicator measures the degree to which a country's industrial imports are concentrated in one sector or a small number of sectors. The more evenly spread the import pattern of a country the lower the standard deviation.
   Source: OECD Database

5. **Export performance for total goods**

   Export performance is the ratio between export volumes and export markets for total goods. The export volume concept employed is the sum of the exports of food, raw materials, energy and manufactures. The calculation of export markets is based on a weighted average of import volumes in each exporting country's market, with weights based on trade flows in 1991.

   Source: OECD, Economic Outlook, December 1999

6. **Producer prices**

   Manufacturing (1995=100) - Data for Ireland refer to the Wholesale price index (output of manufacturing industry)

   Source: OECD, Main Economic Indicators, Feb 2000

7. **Trade openness**

   This indicator measures the sum of total exports and imports (goods and services) as a percentage of GDP.

   Source: OECD, Main Economic Indicators, Feb 2000

8. **Trade openness in services (Exports + Imports) / services output**

   This indicator measures the sum of services imports and exports as a percentage of total services not output.

   Source: World Trade Organisation, International Trade and OECD National Accounts

Table A9 - Financial Markets

1. **Government bond yields**

   Nominal rates.

   Source: IMF, International Financial Yearbook, 1998

2. **Interest rate spread - absolute**

   This equals the lending rate(601) minus the deposit rate(60p) (Nominal).

   Source: IMF, International Financial Yearbook, 1998

3. **Long-term nominal interest rates**

   The data for Ireland refer to the nominal yield on 15-year government bonds.

   Source: OECD, Economic Outlook, December 1999

4. **Money market rates - nominal rates**

   Source: IMF, International Financial Yearbook, 1998

5. **Rate of return on capital in the business sector**

   This indicator is calculated by dividing estimated capital income by the estimated capital stock.

   Source: OECD, Economic Outlook, December 1999

6. **Short-term nominal interest rates**

   The data for Ireland refer to the nominal 3-month inter-bank rate.

   Source: OECD, Economic Outlook, December 1999

7. **Cumulative venture capital raised as a percentage of GDP***

   This refers to the value of cumulative venture capital raised as a percentage of GDP.

   Source: European Venture Capital Association Yearbook, 1998 and OECD Main Economic Indicators Feb 1999.

Table A10 - Investment

1. **FDI inflow as a percentage of GDP***
   Based on official national statistics from the balance of payments. This indicator has a broader definition of foreign direct investment (FDI) than just physical investment.
   Source: OECD, Main Economic Indicators, Feb 2000

2. **FDI inflow stock as a percentage of GDP***
   Source: World Investment Report 1999

3. **FDI outflow stock as a percentage of GDP***
   Source: World Investment Report 1999

4. **Non-residential fixed investment as a percentage of GDP***
   Measures the commitment being made to expansion of productive capacity in the economy.
   Source: OECD, National Accounts, Vol II, 1984-96

5. **Ratio of educational expenditures to NRFI**
   The ratio of public and private educational expenditure at all levels to non-residential fixed investment.
   Source: OECD National Accounts and Education at a Glance

6. **Top rate of corporation tax**
   The top rate of corporation tax payable on corporate income. Note this indicator does not take into account issues such as allowances or other differences in tax law.
   Source: International Tax Summaries, Coopers and Lybrand, 1998

Table A11 – Telecommunications

1. **Fixed lines per 100 inhabitants.**
   Source: DG XIII

2. **Internet hosts per 1000 capita**
   Indicates number of separate internet hosts per 1000 capita in each country. Hosts are identified by their two digit suffix (e.g., Ireland is represented by .ie). This is a slightly imperfect measure of internet penetration as some companies can use .com as a suffix or be routed through their parent company in another country.
   Source: Internet Software Consortium

3. **Mobile subscriptions per 100 capita**
   Source: DG XIII

4. **Per capita expenditure on telecommunications (ECU)**
   Source: DG XIII

Table A12 - Telecommunications Costs

1.2 Mbit/s leased lines national circuits - connection (ECU)
2 Mega bit per second leased lines. Connection charges represent the charge for both ends.
Source: DGIII, Tariff Data, 1996

2.2 Mbit/s leased lines national circuits - annual rental 50KM ($US)
2 Mega bit per second leased lines.
Source: Teligen, February 2000

3.2 Mbit/s leased lines national circuits - annual rental 100KM ($US)
2 Mega bit per second leased lines.
Source: Teligen, February 2000

4.2 Mbits leased lines international to USA ($US - annual rental)
Source: Teligen, February 2000

5. **Voice grade leased lines national circuits - connection (ECU)**
Connection charges are for 2-wire circuits and represent the charge for both ends.
Source: DGIII, Tariff Data, 1996

6. **Analogue leased lines national circuits - annual rental 50KM ($US)**
Cost of 50 km leased line for dedicated voice transmission
Source: Teligen, February 2000

7. **Analogue leased lines national circuits - annual rental 100KM ($US)**
Cost of 100 km leased line for dedicated voice transmission
Source: Teligen, February 2000

8. **Analogue leased lines to USA (US$)**
Source: Teligen, February 2000

9. **Cost of local call (1st minute, peak time) US$**
Source: Teligen, February 2000

10. **Cost of call to the UK - first minute peak time in $US**
Source: Teligen, February 2000

11. **Cost of call to the US – first minute peak time in $US**
Source: Teligen, February 2000

12. **Internet use (30 mins)**
Source: Teligen, February 2000

13. **Cost of calls: composite (national & international) business basket**
Source: Teligen, February 2000

14. **OECD national (GSM) mobile basket**
Source: Teligen, February 2000

Table A13 - Transport and Communications Costs

1. **Insurance and freight (debit + credit) as % of total trade**
Source: UNCTAD, Handbook of International Trade and Development

2. **Letter costs EU domestic tariffs (20 gram letter)**
Source: An Post

3. **Rail infrastructure indicator**
This is a composite indicator developed using data on the length of the rail network, the percentage electrified and the population density.
Source: EU Transport in Figures Statistical Pocketbook Jan 2000

4. **Road infrastructure indicator**
This is a composite indicator developed using data on the length of the motorway network, the trunk road network, the secondary roads and the population density.
Source EU Transport in Figures Statistical Pocketbook Jan 2000

5. **Average time commuting to and from work, minutes per day**
Source: EU Transport in Figures Statistical Pocket Book Jan 2000

6. **Transport infrastructure investment per capita (ECU millions) annual average (1994 prices)**
Source: EU Transport in Figures Statistical Pocket Book Jan 2000

7. **Passenger cars (per 1000 capita)**
   Source: EU Transport in Figures Statistical Pocket Book Jan 2000

8. **Buses and coaches (per 1000 capita)**
   Source: EU Transport in Figures Statistical Pocket Book Jan 2000

9. **Road goods vehicles (per 1000 capita)**
   Source: EU Transport in Figures Statistical Pocket Book Jan 2000

10. **Rail vehicles (passengers and goods) (per 1000 capita)**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

11. **Merchant fleet (ships 1000 grt and over) per capita**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

12. **Goods transport by road percentage of total goods transported**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

13. **Goods transport by rail percentage of total goods transported**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

14. **Road haulage 1000 mio tkm per capita**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

15. **Rail haulage 1000 mio tkm per capita**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

16. **Container port traffic 1000TEU per capita**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

17. **Major airport traffic 1000 tonnes per capita**
    Source: EU Transport in Figures Statistical Pocket Book Jan 2000

Table A14 - Energy Costs

1. **Automotive diesel oil prices for commercial use (US$ per t.o.e.)**
   t.o.e. denotes tonne of oil equivalent.
   Source: International Energy Agency, Energy prices and taxes, 2nd quarter 1998

2. **Heavy fuel oil prices for industry (US$ per toe)**
   t.o.e. denotes tonne of oil equivalent.
   Source: International Energy Agency, Energy prices and taxes, 2nd quarter 1998

3. **Industrial electricity prices - 24GW hours per annum**
   Large users (ECU) excluding VAT
   Source: Eurostat Energy and Industry, 2/2000

4. **Industrial electricity prices – 10GW hours per annum**
   Medium-sized users (ECU) excluding VAT
   Source: Eurostat Energy and Industry, 2/2000

5. **Industrial electricity prices – 1.25GW hours per annum**
   Small users (ECU) excluding VAT
   Source: Eurostat Energy and Industry, 2/2000

6. **Gas prices - industrial rates excluding VAT (4186 GJ / 200 days) (or 1,163,000 kWh) / 200 days**
   Indicates the volume of usage and load factor by the customer category
   Source: Eurostat Energy and Industry, 15/1999

7. **Gas prices - industrial rates excluding VAT (41860 GJ / 250 days / 4000 hours) - (or 11.63 GWh) / 250 days / 4000 hours**
   Indicates the volume of usage and load factor by the customer category
   Source: Eurostat Energy and Industry, 15/1999

Table A15 - Property and Construction Cost

1. **Industrial occupancy costs**
   Annual rental charge per square metre.
   Source: Hamilton Osborne King, European Property Bulletin 1998

2. **Office occupancy costs**
   Annual rental charge per square metre.
   Source: Hamilton Osborne King, European Property Bulletin 1998

3. **Building costs - industrial (per m2 - IRP£)**
   The cost is based on a single storey unit of 3,000m/30,000 sq. ft. of steel portal frame and brick construction with an eaves height of at least 6m/18ft. It is finished to a basic shell, with services and heating to the office space but not to the industrial/warehouse space. The cost includes professional fees.
   Source: Hamilton Osborne King, European Property Bulletin 1998

4. **Building costs - offices (per m2 - IRP£)**
   The cost is based on a 3,000m/30,000 sq. ft. self-contained, air-conditioned building in the major city in each country. The accommodation is built to a good finish, including false ceilings, carpets, lighting and power points, but excludes partitioning. The cost includes professional fees.
   Source: Hamilton Osborne King, European Property Bulletin 1998

5. **Average of ranks for carpentry, steel reinforcement, concrete and cement material costs**
   This indicator is constructed taking the average of the rank of each country for building input costs such as softwood sections for carpentry, steel reinforcement, concrete and cement. This methodology is used as each of the inputs are measured in different units, and therefore a straightforward average is not possible.
   Source: SPON, European Construction Handbook, 1996

6. **Construction skilled labour costs (per hour - ECU)**
   Source: SPON, European Construction Handbook, 1996

7. **Unweighted average of skilled and unskilled labour costs (Q1 1994 - ECU per hour)**
   Source: SPON, European Construction Handbook, 1996

Table A16 - The Environment

1. **CO2 emissions from energy uses (tonnes/capita)**
   Source: OECD in Figures, 1999

2. **Per capita NOx emissions from fossil fuels (NOx)**
   Source: OECD in Figures, 1999

3. **Per capita SOx emissions from fossil fuels (t SOx)**
   Source: OECD in Figures, 1999

4. **Waste recycling: paper and cardboard (as % of apparent consumption)**
   Source: Human Development Report 1999

5. **Waste recycling: glass (as % of apparent consumption)**
   Source: Human Development Report 1999

Table A17 - SME Performance

1. **Labour productivity (* 1,000 ECU/PPP) 0-9**
   Productivity in businesses that employ under 10 persons.
   Source: European Observatory for SMEs, Fourth Annual Report, 1996

2. **Labour productivity (* 1,000 ECU/PPP) 10-49**
   Productivity in businesses that employ between 10 and 50 persons.
   Source: European Observatory for SMEs, Fourth Annual Report, 1996

3. **Labour productivity (* 1,000 ECU/PPP) 50-249**
   Productivity in businesses that employ between 50 and 249 persons.
   Source: European Observatory for SMEs, Fourth Annual Report, 1996

4. **Turnover limit for concession providing relief from VAT registration (US$)**
   Concessions providing relief from VAT registration. The data for Ireland refer to non-service companies. The limit is 50 per cent lower (IR£20,000 - $28,570) for services companies.
   Source: OECD/DAFFE/CFA/CT(96) 24

5. **Average debtor days**
   The average number of days an SME must wait before receiving payment of invoices.
   Source: Grant Thornton European Business Survey, 1999

6. **Percentage of SMEs that export**
   Source: Grant Thornton European Business Survey, 1999

Table A18 - Public Administration

1. **General government consolidated gross debt as a percentage of GDP**
   Source: EC Economic Data Pocket Book, No 1 2000 and Department of Finance

2. **Net lending (+) or borrowing (-) of general government as a percentage of GDP**
   Source: EC Economic Data Pocket Book No 1 2000 and Department of Finance

3. **Government spending as a percentage of GDP**
   Source: EC Economic Data Pocket Book No 1 2000

4. **Share of general government in total employment**
   OECD Employment Outlook, July 1997

5. **Tax as a percentage of GDP**
   Source: EC Economic Data Pocket Book No 1 2000

6. **Competition policy (law, exemptions and enforcement potential)**
   Source: OECD ECO/CPE/WP1 (98)15

7. **Overall product market regulation**
   Source: OECD/ECO/WKP(99)18

8. **Overall regulatory environment**
   Source: OECD ECO/CPE/WP1 (98)15

9. **Index of economic freedom (1.00 - 5.00)**
   Source: Heritage Foundation

10. **Scale of state control (Scale 0-6)**
    Source: OECD/ECO/WKP(99)18

11. **Barriers to entrepreneurship (Scale 0-6)**
    Source: OECD/ECO/WKP(99)18

12. **Barriers to trade and investment (Scale 0-6)**
    Source: OECD/ECO/WKP(99)18

Detailed Tables

Table A1 Education Levels

	1		2		3		4		5		6	
Indicator	Educational participation - age 16 (%)		Net enrolment in tertiary education - age 18-21 (%)		Percentage of population (25-64 years) that has attained 3rd level education (%)		Percentage of population (25-64 years) that has at least upper secondary level education (%)		School expectancy for a 5 year-old child (years)		Percentage of people aged 25-34 with higher education qualifications	
Year	1996		1996		1996		1996		1996		1996	
Source	OECD, Education at a Glance, 1998		OECD, Education at a Glance, 1998		OECD, Education Database		OECD, Education at a Glance, 1998		OECD Education at a Glance, 1998		OECD Education Database	
Country	26	Rank	24	Rank	25	Rank	25	Rank	24	Rank	25	Rank
Australia	96.4	8	31.3	7	25	5	57	17	19.3	1	25	10
Austria	91.2	13	16.1	17	8	23	71	10	15.8	17	9	23
Belgium	100.3	1	39.6	2	24	7	53	18	18.3	2	32	3
Canada	91.0	14	40.5	1	48	1	76	6	17.1	10	54	1
Czech Republic	99.3	2	16.9	16	10	22	84	2	14.6	22	11	21
Denmark	92.8	12	8.5	21	22	10	66	12	17.1	10	22	16
Finland	93.3	11	18.2	15	21	14	67	11	17.2	8	24	12
France	96.2	9	36.0	4	19	15	60	15	16.5	16	26	9
Germany	97.2	7	10.8	20	22	10	81	4	16.6	15	20	17
Greece	81.0	23	39.4	3	19	15	44	20	14.2	23	28	7
Hungary	88.4	17	13.4	19	13	18	63	13	14.8	20	14	19
Iceland	87.8	18	7.5	23	-		-		17.5	4	-	
Ireland	88.9	16	31.4	6	23	8	50	19	15.6	19	31	4
Italy	-		-		8	23	38	21	-		8	24
Japan	97.9	5	-		-		-		-		-	
Luxembourg	80.6	24	-		11	20	29	23	-		11	21
Mexico	39.7	26	6.6	24	-		-		12.0	24	-	
Netherlands	98.3	3	24.0	11	23	8	63	13	17.5	4	25	10
New Zealand	98.1	4	29.4	8	25 *e*	5	60	15	17.2	8	24	12
Norway	94.4	10	19.0	14	27	3	82	3	17.1	10	30	5
Poland	90.8	15	21.2	12	13 *c*	18	74	8	14.8	20	15	18
Portugal	77.4	25	19.3	13	11	20	20	24	16.9	13	14	19
Russia	-		-		-		-		-		-	
Spain	82.7	21	27.3	9	18	17	30	22	17.5	4	29	6
Sweden	97.3	6	13.7	18	27	3	74	8	18.0	3	28	7
Switzerland	86.5	19	7.6	22	22	10	80	5	15.7	18	23	15
Turkey	-		-		6 *e*	25	17	25	-		7	25
UK	82.5	22	26.9	10	22	10	76	6	17.3	7	24	12
US	85.7	20	34.6	5	34	2	86	1	16.8	14	35	2
EU -		-		-		-		-		-		
OECD -		23.2		20		60		16.4		-		

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A2 Education Policy and Performance

	1		2		3		4		5		6		7		8	
Indicator	Number of teaching hours per year in lower secondary education (hours)		Ratio of students to teaching staff - secondary education		Average achievement in maths (age 11-12)		Average achievement in science (age 11-12)		Average number of foreign languages per pupil		Public expenditure on educational institutions as % of GDP		Public and private expenditure on educational institutions as % of GDP		Teacher salaries in lower - secondary education after 15 years of experience US$ PPP	
Year	1996		1996		1995		1995		1996/97		1995		1995		1996	
Source	OECD, Education at a Glance, 1998		OECD, Educationat a Glance, 1998		OECD, Education at a Glance, 1995		OECD, Education at a Glance, 1995		Eurostat, UOE		OECD in Figures 1999 edition		OECD in Figures 1999 edition		OECD in Figures 1999 edition	
Country	19	Rank	19	Rank	23	Rank	23	Rank	18	Rank	27	Rank	21	Rank	21	Rank
Australia	-		-		530	10	545	6	-		4.5	20	5.6	11	-	
Austria	658	11	8.9	1	539	6	558	4	1.20	12	5.3	9	5.5	13	26249	12
Belgium	741	7	-		546	3	511	18	1.67	7	-		-		28846	8
Canada	-		19.7	19	527	11	531	12	-		5.8	5	7.0	2	-	
Czech Republic	607	17	12.3	6	564	2	574	1	1.16	14	4.8	15	5.7	9	8279	19
Denmark	750	6	11.0	4	502	18	478	23	1.98	4	6.5	4	7.1	1	28388	10
Finland	-		-		-		-		2.46	2	6.6	2	6.6	5	27758	11
France	647	12	13.3	8	538	7	498	19	1.61	8	5.8	5	6.3	6	28949	7
Germany	715	10	15.0	10	509	14	531	12	1.24	11	4.5	20	5.8	8	38826	2
Greece	629	14	11.3	5	484	22	497	20	1.53	9	3.7	25	3.7	20	17156	18
Hungary	473	19	10.4	3	537	8	554	5	1.12	16	4.9	14	5.5	13	4789	20
Iceland	-		-		487	20	494	21	2.08	3	4.5	20	5.2	16	-	
Ireland	735	9	15.8	13	527	11	538	7	0.99	18	5.2	11	5.9	7	37154	3
Italy	612	15	10.2	2	-		-		1.15	15	4.5	20	4.7	18	23487	14
Japan	-		15.9	14	605	1	571	2	-		3.6	26	4.7	18	-	
Luxembourg	-		-		-		-		2.90	1	4.3	24	-		-	
Mexico	-		16.2	17	-		-		-		4.6	17	5.6	11	-	
Netherlands	910	2	18.6	18	541	5	560	3	1.49	10	4.6	17	4.9	17	30898	5
New Zealand	776	5	16.1	15	508	15	526	15	-		5.3	9	-		23393	15
Norway	611	16	-		503	16	527	14		6	6.8	1	-		21127	17
Poland	-		-		-		-		1.69	17	5.2	12	-		-	
Portugal	644	13	-		454	23	480	22	1.00	17	5.4	8	5.4	15	24500	13
Russia	-		-		536	9	538	7	-		-		-		-	
Spain	900	3	15.1	11	487	20	517	17	1.19	13	4.8	15	5.7	9	28783	9
Sweden	576	18	13.7	9	519	13	535	9	1.72	5	6.6	2	6.7	3	22845	16
Switzerland	850	4	12.3	7	545	4	522	16	-		5.5	7	-		51787	1
Turkey	-		-		-		-		-		2.2	27	2.4	21	954	21
UK	740	8	15.6	12	503	16	535	9	-		4.6	17	-		29948	6
US	964	1	16.1	16	500	19	534	11	-		5	13	6.7	3	31327	4
EU	-		-		509		520		1.37		-		-		-	
OECD	700		14.6		524		523		-		-		-		-	

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A3 Labour Costs and Productivity

	1		2		3		4		5		6		7		8	
Indicator	Nominal compensation per employee (annual average change)		Real compensation per employee (annual average change)		Nominal unit labour costs (annual average change)		Unit labour costs in the total economy (percentage increase)		Pay for time worked (per hour) for manufacturing workers (Swedish Krona)		Total per hour labour costs for manufacturing production workers (Swedish Krona)		Hourly compensation costs for production workers in manufacturing (US$)		Productivity (annual average change)	
Year	1994/1999		1994/1999		1994/1999		1999e		1998e		1998		1998		1994/1999	
Source	EC economic data pocket book No.1 2000		EC economic data pocket book No.1 2000		EC economic data pocket book No.1 2000		OECD Economic Outlook Dec 1999		Swedish Employer's Confederation, Wages and total labour costs for workers, 1999		Swedish Employer's Confederation, Wages and total labour costs for workers, 1999		US Bureau of Labour Statistics		EC economic data pocket book No.1 2000	
Country	17	Rank	17	Rank	17	Rank	24	Rank	18	Rank	19	Rank	22	Rank	17	Rank
Australia	-		-		-		2.3	10	-		-		14.9	7	-	
Austria	2.23%	4	0.55%	7	0.55%	6	1.0	5	90	7	176	13	22.2	17	1.68%	9
Belgium	1.98%	2	0.37%	4	0.37%	4	1.2	7	97	9	184	15	23.1	19	1.62%	10
Canada	-		-		-		0.1	2	93	8	127	5	15.7	8	-	
Czech Republic	-		-		-		5.1	22	16	1	27	1	-		-	
Denmark	3.52%	12	1.77%	13	1.27%	10	3.6	19	146	18	188	16	22.7	18	2.25%	5
Finland	3.27%	10	1.98%	15	0.33%	3	2.4	11	98	11	171	12	21.6	15	2.92%	2
France	2.07%	3	0.53%	6	0.62%	7	0.7	4	76	4	145	9	18.3	12	1.47%	12
Germany	2.45%	7	0.83%	9	0.53%	5	1.2	7	122	15	225	19	27.2	22	1.90%	6
Greece	9.18%	17	2.25%	16	7.35%	17	2.5	12	42	2	72	2	8.9	3	1.72%	8
Hungary	-		-		-		8.3	24	-		-		-		-	
Iceland	-		-		-		-		-		-		-		-	
Ireland	3.83%	13	0.95%	10	0.08%	2	3.1	15	81	5	106	4	13.3	6	3.75%	1
Italy	3.08%	9	-0.52%	1	1.55%	11	2.5	12	69	3	135	7	17.1	10	1.53%	11
Japan	0.80%	1	0.48%	5	-0.27%	1	-2.5	1	82	6	143	8	18.1	11	1.10%	16
Luxembourg	2.30%	5	0.55%	7	0.93%	8	-		-		-		-		1.35%	14
Mexico	-		-		-		-		-		-		1.8	1	-	
Netherlands	2.40%	6	0.37%	3	1.10%	9	3.6	19	97	9	167	11	20.6	14	1.30%	15
New Zealand	-		-		-		1.4	9	-		-		9.2	4	-	
Norway	-		-		-		4.6	21	133	17	190	17	23.7	20	-	
Poland	-		-		-		6.2	23	-		-		-		-	
Portugal	5.33%	16	1.87%	14	2.97%	16	3.4	17	-		-		5.5	2	2.32%	4
Russia	-		-		-		-		-		-		-		-	
Spain	2.92%	8	-0.40%	2	1.85%	14	3.5	18	-		98	3	12.1	5	1.05%	17
Sweden	4.15%	15	2.25%	16	1.75%	13	1.1	6	104	13	176	13	22.0	16	2.35%	3
Switzerland	-		-		-		0.4	3	126	16	194	18	24.4	21	-	
Turkey	-		-		-		-		-		-		-		-	
UK	4.07%	14	1.62%	12	2.62%	15	3.3	16	98	11	131	6	16.4	9	1.40%	13
US	3.30%	11	1.55%	11	1.55%	11	2.5	12	107	14	149	10	18.6	13	1.73%	7
EU	2.95%		0.53%		1.33%		2.1		-		-		20.5		1.60%	
OECD	-		-		-		1.8		-		-		-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A4 Work Incentives

	1		2		3		4		5		6	
Indicator	Average income tax rate (percentage of average earnings) - married, 100, 0, 2 ch		Average income tax rate (percentage of average earnings) - single, 100, no ch		Employees' & employers' soc. sec. contrib's and personal inc. tax less transfer payments as % of gross labour costs (married)		Employees' & employers' soc. sec. contrib's and personal inc. tax less transfer payments as % of gross labour costs (single)		Income tax plus employees' social security contribution rate minus cash transfers - % ave earnings - married 100, o, 2 ch		Income tax plus employees' social security contribution rate minus cash transfers - % ave earnings - single 100, no ch	
Year	1997		1997		1997		1997		1997		1997	
Source	OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers	
Country	28	Rank	28	Rank	28	Rank	28	Rank	28	Rank	28	Rank
Australia	20.8%	24	23.3%	24	14.5%	3	24.8%	4	14.5%	12	24.8%	11
Austria	5.0%	9	10.2%	6	32.2%	16	45.6%	21	10.7%	9	28.3%	18
Belgium	16.5%	21	27.6%	25	40.8%	23	56.6%	28	20.2%	22	41.5%	26
Canada	12.6%	15	22.1%	22	23.4%	7	32.3%	9	18.2%	19	27.7%	16
Czech Republic	5.2%	11	10.4%	8	31.2%	14	42.9%	17	7.1%	4	22.9%	10
Denmark	27.8%	26	35.1%	28	31.3%	15	45.1%	20	31.1%	27	44.9%	28
Finland	28.0%	27	28.0%	26	40.8%	23	48.9%	23	25.7%	24	35.8%	24
France	3.7%	8	10.5%	9	39.5%	22	48.7%	22	15.3%	14	28.1%	17
Germany	1.0%	3	21.2%	18	35.6%	19	52.3%	27	22.1%	23	42.3%	27
Greece	2.5%	4	2.0%	2	36.2%	20	35.8%	13	18.4%	21	17.9%	4
Hungary	17.8%	23	17.8%	14	40.8%	23	52.0%	26	12.9%	10	29.3%	20
Iceland	6.8%	12	21.2%	18	-2.8%	1	24.4%	3	-6.8%	1	21.5%	7
Ireland	14.1%	16	20.5%	17	23.8%	8	33.9%	10	14.6%	13	26.0%	14
Italy	15.3%	19	18.8%	16	43.3%	27	51.5%	25	17.0%	17	29.0%	19
Japan	2.6%	5	8.0%	5	15.6%	4	20.7%	1	9.6%	8	15.0%	2
Luxembourg	0.0%	2	13.8%	10	13.0%	2	35.2%	12	1.3%	2	26.4%	15
Mexico	-1.2%	1	-1.2%	1	25.3%	12	25.3%	5	1.4%	3	1.4%	1
Netherlands	3.5%	7	6.5%	3	33.0%	17	43.6%	18	27.9%	26	39.3%	25
New Zealand	16.2%	20	21.6%	20	16.2%	5	21.6%	2	16.2%	16	21.6%	8
Norway	17.1%	22	21.7%	21	24.9%	11	37.4%	14	15.4%	15	29.5%	21
Poland	14.7%	17	16.9%	13	38.9%	21	43.9%	19	9.5%	7	16.9%	3
Portugal	3.1%	6	7.2%	4	26.8%	13	33.9%	10	9.4%	6	18.2%	5
Russia	-		-		-		-		-		-	
Spain	6.8%	12	13.8%	10	33.7%	18	39.0%	15	13.2%	11	20.2%	6
Sweden	28.5%	28	28.5%	27	45.2%	28	50.7%	24	27.2%	25	34.5%	23
Switzerland	5.1%	10	10.3%	7	17.7%	6	30.0%	6	8.2%	5	21.9%	9
Turkey	23.0%	25	23.0%	23	42.0%	26	42.0%	16	33.5%	28	33.5%	22
UK	15.1%	18	16.7%	12	24.8%	10	32.0%	8	17.3%	18	25.2%	12
US	10.7%	14	18.2%	15	24.1%	9	31.1%	7	18.3%	20	25.8%	13
EU	-		-		-		-		-		-	
OECD	-		-		-		-		-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A4 Work Incentives *continued*

	7		8		9		10		11		12		13	
Indicator	Marginal income, (plus employees' social security) tax rate married, 100, 0, 2 ch		Marginal income (plus employees' social security) tax rate single, 100, no ch		Employers' compulsory social security contribution as % of gross earnings- married, 100, 0, 2 ch		Employers' compulsory social security contributions as % of gross earnings - single 100, no ch		Non wage labour costs - PRSI, pension, pay in kind and holiday (Swedish Krona)		Social insurance expenditure and other labour taxes as a percentage of total labour costs		Top rate of income tax nominal	
Year	1997		1997		1997		1997		1996		1995		1997	
Source	OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers		OECD, The tax/benefit position of production workers		Swedish Employer's Confederation pg.18, 1996		Swedish Employer's Confederation pg.18, 1996		International Tax Summaries- Coopers and Lybrand	
Country	28	Rank	28	Rank	26	Rank	26	Rank	20	Rank	16	Rank	28	Rank
Australia	35.5%	14	35.5%	16	-		-		-		-		47%	17
Austria	42.5%	18	51.5%	25	24.3%	15	24.3%	15	83	17	28%	13	50%	19
Belgium	51.7%	27	54.8%	28	34.8%	21	34.8%	21	84	18	27%	12	46.6%	16
Canada	50.0%	24	30.9%	11	6.8%	3	6.8%	3	29	5	17%	5	29%	1
Czech Republic	25.6%	8	25.6%	7	35.0%	22	35.0%	22	9	1	-		40%	8
Denmark	46.5%	20	52.1%	27	0.4%	1	0.4%	1	36	7	8%	1	60%	27
Finland	50.7%	25	45.0%	22	25.7%	16	25.7%	16	69	16	25%	11	38%	6
France	21.4%	5	49.4%	24	40.1%	23	40.1%	23	59	11	29%	14	54%	23
Germany	48.2%	22	51.9%	26	21.0%	13	21.0%	13	94	20	24%	10	53%	22
Greece	28.5%	10	20.1%	4	28.0%	17	28.0%	17	25	3	-		45%	14
Hungary	46.5%	20	42.5%	21	47.1%	25	47.1%	25	-		-		42%	12
Iceland	49.8%	23	39.2%	20	3.9%	2	3.9%	2	-		-		45.9%	15
Ireland	32.7%	12	30.5%	10	12.0%	9	12.0%	9	25	3	15%	4	48%	18
Italy	40.7%	17	34.4%	15	46.4%	24	46.4%	24	61	12	31%	16	51%	21
Japan	18.0%	3	16.5%	2	7.1%	4	7.1%	4	57	10	14%	3	50%	19
Luxembourg	12.6%	1	34.1%	14	13.5%	11	13.5%	11	-		-		30.3%	2
Mexico	17.6%	2	10.2%	1	32.1%	19	32.1%	19	-		-		35%	4
Netherlands	43.7%	19	46.8%	23	7.7%	6	7.7%	6	68	14	23%	9	60%	27
New Zealand	63.0%	28	24.0%	5	-		-		-		-		33%	3
Norway	35.8	16	35.8%	17	12.6%	10	12.6%	10	52	9	18%	7	41.7%	11
Poland	20.0%	4	20.0%	3	48.1%	26	48.1%	26	-		-		44%	13
Portugal	26.0%	9	26.0%	8	23.8%	14	23.8%	14	37	8	-		40%	8
Russia	-		-		-		-		-		-		35%	4
Spain	24.1%	6	31.2%	12	30.8%	18	30.8%	18	88	19	-		56%	25
Sweden	35.7%	15	38.9%	19	32.9%	20	32.9%	20	67	13	30%	15	56%	25
Switzerland	24.6%	7	25.0%	6	11.6%	8	11.6%	8	68	14	17%	5	-	
Turkey	30.5%	11	36.0%	18	14.6%	12	14.6%	12	-		-		55%	24
UK	33.0%	13	33.0%	13	10.0%	7	10.0%	7	24	2	13%	2	40%	8
US	51.0%	26	29.9%	9	7.7%	5	7.7%	5	34	6	22%	8	39.6%	7
EU			-						-		-		-	
OECD	-						-		-		-		-	

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A5 Employment

	1		2		3		4		5		6		7		8	
Indicator	Days lost in industrial disputes per 1000 civilian employment		Female participation rate (% population 15-64)		Incidence of part-time employment as % of total employment		Incidence of temporary employment		Level of youth unemployment (15-24 years)		Long-term unemployment as a % of the total labour force		Overall employment protection against dismissal		Overall strictness of regulation for temporary employment	
Year	1996		1998		1998		1994		1998		1998		Late 90s		Late 90s	
Source	ILO, Yearbook of Labour Statistics 1996 and 1997		OECD Economic Indicators Feb 2000		OECD Employment Outlook, June 1999		OECD Employment Outlook, pg. 8, 1996		OECD Employment Outlook, June 1999		OECD Employment Outlook, June 1999 and CSO QNHS data		OECD Employment Outlook June 1999		OECD Employment Outlook June, 1999	
Country	27	Rank	28	Rank	28	Rank	18	Rank	28	Rank	28	Rank	26	Rank	25	Rank
Australia	60.8 *c*	20	64.9%	13	25.9	2	23.5	2	14.5	18	2.65	17	1.0	4	0.9	8
Austria	0.0	1	61.9%	16	11.5	21	-		7.5	6	1.66	11	2.6	17	1.8	14
Belgium	-		56.9% *e*	21	16.3	12	5.1	16	20.4	22	5.88	26	1.5	6	2.8	18
Canada	220.7	25	69.4%	8	18.7	9	8.8	13	15.2	20	0.85	5	0.9	3	0.3	1
Czech Republic	3.2	7	69.2%	9	3.3	28	-		12.3	14	2.00	12	2.8	21	0.5	6
Denmark	26.8	15	75.3%	3	17.0	10	12	5	7.2	5	1.46	9	1.6	7	0.9	8
Finland	7.9	9	69.9%	7	9.7	23	13.5	3	22.0	23	3.16	19	2.1	10	1.9	15
France	20.0 *b*	14	60.2%	19	14.8	15	11	6	25.4	25	5.25	24	2.3	13	3.6	22
Germany	2.5	6	63.1%	15	16.6	11	10.3	9	9.4	9	4.49	23	2.8	21	2.3	17
Greece	105.9 *c*	24	47.5%	25	9.2	24	10.3	9	32.1	26	5.46	25	2.4	15	4.8	24
Hungary	0.6	3	50.7%	22	3.4	27	-		13.5	16	3.78	20	2.1	10	0.6	7
Iceland	1456.4 *c*	27	81.1%	1	23.2	5	-		6.0 *	3	0.43	4				
Ireland	76.7	21	50.4% *e*	23	15.2 *e*	13	9.4	11	11.5	13	3.80	21	1.6	7	0.3	1
Italy	84.5	22	45.0%	26	11.8	19	7.3	14	32.1	26	8.14	27	2.8	21	3.8	23
Japan	1.3	5	63.9%	14	23.6	4	10.4	8	7.7	7	0.85	6	2.7	20	2.1	16
Luxembourg	-		61.6% *e*	18	12.8	18	2.9	17	6.4	4	0.90	7				
Mexico	19.2	13	42.8%	27	15.0	14	-		5.3	1	0.03	1	2.3	13		
Netherlands	1.0	4	61.8% *e*	17	30.0	1	10.9	7	8.2	8	2.06	14	3.1	25	1.2	12
New Zealand	30.6 *c*	16	67.1%	11	22.8	7	-		14.6	19	1.47	10	1.7	9	0.4	5
Norway	235.5	26	76.3%	2	21.0	8	-		9.5 *	10	0.30	2	2.4	15	2.8	18
Poland	4.4	8	59.8%	20	11.8	19	-		23.2	24	4.08	22	2.2	12	1.0	11
Portugal	11.0	10	65.1%	12	9.9	22	9.4	11	9.5	10	2.19	15	4.3	26	3.0	20
Russia	58.7	19	-		-		-		-		-					
Spain	99.1	23	47.8%	24	7.7	25	33.7	1	34.1 *	28	10.17	28	2.6	17	3.5	21
Sweden	14.2	12	72.7%	4	13.5	16	13.5	3	16.8 *	21	2.81	18	2.8	21	1.6	13
Switzerland	0.1 *c*	2	70.3%	6	24.2	3	-		5.8	2	1.29	8	1.2	5	0.9	8
Turkey	11.9	11	30.9%	28	6.2	26	-		13.8	17	2.64	16	2.6	17	4.9	25
UK	45.6	18	67.2%	10	23.0	6	6.5	15	12.3 *	14	2.05	13	0.8	2	0.3	1
US	36.5	17	71.3%	5	13.4	17	2.2	18	10.4 *	12	0.36	3	0.2	1	0.3	1
EU	-		-		16.0		11		19.1		4.96					
OECD	-		-		14.3		-		12.8		2.24					-

a 1993 Data *b* 1994 Data *c* 1995 Data *d* 1996 Data *e* 1997 Data *f* 1998 Data

* Data refer to 16-24 year olds

Table A6 Technological Innovation Potential

	1		2		3		4		5	
Indicator	Science and engineering degrees awarded as a percentage of the total number of degrees awarded		Bachelor degrees in science and engineering as a percentage of 24 year olds in population		R&D expenditure in higher education and government institutions as a percentage of GDP		Researchers in higher education and government institutions per 1000 labour force		Number of scientific publications per thousand population	
Year	1996		1995		1998		1998		1995	
Source	OECD, Education at a Glance, 1998		NSF Science and Engineering Indicators 1998, CSO for Irish data		OECD, MSTI, 2, 1999		OECD, MSTI, 2, 1999		EU Report on S&T Indicators 1997, Table A.5.1	
Country	22	Rank	25	Rank	26	Rank	25	Rank	29	Rank
Australia	22	14	-		0.85 *d*	5	4.9 *d*	2	0.82	9
Austria	32	4	2.7	21	-		-		0.57	15
Belgium	29	8	4.5 *a*	13	0.49 *c*	16	2.5 *c*	13	0.70	13
Canada	20	18	6.0 *c*	6	0.57	15	2.4 *c*	15	0.92	7
Czech Republic	32	4	5.1 *c*	10	0.45	19	1.4 *e*	23	0.25	22
Denmark	22	14	6.5 *a*	4	0.70	11	3.4 *e*	7	1.12	3
Finland	39	1	9.0 *c*	2	0.94	3	4.8 *e*	3	0.99	4
France	-		5.0 *c*	11	0.81	6	3.2 *e*	8	0.63	14
Germany	38	2	5.8 *c*	7	0.75	8	2.6	12	0.56	16
Greece	-		2.9 *a*	20	0.47 *e*	18	2.1 *e*	18	0.25	21
Hungary	26	10	4.7	12	0.38	24	2.2	17	0.25	23
Iceland	17	22	-		1.27	1	5.9	1	0.78	11
Ireland	31	6	5.7	8	0.42 *e*	23	1.6 *e*	22	0.43	17
Italy	26	10	2.5 *c*	23	0.48	17	2.1 *e*	21	0.39	19
Japan	31	6	6.4	5	0.68 *e*	12	3.0 *e*	9	0.42	18
Luxembourg	-		-		-		-		0.11	27
Mexico	-		2.5 *c*	23	0.27 *e*	26	0.5 *c*	25	0.03	29
Netherlands	21	17	4.4 *a*	14	0.94 *e*	4	2.6 *e*	11	0.96	5
New Zealand	20	18	-		0.81 *e*	6	3.6 *e*	5	0.82	8
Norway	24	13	4.4 *c*	14	0.73 *e*	10	3.5 *e*	6	0.81	10
Poland	-		3.3	18	0.45	20	2.8	10	0.16	24
Portugal	20	18	2.6 *c*	22	0.42 *e*	22	2.1 *e*	20	0.14	26
Russia	-		10.8 *c*	1	-		-		0.16	25
Spain	22	14	3.7	17	0.43	21	2.5 *e*	14	0.36	20
Sweden	26	10	3.3 *c*	18	0.97 *e*	2	3.7 *e*	4	1.31	2
Switzerland	33	3	4.3	16	0.74 *d*	9	2.3 *d*	16	1.46	1
Turkey	-		1.8 *a*	25	0.33 *e*	25	0.7 *e*	24	0.03	28
UK	29	8	8.5 *e*	3	0.63 *e*	13	2.1 *d*	19	0.93	6
US	19	21	5.4	9	0.61	14	-		0.77	12
EU	-		5.0		0.66 *e*		2.5 *e*		0.56	
OECD	-		-		0.62 *e*		1.9 *c*		0.49	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A7 Technological Innovation Performance

	1		2		3		4		5		6		7		8	
Indicator	Business R&D expenditure as a percentage of GDP		Business R&D researchers per 1000 of the labour force		Manufacturing R&D as a percentage of sales		ISO 9000 certificates per million capita - total to Dec. 1995		Inventiveness coefficient (resident patent application per 10,000 population)		Patents granted in US (per million annual capita		ICT expenditure as a percentage of GDP		Growth in information technology market (average annual growth rate)	
Year	1998		1997		1994		31/12/95		1997		1998		1997		1992-1997	
Source	OECD, MSTI, 2, 1999		OECD, MSTI, 2, 1999		OECD, STAN Database		Mobil Survey, 1996		OECD, MSTI, 2, 1999		US Patent and Trademark Office PTO Annual Report, 1998		OECD, Science, Technology and Industry Scoreboard, 1999		OECD, Science, Technology and Industry Scoreboard 1999	
Country	26	Rank	25	Rank	15	Rank	26	Rank	28	Rank	28	Rank	26	Rank	26	Rank
Australia	0.74 *e*	16	1.56	16	1.1	12	495	2	4.25	6	40.8	15	8.1	3	2.3	8
Austria	-		-		-		141	11	2.33	12	51.0	13	5.1	18	0.5	24
Belgium	1.07 *c*	12	2.74 *c*	13	-		170	9	0.89	19	69.2	10	6.0	14	2.0	10
Canada	1.03	13	3.01 *d*	10	1.2	11	48	17	1.12	18	109.0	7	7.5	7	1.8	11
Czech Republic	0.83	15	0.99	18	-		29	23	0.56	24	1.5	23	6.5	10	2.1	9
Denmark	1.19	9	2.63	14	1.6	9	252	7	2.53	11	104.5	8	6.5	10	1.2	17
Finland	1.98	4	3.39	5	1.9	6	152	10	4.65	4	112.9	6	6.0	14	4.1	5
France	1.37	7	2.75	12	2.6	4	95	15	2.30	13	65.6	11	6.4	13	1.7	12
Germany	1.57	6	3.35	6	2.3	5	121	13	5.50	2	113.2	5	5.6	17	1.0	21
Greece	0.11 *e*	25	-		-		24	24	0.39 *d*	25	1.6	22	4.0	23	8.7	2
Hungary	0.26	22	0.76	20	-		-		0.74	21	4.5	21	4.4	20	2.8	6
Iceland	0.74	16	3.20	8	-		45	18	0.81	20	20.0	19	-		-	
Ireland	1.18 *e*	10	3.31	7	1.1 *c*	12	456	4	2.21	14	20.6	18	6.4	12	1.1	20
Italy	0.56	18	1.18	17	0.9	14	84	16	1.24 *d*	17	30.7	16	4.3	21	2.6	7
Japan	2.10 *e*	2	5.96	2	2.7	3	30	22	27.68	1	245.1	1	7.4	8	4.3	4
Luxembourg	-		-		-		121	14	2.09	15	117.5	4	-		-	
Mexico	0.07 *e*	26	0.06 *c*	25	-		2	26	0.05	27	0.8	26	3.5	24	1.7	12
Netherlands	1.15 *e*	11	2.25	15	1.7	8	344	5	1.61	16	82.2	9	7.0	9	1.3	16
New Zealand	0.32 *e*	20	0.93	19	-		480	3	4.24	7	26.4	17	8.6	1	-0.7	26
Norway	0.95 *e*	14	4.07	4	1.4	10	205	8	2.75	10	49.3	14	5.7	16	0.7	22
Poland	0.32	20	0.64	22	-		-		0.62	22	0.4	27	2.7	25	5.8	3
Portugal	0.15 *e*	24	0.24	23	-		39	19	0.07	26	0.9	25	5.0	19	10.1	1
Russia	-		-		-		-				1.2	24	-		-	
Spain	0.43	19	0.74	21	0.6	15	38	20	0.58	23	7.3	20	4.1	22	1.2	17
Sweden	2.88 *e*	1	4.91	3	3.5	1	125	12	4.74	3	141.3	3	8.3	2	1.4	14
Switzerland	1.94 *d*	5	3.15 *d*	9	-		295	6	3.66	8	188.6	2	7.7	5	0.6	23
Turkey	0.16 *e*	23	0.14	24	-		7	25	0.03	28	0.0	28	2.6	26	0.1	25
UK	1.22 *e*	8	2.93	11	1.8	7	901	1	3.05	9	60.4	12	7.6	6	1.4	14
US	2.08	3	6.69	1	2.9	2	34	21	4.48	5	-		7.8	4	1.2	17
EU	1.14 *e*		2.43		1.8		237		2.49		-		5.9		1.8	
OECD	1.53 *e*		3.73		2.4		-		5.33		-		6.9		2.2	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A8 Trade

	1		2		3		4		5		6		7		8	
Indicator	Manufacturing exports - concentration, standard deviation of exports by country		Manufacturing imports - concentration, standard deviation of imports by country		Manufacturing exports - concentration, standard deviation of exports by sector		Manufacturing imports - concentration, standard deviation of imports by sector		Export performance for total goods - % change from last period		Producer prices - manufacturing (1990=100)		Trade openness - exports + imports (of goods and services)/GDP		Trade openness in services - (service exports + service imports)/ service output	
Year	1995		1995		1995		1995		1998e		Dec - 99		1997		1994	
Source	OECD Database		OECD Database		OECD Database		OECD Database		OECD Economic Outlook Dec 1999		OECD, Main Economic Indicators, Feb 2000		OECD, Main Economic Indicators, Feb 2000		World Trade Organisation, International Trade and OECD, National Accounts	
Country	23	Rank	23	Rank	23	Rank	23	Rank	27	Rank	23	Rank	28	Rank	12	Rank
Australia	0.0369	5	0.0445	13	0.075	2	0.114	21	-2.2%	17	-		41.7	25	-	
Austria	0.0603	22	0.0793	22	0.095	11	0.096	13	-3.0%	20	100.1	6	85.2	7	-	
Belgium	0.0479	17	0.0489	17	0.083	4	0.082	3	-3.1%	21	104.2 *	9	141.3	3	0.9	1
Canada	0.1290	23	0.1086	23	0.110	17	0.128	23	-2.6%	18	105.1	12	79.7	9	0.2	10
Czech Republic	-		-		-		-		5.2%	3	118.5	18	120.6	4	-	
Denmark	0.0405	6	0.0432	11	0.086	5	0.088	7	-0.4%	13	-		68.6	15	0.8	2
Finland	0.0356	4	0.0380	4	0.091	9	0.105	18	-2.1%	16	100.9	8	70.8	14	-	
France	0.0407	8	0.0414	7	0.098	12	0.092	11	-1.1%	15	95.6	1	49.3	24	0.5	4
Germany	0.0297	1	0.0586	19	0.121	21	0.092	9	0.8%	8	100.4	7	52.1	22	0.6	3
Greece	0.0571	20	0.0450	14	0.075	1	0.080	2	0.1%	11	122.5 *	19	39.7	26	-	
Hungary	-		-		-		-		10.5%	1	177.7	21	85.8	6	-	
Iceland	0.0436	12	0.0336	1	0.148	22	0.084	4	4.8%	4	-		72.2	12	-	
Ireland	0.0481	18	0.0636	21	0.115	19	0.112	20	8.4%	2	104.8	10	159.7	2	0.4	8
Italy	0.0405	7	0.0429	9	0.092	10	0.087	5	-6.2%	24	105.2	13	50.3	23	0.4	6
Japan	0.0463	15	0.0432	12	0.154	23	0.076	1	-8.4%	25	96.2	3	21.0	28	0.1	12
Luxembourg	-		-		-		-		-		96.3 *	4	186.4	1	-	
Mexico	-		-		-		-		0.0%	12	215.0	22	60.6	16	-	
Netherlands	0.0468	16	0.0454	15	0.090	7	0.091	8	1.5%	7	106.9	16	104.9	5	0.5	5
New Zealand	0.0447	14	0.0494	18	0.100	13	0.103	17	-4.5%	22	-		57.1	18	-	
Norway	0.0353	3	0.0373	3	0.082	3	0.096	12	0.4%	9	107.0	17	75.5	10	-	
Poland	-		-		-		-		-4.8%	23	138.9 *	20	55.5	20	-	
Portugal	0.0490	19	0.0486	16	0.087	6	0.092	10	0.3%	10	-		71.5	13	-	
Russia -		-		-		-		-		-		-		-		
Spain	0.0444	13	0.0429	10	0.105	14	0.099	14	1.7%	6	104.8	10	55.6	19	-	
Sweden	0.0314	2	0.0413	6	0.106	15	0.106	19	3.2%	5	100.0	5	80.6	8	0.4	7
Switzerland	0.0420	10	0.0587	20	0.114	18	0.087	6	-2.8%	19	95.8	2	75.4	11	-	
Turkey	0.0597	21	0.0412	5	0.090	8	0.100	16	-11.1%	27	1064.0	23	55.0	21	-	
UK	0.0413	9	0.0360	2	0.107	16	0.100	15	-8.9%	26	106.3	15	57.9	17	0.3	9
US	0.0434	11	0.0425	8	0.121	20	0.115	22	-0.9%	14	105.5	14	25.6	27	0.1	11
EU	-		-		-		-		-1.5%		102.6		-		-	
OECD	-		-		-		-		-1.8%		103.3		-		-	

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

* *Data refer to November 1999*

Table A9 Financial Markets

	1		2		3		4		5		6		7	
Indicator	Government bond yields (61)		Interest rate spread - absolute		Long-term interest rates		Money market rates (60b)		Rate of return on capital in the business sector		Short-term interest rates		Cumulative venture capital raised as (% of GDP)	
Year	1997		1997		1999e		1997		1998e		1999e		1997	
Source	IMF, International Financial Yearbook, 1998		IMF, International Financial Yearbook, 1998		OECD, Economic Outlook, Dec, 1999		IMF, International Financial Yearbook, 1998		OECD, Economic Outlook, No. 64, December 1998		OECD, Economic Outlook, Dec 1999		European venture capital association, yearbook 1998 and OECD Main Economic Indicators February 1999	
Country	21	Rank	24	Rank	24	Rank	22	Rank	19	Rank	28	Rank	17	Rank
Australia	6.89%	18	-		6.1%	19	-		14.1%	11	4.9%	18	-	
Austria	4.80%	3	-		4.6%	4	3.27%	7	15.7%	7	2.9%	3	0.08%	16
Belgium	5.60%	10	4.18%	13	4.7%	7	3.46%	8	14.4%	10	2.9%	3	0.76%	7
Canada	6.40%	15	1.37%	1	5.6%	17	4.34%	11	12.8%	14	4.9%	18	-	
Czech Republic	-		5.49%	18	-		-		-		6.9%	22	-	
Denmark	5.10%	4	5.00%	17	4.9%	12	3.71%	9	8.9%	18	3.3%	15	0.38%	14
Finland	-		3.29%	10	4.7%	7	3.23%	5	12.9%	13	2.9%	3	0.59%	8
France	5.63%	11	2.84%	7	4.6%	4	3.24%	6	16.4%	6	2.9%	3	1.14%	4
Germany	5.10%	4	6.44%	21	4.5%	3	3.20%	4	15.3%	8	2.9%	3	0.48%	12
Greece	-		8.81%	22	-		-		24.3%	1	8.6%	24	0.07%	17
Hungary	-		-		-		-		-		13.9%	26	-	
Iceland	5.49%	9	9.60%	23	13.8%	21	7.38%	18	-		8.5%	23	1.03%	6
Ireland	6.49%	16	6.11%	20	4.7%	7	5.74% *d*	14	17.0%	5	2.9%	3	1.09%	5
Italy	6.86%	17	4.92%	16	4.7%	7	6.88%	17	14.6%	9	2.9%	3	0.56%	10
Japan	1.69%	1	2.15%	4	1.8%	1	0.48%	1	11.7%	16	0.3%	1	-	
Luxembourg	5.39%	7	2.04%	2	-		-		-		2.9%	3	-	
Mexico	32.81% *d*	21	-		23.0%	23	21.91%	20	-		22.5%	27	-	
Netherlands	5.81%	12	2.95%	8	4.6%	4	3.07%	3	18.9%	3	2.9%	3	1.32%	3
New Zealand	7.21%	20	4.09%	12	6.3%	20	-		19.1%	2	4.8%	17	-	
Norway	5.13%	6	2.32%	5	5.3%	16	-		6.5%	19	6.5%	21	0.57%	9
Poland	-		6.10% *d*	19	14.5%	22	20.60% *d*	19	-		12.7%	25	-	
Portugal	5.48%	8	4.59%	15	4.9%	12	5.78%	15	-		2.9%	3	0.41%	13
Russia	-		29.80%	24	-		23.60%	21	-		-		-	
Spain	5.84%	13	2.12%	3	4.7%	7	5.49%	13	18.2%	4	2.9%	3	0.32%	15
Sweden	-		4.51%	14	4.9%	12	4.21%	10	11.8%	15	3.2%	14	1.77%	2
Switzerland	3.08%	2	3.47%	11	2.9%	2	1.35%	2	13.5%	12	1.1%	2	0.51%	11
Turkey	-		-		105.0%	24	70.32%	22	-		97.0%	28	-	
UK	7.09%	19	2.95%	8	5.1%	15	6.56%	16	11.1%	17	5.4%	20	3.98%	1
US	6.35%	14	2.82%	6	5.6%	17	5.46%	12	-		4.6%	16	-	
EU	-		-		-		-		-		-		-	
OECD	-		-		-		-		-		-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A10 Investment

	1		2		3		4		5		6	
Indicator	FDI inflow (% GDP)		FDI inflow stock (% GDP)		FDI outflow stock (% GDP)		Non-residential fixed investment (% GDP)		Ratio of educational expenditures to non-residential fixed investment		Top rate of corporation tax	
Year	1998		1997		1997		1984-1996		1994		1997	
Source	OECD Main Economic Indicators, Feb, 2000		World Investment Report 1999		World Investment Report 1999		OECD, National Accounts, Vol. II,		OECD National Accounts and Education at a Glance		International Tax Summaries - Coopers and Lybrand	
Country	27	Rank	28	Rank	28	Rank	21	Rank	17	Rank	29	Rank
Australia	1.9	20	25.6	6	14.4	10	0.172 *e*	7	0.364	11	36.0%	19
Austria	2.8	13	8.6	21	6.1	19	0.198	3	0.278	14	34.0%	12
Belgium	8.4 *	2	55.1	1	40.7	3	0.139	14	-		39.0%	24
Canada	2.6	14	22.3	8	23.3	6	0.128	18	0.440	8	29.1%	6
Czech Republic	4.6	6	22.8	7	1.4	23	-		0.000	17	39.0%	24
Denmark	3.7	8	14.8	15	18.7	8	-		0.590	2	34.0%	12
Finland	8.8	1	8.0	23	16.9	9	0.134	15	0.664	1	28.0%	2
France	2.0	18	10.1	19	13.6	12	0.151	9	0.404	9	41.7%	26
Germany	0.9	24	9.9	20	14.4	10	0.145	12	0.476	6	45.0%	29
Greece	3.0 *e*	12	17.7	13	0.7	26	-		-		35.0%	15
Hungary	4.1	7	34.7	4	2.0	22	-		-		18.0%	1
Iceland	1.4	23	4.5	25	3.6	21	0.130	17	0.500	5	33.0%	10
Ireland	3.1	11	26.3	5	8.9	16	0.122	19	0.574	3	32.0%	8
Italy	0.1	26	7.1	24	10.9	13	0.131	16	0.383	10	37.0%	21
Japan	0.1	26	0.6	28	6.5	18	0.257	1	0.204	15	37.5%	22
Luxembourg	-		-		-		-		-		32.0%	8
Mexico	2.5	15	12.5	17	1.3	25	0.114	21	-		34.0%	12
Netherlands	5.9	4	35.3	3	58.1	2	0.154	8	0.350	12	35.0%	15
New Zealand	3.7	8	48.5	2	8.7	17	0.175	6	-		33.0%	10
Norway	2.5	15	13.5	16	19.9	7	-		-		28.0%	2
Poland	3.4	10	11.6	18	0.5	27	-		-		38.0%	23
Portugal	1.7	21	17.7	13	4.5	20	0.218 *e*	2	-		36.0%	19
Russia	-		3.2	27	1.4	23	-		-		43.0%	27
Spain	1.6	22	19.0	11	9.0	15	0.180	5	0.303	13	35.0%	15
Sweden	8.3	3	18.6	12	34.7	4	0.146	10	0.556	4	28.0%	2
Switzerland	2.0 *e*	18	22.1	9.0	62.4	1	0.117	20	-		28.5%	5
Turkey	0.5	25	3.5	26	0.3	28	0.182 *e*	4	0.195	16	44.0%	28
UK	4.7	5	21.5	10	29.1	5	0.140	13	-		31.0%	7
US	2.4	17	8.4	22	10.6	14	0.145	11	0.447	7	35.0%	15
EU	-		15.2		18.6		-		-		-	
OECD	-		-		-		-		-		-	-

a *1993 Data* *d* *1996 Data* * *Data refer to the Belgo-Luxembourg Economic Union*
b *1994 Data* *e* *1997 Data*
c *1995 Data* *f* *1998 Data*

Table A11 Telecommunications Infrastructure

	1		2		3		4	
Indicator	Fixed lines per 100 inhabitants		Internet hosts per 1000 capita		Mobile subscriptions per 100 capita		Per capita expenditure on telecommunications (ECU)	
Year	1999/99		Jan - 00		Aug - 99		1998	
Source	DG XIII		Internet Software Consortium		DG XIII		DG XIII	
Country	15	Rank	29	Rank	15	Rank	17	Rank
Australia	-		58.84	7	-		-	
Austria	49.5	11	33.97	11	41	5	495	12
Belgium	49.8	10	31.51	13	23	14	409	14
Canada	-		55.13	8	-		-	
Czech Republic	-		10.94	20	-		-	
Denmark	66.2	3	63.76	6	46	3	686	4
Finland	55.7	7	122.81	1	61	1	551	9
France	58.1	5	13.31	17	26	13	508	11
Germany	57.4	6	20.75	15	22	15	528	10
Greece	53.3	9	7.43	23	30	9	359	15
Hungary	-		11.20	19	-		-	
Iceland	-		109.22	2	-		-	
Ireland	42.7	14	16.32	16	30	9	682	5
Italy	45.3	13	11.44	18	44	4	492	13
Japan	-		2.09	27	-		574	7
Luxembourg	71.0	1	22.91	14	41	5	700	3
Mexico	-		4.33	26	-		-	
Netherlands	59.2	4	52.60	9	34	8	728	1
New Zealand	-		72.06	4	-		-	
Norway	-		91.23	3	-		-	
Poland	-		4.74	25	-		-	
Portugal	42.1	15	9.12	22	38	7	337	16
Russia	-		-		-		-	
Spain	45.8	12	10.57	21	27	12	314	17
Sweden	68.5	2	67.22	5	53	2	662	6
Switzerland	-		43.04	10	-		-	
Turkey	-		1.43	28	-		-	
UK	55.5	8	32.23	12	30	9	563	8
US	-		7.03	24	-		724	2
EU	54.7		-		36		534	
OECD	-		-		-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A12 Telecommunications Costs

	1		2		3		4		5		6		7		8	
Indicator	2 Mbit/s leased lines national circuits - connection (ECU)		2 Mbit/s leased lines national circuits - annual rental 50KM (US$)		2 Mbit/s leased lines national circuits - annual rental 100KM (US$)		2 Mbit/s leased lines to USA (US$) - annual rental		Voice grade leased lines national circuits - connection (ECU)		Analogue leased lines national circuits - annual rental 50km (US$)		Analogue leased lines national circuits - annual rental 100km (US$)		Analogue leased lines to USA (US$)	
Year	1/1/96		Feb-00		Feb-00		Feb-00		1/1/96		Feb - 00		Feb - 00		Feb - 00	
Source	DG XIII, Tariff Data 1996		Teligen		Teligen		Teligen		DG XIII, Tariff Data 1996		Teligen		Teligen		Teligen	
Country	13	Rank	28	Rank	28	Rank	25	Rank	14	Rank	25	Rank	25	Rank	23	Rank
Australia	-		41879	24	52857	21	622143	23	-		4295	15	4754	12	-	
Austria	1991	3	27211	10	34679	8	330297	18	242	4	5778	18	6376	17	25606	11
Belgium	-		35609	19	43679	15	213996	5	1207	13	5996	20	8107	21	33191	19
Canada	-		40198	21	56322	23	158031	2	-		9893	24	12099	24	-	
Czech Republic	-		33072	16	44647	16	826788	25	-		5053	17	5880	16	34675	20
Denmark	5347	6	14535	3	19954	4	218572	6	754	11	2189	5	3033	6	19539	3
Finland	-		8557	1	10335	1	399617	21	-		-		-		27072	12
France	9308	11	24351	8	30439	6	157207	1	698	10	6197	21	6734	18	30081	15
Germany	4246	4	28704	13	34109	7	-		478	7	6281	22	6882	19	31359	16
Greece	1192	2	33325	17	42605	14	351525	20	442	6	3920	12	5080	13	31637	17
Hungary	-		69155	27	69155	27	293307	13	-		1820	4	1820	3	20666	5
Iceland	-		10922	2	15006	2	230042	7	-		2203	7	3017	5	24465	10
Ireland	18328	13	29585	14	35221	10	191376	4	489	8	3522	10	3801	9	20877	6
Italy	576	1	42460	25	55296	22	308481	14	192	1	5991	19	7150	20	38603	21
Japan	-		89013	28	107832	28	779811	24	-		-		-		67057	23
Luxembourg	6201	7	22127	7	48913	19	264947	10	259	5	1456	3	2329	4	18634	2
Mexico	-		40796	22	61815	25	291484	12	-		-		-		-	
Netherlands	8889	10	34109	18	42103	13	184349	3	222	2	2561	8	3360	7	19719	4
New Zealand	-		37698	20	37698	12	-		-		4566	16	4566	11	-	
Norway	-		21093	6	23358	5	309312	15	-		3550	11	5161	14	17131	1
Poland	-		31971	15	46582	18	339060	19	-		2193	6	3591	8	22582	8
Portugal	5164	5	28197	12	56601	24	278859	11	233	3	4280	14	9815	23	29059	14
Russia	-		-		-		-		-		-		-		-	
Spain	6899	8	45502	26	61888	26	247060	9	627	9	12295	25	14078	25	24141	9
Sweden	8008	9	15232	4	17531	3	321254	17	995	12	1062	2	1338	1	27950	13
Switzerland	-		40937	23	51008	20	314487	16	-		8028	23	9524	22	20910	7
Turkey	-		19736	5	36840	11	449431	22	-		789	1	1474	2	31862	18
UK	10960	12	24450	9	35212	9	238202	8	1504	14	3929	13	5284	15	44834	22
US	-		27838	11	45631	17	-		-		2762	9	4294	10	-	
EU	7359		-		-		-		596		-		-		-	
OECD	-		-		-		-		-		-		-		-	

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A12 Telecommunications Costs *continued*

	9		10		11		12		13		14	
Indicator	Cost of local call (1st minute - peak time) US$		Cost of call to the UK (1st minute - peak time) US$		Cost of call to the US (1st minute - peak time) US$		Internet use (30 mins)		Cost of calls: composite (national & international) business basket		OECD national (GSM) mobile basket	
Year	Feb-00		Feb-00		Feb-00		Feb-00		Feb-00		Feb-00	
Source	Teligen		Teligen		Teligen		Teligen		Teligen		Teligen	
Country	28	Rank	27	Rank	27	Rank	28	Rank	28	Rank	27	Rank
Australia	0.154	28	0.210	9	0.173	3	0.154	3	1282.0	22	1393.7	23
Austria	0.049	5	0.295	16	0.332	17	0.896	20	991.6	15	429.0	1
Belgium	0.060	12	0.361	21	0.481	23	1.201	26	1194.8	20	929.3	18
Canada	0.000	1	0.152	3	0.138	2	0.000	1	540.3	1	866.9	10
Czech Republic	0.072	19	0.396	23	0.602	25	1.075	23	893.5	10	689.6	5
Denmark	0.055	7	0.252	13	0.368	19	1.120	24	784.7	8	618.8	6
Finland	0.110	25	0.548	26	0.548	24	0.444	7	939.4	13	614.5	7
France	0.092	23	0.189	7	0.189	6	0.940	21	922.9	12	1443.9	27
Germany	0.060	11	0.207	8	0.207	8	0.450	8	1076.8	17	774.3	9
Greece	0.021	2	0.366	22	0.293	14	0.176	4	894.6	11	775.3	14
Hungary	0.057	8	0.411	25	0.423	21	0.985	22	850.5	9	730.7	11
Iceland	0.054	6	0.341	20	0.385	20	0.550	11	634.3	4	538.7	4
Ireland	0.118	26	0.164	5	0.236	10	0.473	13	1017.0	16	1465.6	25
Italy	0.066	15	0.251	11	0.251	11	0.515	10	1269.9	24	777.1	22
Japan	0.066	15	0.251	11	0.251	11	0.901	19	2061.9	28	1090.8	19
Luxembourg	0.106	24	0.175	6	0.175	4	1.092	25	530.7	2	647.9	3
Mexico	0.139	27	1.588	27	1.012	27	0.139	2	2050.4	27	1469.6	20
Netherlands	0.059	10	0.080	1	0.064	1	0.673	18	708.3	6	710.6	8
New Zealand	0.022	4	0.254	14	0.254	13	0.666	14	1089.3	18	1207.5	21
Norway	0.081	22	0.157	4	0.205	7	0.850	17	701.8	5	491.7	2
Poland	0.065	14	0.407	24	0.834	26	0.651	12	1043.2	14	894.2	15
Portugal	0.078	20	0.308	18	0.308	15	0.425	9	1004.7	23	843.6	12
Russia	-		-		-		-		-			
Spain	0.067	18	0.294	15	0.347	18	0.706	16	1087.1	19	834.5	16
Sweden	0.058	9	0.221	10	0.179	5	0.671	15	749.1	7	1309.0	26
Switzerland	0.061	13	0.334	19	0.221	9	1.216	27	1308.6	25	925.6	17
Turkey	0.021	3	0.305	17	0.458	22	0.391	6	535.6	3		
UK	0.067	17	-		0.320	16	1.607	28	1231.3	21	1294.1	24
US	0.080	21	0.120	2	-		0.431	5	1417.6	26	961.6	13
EU	-		-		-							
OECD	-		-		-							

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A13 Transport and Communications Costs and Infrastructure

	1		2		3		4		5		6	
Indicator	Insurance and freight (debit+credit) as % of total trade		Letter costs - EU domestic tariffs (Irish pence)		Rail infrastructure indicator		Road infrastructure indicator		Average time commuting to and from work, minutes per day		Transport infrastructure investment per capita (ECU millions) annual average 1994 prices	
Year	1992		Jul - 99		1998		1996		1996		1990 - 1996	
Source	Handbook of International Trade and Development Statistics 1994		An Post		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000	
Country	26	Rank	15	Rank	13	Rank	14	Rank	15	Rank	15	Rank
Australia	3.713	13	-		-		-		-		-	
Austria	3.997	14	40	10	28114	1	71176	4	36	4	207.0	4
Belgium	5.744	21	33	6	27659	2	74795	3	39	7	181.8	7
Canada	0.779	2	-		-		-		-		-	
Czech Republic	8.776	25	-		-		-		-		-	
Denmark	6.970	24	42 *	11	6107	9	39336	7	38	6	161.1	9
Finland	3.179	9	46	15	6853	8	10348	13	41	12	163.6	8
France	5.568	20	36	8	14161	5	104712	1	36	4	223.7	3
Germany	2.459	7	44	12	24241	3	84542	2	45	14	239.7	2
Greece	4.068	16	29 *	2	-		12954	11	40	8	42.7	15
Hungary	0.757	1	-		-		-		-		-	
Iceland	3.141	8	-		-		-		-		-	
Ireland	2.025	5	30	4	291	13	4773	14	40	8	110.2	13
Italy	5.366	18	33	6	9637	6	58900	5	23	1	188.0	6
Japan	3.563	12	-		-		-		-		-	
Luxembourg	-		-		-				40	8	416.8	1
Mexico	-		-		-		-		-		-	
Netherlands	5.493	19	29	2	8815	7	39257	8	44	13	145.6	10
New Zealand	4.004	15	-		-		-		-		-	
Norway	12.414	26	38 *e*	9	-		-		-		-	
Poland	6.406	23	-		-		-		-		-	
Portugal	4.370	17	-		2663	12	42999	6	33	2	103.5	14
Russia	5.745	22	-		-		-		-		-	
Spain	3.417	10	17	1	4252	11	32310	10	33	2	144.3	11
Sweden	3.456	11	44 *	12	21131	4	32914	9	40	8	202.3	5
Switzerland	1.389	3	44 *	12	-		-		-		-	
Turkey	-		-		-		-		-		-	
UK	2.138	6	31 *	5	5902	10	11786	12	46	15	137.4	12
US	1.942	4	-		-		-		-		-	
EU	4.022		-		9410		47000		38		183.6	
OECD	-		-		-		-				-	

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

* *Exchange Rates: Q2 1999*

Table A13 Transport and Communications Costs and Infrastructure *continued*

	7		8		9		10		11		12	
Indicator	Passenger cars per 1000 capita		Buses and coaches per 1000 capita		Road goods vehicles per 1000 capita		Rail vehicles (passengers and goods) per 1000 capita		Merchant fleet (ships 1000 grt and over) per capita		Goods transport by road percentage of total goods transported	
Year	1997		1997		1996		1997		1999		1997	
Source	EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000	
Country	15	Rank	15	Rank	13	Rank	15	Rank	15	Rank	15	Rank
Australia	-											
Austria	469.1	5	1.20	13	36.30	11	3.66	2	5.43	12	39.3	1
Belgium	441.2	6	1.44	8	43.73	8	2.19	6	12.94	7	69.3	6
Canada	-											
Czech Republic	-											
Denmark	339.6	12	2.60	1	64.15	3	0.86	10	107.92	2	73.2	8
Finland	372.5	10	1.67	5	50.78	5	2.74	4	29.41	5	71.2	7
France	477.8	4	1.40 *d*	10	60.86	4	2.08	7	3.53	15	74.4	9
Germany	504.3	2	1.02 *f*	14	27.75	14	2.96	3	21.16	6	67.1	4
Greece	238.1	15	2.44	2			0.89	9	292.10	1	98.1	15
Hungary	-											
Iceland	-											
Ireland	297.3	14	1.61 *d*	7	31.94	13	0.53	13	10.00	9	91.6	14
Italy	577.4	1	1.36 *d*	11	49.65	6	1.55	8	9.03	10	85.2	12
Japan	-											
Luxembourg	500.0	3	2.25 *f*	3	40.00	9	6.12	1	5.00	14	68.2	5
Mexico	-											
Netherlands	371.8	11	0.71 *d*	15	38.52	10	0.47	14	35.45	4	47.1	2
New Zealand	-											
Norway	-											
Poland	-											
Portugal	303.0	13	1.66	6	92.63	1	0.56	12	5.25	13	85.7	13
Russia	-											
Spain	389.3	9	1.27	12	77.79	2	0.83	11	5.57	11	84.2	10
Sweden	420.5	7	1.68	4	35.45	12	2.26	5	44.32	3	63.4	3
Switzerland	-											
Turkey	-											
UK	399.0	8	1.43 *d*	9	45.01	7	0.37	15	10.95	8	84.3	11
US	-											
EU	453.6		1.34 *d*		49.82		1.67		22.26		73.1	
OECD	-											

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A13 Transport and Communications Costs and Infrastructure *continued*

	13		14		15		16		17	
Indicator	Goods transport by rail percentage of total goods transported		Road haulage 1000 mio tkm per capita		Rail haulage 1000 mio tkm per capita		Container port traffic 1000TEU per capita		Major airport traffic 1000 tonnes per capita	
Year	1997		1997		1998		1998		1998	
Source	EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000		EU Transport in Figures Statistical Pocket Book Jan 2000	
Country	15	Rank	15	Rank	15	Rank	14	Rank	15	Rank
Australia										
Austria	35.4	2	1.94	12	1.91	3			14.32	8
Belgium	15.2	7	3.34	7	0.75	7	314.41	2	27.75	4
Canada										
Czech Republic										
Denmark	8.1	13	2.77	9	0.32	9	92.83	5	70.57	3
Finland	27.6	3	4.98	1	1.94	2	127.25	4	19.61	6
France	16.9	5	4.05	3	0.92	5	31.51	13	10.96	11
Germany	16.2	6	3.68	5	0.90	6	56.67	11	6.17	13
Greece	1.9	15	1.57	13	0.03	15	77.52	9	11.43 *e*	9
Hungary										
Iceland										
Ireland	8.4	12	1.54	14	0.14	14	211.39	3	27.57	5
Italy	9.5	10	3.60	6	0.39	8	65.00	10	2.48	15
Japan										
Luxembourg	20.3	4	4.75	2	1.50	4	0.00		957.50	1
Mexico										
Netherlands	3.6	14	2.88	8	0.24	12	327.61	1	78.14	2
New Zealand										
Norway										
Poland										
Portugal	14.3	8	1.36	15	0.20	13	51.72	12	11.21	10
Russia										
Spain	10.1	9	2.45	11	0.30	10	83.49	8	4.72	14
Sweden	36.6	1	3.76	4	2.18	1	86.14	7	15.80	7
Switzerland										
Turkey										
UK	9.3	11	2.59	10	0.30	11	90.36	6	6.89	12
US										
EU	14.5		3.21		0.64		83.27		25.86	
OECD-										

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A14 Energy Costs

	1		2		3		4		5		6		7	
Indicator	Automotive diesel oil prices for commercial use (US$/toe)		Heavy fuel oil prices for industry use (US$/toe)		Industrial electricity prices - 24GWh per annum - VAT excl (ecu)		Industrial electricity prices - 10GWh per annum - VAT excl (ecu)		Industrial electricity prices - 1.25GWh per annum - VAT excl (ecu)		Gas prices - industrial rate excl. VAT (4186 GJ/200 days)		Gas prices - industrial rate excl. VAT (41860 GJ/250 days/ 4000 hours)	
Year	Q1 1998		Q1 1998		1/6/99		1/6/99		1/6/99		1/6/99		1/6/99	
Source	International Energy Agency, energy prices and taxes, 2nd Quarter 1998		International Energy Agency, energy prices and taxes, 2nd Quarter 1998		Eurostat Energy and Industry 2/2000		Eurostat Energy and Industry 2/2000		Eurostat Energy and Industry 2/2000		Eurostat Energy and Industry 15/1999		Eurostat Energy and Industry 15/1999	
Country	25	Rank	26	Rank	14	Rank	14	Rank	15	Rank	12	Rank	10	Rank
Australia	-		-		-		-		-		-		-	
Austria	664.7	15	107.0	6	-		-		10.04	14	7.3	12	-	
Belgium	625.8	12	108.2	7	5.52	11	6.75	11	8.70	11	4.2	3	2.7	1
Canada	433.4	4	162.3	17	-		-		-		-		-	
Czech Republic	522.3	6	82.5	1	-		-		-		-		-	
Denmark	683.9	17	151.9	15	5.16	8	5.44	4	5.58	4	5.7	9	3.9	9
Finland	661.1	14	171.6	19	3.82	3	4.17	3	4.76	3	3.5	2	3.1	3
France	668.3	16	127.5	9	4.90	6	5.65	5	6.61	6	5.0	5	3.6	5
Germany	641.2	13	118.4	8	6.52	14	7.94	13	10.01	13	5.4	7	4.6	10
Greece	503.6	5	171.7	20	4.90	6	5.82	8	6.29	5	-		-	
Hungary	753.7	21	102.8	5	-		-		-		-		-	
Iceland	-		-		-		-		-		-		-	
Ireland	737.8	20	184.4	22	5.30	10	6.18	10	8.06	9	5.7	8	3.2	4
Italy	762.4	22	145.7	13	6.34	13	8.18	14	10.64	15	5.7	10	3.7	7
Japan	557.4	7	184.1	21	-		-		-		-		-	
Luxembourg	567.2	9	131.0	11	4.68	4	5.68	6	8.61	10	4.4	4	3.9	8
Mexico	331.6 *	2	89.2	3	-		-		-		-		-	
Netherlands	708.6	18	167.3	18	4.90	5	5.80	7	7.12	7	6.2	11	3.7	6
New Zealand	274.9	1	196.8	24	-		-		-		-		-	
Norway	955.4	24	329.5	26	2.37	1	2.95	1	3.98	1	-		-	
Poland	408.1	3	83.7	2	-		-		-		-		-	
Portugal	597.7	11	150.5	14	5.27	9	7.88	12	8.78	12	-		-	
Russia	-		-		-		-		-		-		-	
Spain	562.7	8	157.3	16	5.52	11	6.14	9	7.12	7	3.4	1	3.0	2
Sweden	709.5	19	197.6	25	2.78	2	3.17	2	4.54	2	5.3	6	-	
Switzerland	788.7	23	130.6	10	-		-		-		-		-	
Turkey	576.8	10	188.8	23	-		-		-		-		-	
UK	1007.8	25	140.7	12	-		-		-		-		-	
US	-		94.1	4	-		-		-		-		-	
EU	-		-		-		-		-					
OECD	-		160.7		-		-		-					-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

* Data refer to 4th Quarter 1997

Table 15 Property and Construction Costs

	1		2		3		4		5		6		7	
Indicator	Industrial occupancy costs (IR£ per sq m)		Office occupancy costs (IR£ per sq m)		Building costs industrial (IR£ per sq m)		Building costs offices (IR£ per sq m)		Average of ranks for carpentry, steel reinforcement, concrete and cement material costs		Construction skilled labour costs (per hour - ECU)		Unweighted average of skilled and unskilled labour costs (ECU per hour)	
Year	1997		1997		1997		1997		Q1 1994		Q1 1994		Q1 1994	
Source	Hamilton Osbourne King European Property Bulletin, 1998		Hamilton Osbourne King European Property Bulletin, 1998		Hamilton Osbourne King European Property Bulletin, 1998		Hamilton Osbourne King European Property Bulletin, 1998		SPON, European Construction Handbook, 1996		SPON, European Construction Handbook, 1996		SPON, European Construction Handbook, 1996	
Country	20	Rank	20	Rank	20	Rank	20	Rank	18	Rank	17	Rank	15	Rank
Australia	-		-		-		-		-		-		-	
Austria	51.9	13	149.1	9	648	20	1188	19	10.75	13	21.99	12	19.98	9
Belgium	36.9	3	116.8	2	240	4	645	6	5.00	4	26.95	15	24.71	13
Canada	-		-		-		-		-		-		-	
Czech Republic	50.3	10	242.1	14	293	7	495	3	-		-		-	
Denmark	49.9	9	154.8	10	474	17	949	16	11.75	15	23.05	13	23.05	11
Finland	68.6	18	184.2	13	648	19	1080	18	4.75	3	16.19	6	13.73	5
France	40.7	5	145.9	6	396	13	848	13	12.75	16	16.24	7	13.81	6
Germany	44.2	6	179.7	11	457	16	914	14	8.25	7	29.82	16	27.80	14
Greece	-		-		-		-		-		-		-	
Hungary	54.8	14	182.7	12	247	5	914	14	-		-		-	
Iceland	-		-		-		-		-		-		-	
Ireland	67.3	17	244.8	16	430	14	1076	17	9.75	10	12.50	4	11.22	3
Italy	35.4	1	123.1	4	200	3	664	7	3.25	2	16.38	8	15.88	7
Japan	-		-		-		-		10.00	12	-		-	
Luxembourg	49.8	8	243.4	15	369	11	737	8	-		18.91	9	-	
Mexico	-		-		-		-		-		-		-	
Netherlands	36.8	2	122.7	3	321	9	811	12	13.50	17	23.65	14	23.35	12
New Zealand	-		-		-		-		-		-		-	
Norway	-		-		-		-		9.50	9	21.98	11	20.43	10
Poland	75.1	20	351.8	19	296	8	626	5	1.00	1	0.60	1	-	
Portugal	49.7	7	149.0	8	199	2	452	2	9.75	10	8.47	2	6.17	1
Russia	71.2	19	426.9	20	395	12	791	10	-		-		-	
Spain	38.1	4	109.7	1	270	6	529	4	8.00	6	12.78	5	11.57	4
Sweden	51.8	12	146.8	7	432	15	777	9	8.50	8	19.47	10	18.97	8
Switzerland	56.8	15	249.9	17	545	18	1272	20	15.75	18	-		-	
Turkey	51.4	11	134.4	5	161	1	336	1	-		-		-	
UK	60.1	16	269.1	18	356	10	793	11	6.50	5	9.16	3	7.72	2
US	-		-		-		-		11.33	14	37.47	17	31.84	15
EU	-		-		-		-		-		17.95		-	
OECD	-		-		-		-		-		-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A16 Environment

	1		2		3		4		5	
Indicator	CO_2 emissions from energy uses (tonnes/capita)		Per capita NO_X emissions from fossil fuels (kg NO_X)		Per capita SO_X emissions from fossil fuels (kg SO_X)		Waste recycling paper and cardboard (as % of apparent consumption)		Waste recycling glass (as % of apparent consumption)	
Year	1997		Latest year available		Latest year available		1992 - 95		1992 - 95	
Source	OECD in Figures 1999		OECD in Figures 1999		OECD in Figures 1999 edition		Human Development Report 1999		Human Development Report 1999	
Country	28	Rank	28	Rank	28	Rank	21	Rank	21	Rank
Australia	16.5	26	120	28	119	28	50	9	36	16
Austria	7.9	12	22	6	8	3	65	3	76	3
Belgium	12.0	23	33	13	24	13	12	20	67	7
Canada	15.8	25	67	25	89	27	33	16	17	21
Czech Republic	11.7	20	40	18	68	26	-		-	
Denmark	11.8	21	55	24	34	17	44	10	63	8
Finland	12.5	24	51	22	20	10	57	5	50	12
France	6.2	6	29	8	17	8	38	12	50	12
Germany	10.8	19	23	7	23	11	67	2	75	4
Greece	7.7	10	36	15	52	21	19	19	20	20
Hungary	5.7	4	19	5	67	25	-		-	
Iceland	8.9	14	110	27	32	16	30	17	75	4
Ireland	10.3	18	32	11	46	20	12	20	39	15
Italy	7.4	9	37	16	25	14	29	18	53	11
Japan	9.3	16	11	1	7	2	51	8	56	10
Luxembourg	20.4	27	48	21	19	9	-		-	
Mexico	3.7	2	16	3	23	11	-		-	
Netherlands	11.8	21	32	11	9	5	77	1	80	2
New Zealand	8.8	13	46	20	11	6	-		-	
Norway	7.8	11	51	22	8	3	41	11	75	4
Poland	9.1	15	30	9	61	23	-		-	
Portugal	5.2	3	37	16	36	19	37	13	42	14
Russia -		-		-		-		-		
Spain	6.5	8	31	10	53	22	52	7	32	17
Sweden	6.0	5	40	18	11	6	54	6	61	9
Switzerland	6.3	7	18	4	5	1	61	4	85	1
Turkey	2.9	1	13	2	31	15	-		-	
UK	9.4	17	35	14	34	17	35	14	27	18
US	20.5	28	75	26	63	24	35	14	26	19
EU	8.6		31		27		-		-	
OECD	11.2		40		39		-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A17 SME Performance

	1		2		3		4		5		6	
Indicator	Labour productivity (1,000 ECU/PPP) 0-9		Labour productivity (1,000 ECU/PPP) 10-49		Labour productivity (1,000 ECU/PPP) 50-249		Turnover limit for concession providing relief from VAT registration (US$)		Average debtor days		Percentage of SMEs who export	
Year	1995		1995		1995		1/1/96		1999		1999	
Source	European Observatory for SMEs, Fourth Annual Report, 1996		European Observatory for SMEs, Fourth Annual Report, 1996		European Observatory for SMEs, Fourth Annual Report, 1996		OECD/DAFFE/C FA/CT(96)24		Grant Thornton European Business Survey 1999		Grant Thornton European Business Survey 1999	
Country	18	Rank	18	Rank	18	Rank	17	Rank	19	Rank	19	Rank
Australia	-		-		-		-		-		-	
Austria	11	17	36	12	64	4	28110	5	34.2	4	54	3
Belgium	57	1	56	2	59	6	7200	11	51.7	13	55	2
Canada	-		-		-		22760	6	-		-	
Czech Republic	-		-		-		-		-		-	
Denmark	31	10	38	9	44	12	2960	15	32.7	3	36	17
Finland	27	13	33	16	40	16	10590	9	26.4	1	53	4
France	33	6	38	9	45	11	1820	17	57.6	15	43	13
Germany	36	3	43	3	65	3	4340	13	34.8	5	42	16
Greece	16	16	32	17	24	18	7444	10	87.2	19	49	8
Hungary	-		-		-		-		-		-	
Iceland	32	7	36	12	48	9	1920	16	-		-	
Ireland	20	15	34	15	68	2	57140	3	57.2	14	51	7
Italy	35	4	41	4	62	5	-		81.3	18	53	4
Japan	-		-		-		269060	1	-		-	
Luxembourg	32	7	58	1	72	1	11040	8	49.5	11	52	6
Mexico	-		-		-		-		-		-	
Netherlands	32	7	39	5	41	14	-		43.7	8	56	1
New Zealand	-		-		-		6880	12	-		-	
Norway	27	13	39	5	46	10	3990	14	30.6	2	25	19
Poland	-		-		-		-		39.8	7	47	11
Portugal	10	18	21	18	27	17	12790	7	67.4	16	43	13
Russia	-		-		-		-		-		-	
Spain	34	5	38	9	44	12	-		71.8	17	32	18
Sweden	28	12	39	5	41	14	-		37.0	6	43	13
Switzerland	44	2	36	12	52	8	50990	4	47.7	10	48	10
Turkey	-		-		-		-		51.6	12	49	8
UK	31	10	39	5	58	7	71440	2	46.2	9	47	11
US	-		-		-		-		-		-	
EU	-		-		-		-		55.4		44	
OECD	-		-		-		-		-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table 18 Public Administration

	1		2		3		4		5		6		7	
Indicator	General government consolidated gross debt (% GDP)*		Net lending (+) or borrowing (-) of general government (% GDP)*		Government spending as a (% GDP)		Share of general government in total employment		Tax as a (% GDP) (GNP for Ireland)		Competition policy (law) exemptions and enforcement potential)		Overall product market regulation	
Year	1999e		1999e		1999e		1996		1999e		1998		1998	
Source	EC Economic Data Pocket Book, No. 1 2000 and Dept. of Finance		EC Economic Data Pocket Book, No. 1 2000 and Dept. of Finance		EC Economic Data Pocket Book, No 1 2000		OECD Employment Outlook, July 1997		EC Economic Data Pocket Book, Book, No. 1 2000		OECD ECO/CPE/WP1 (98) 15		OECD/ECO/WKP (99) 18	
Country	15	Rank	15	Rank	15	Rank	24	Rank	15	Rank	25	Rank	26	Rank
Australia	-		-		-		16.3	10	-		1.4	13	0.9	3
Austria	63.5	11	-2.2	13	51.9	11	20.6	17	49.6	10	2.1	22	1.4	6
Belgium	114.3	14	-1.0	7	51.5	10	19.1	15	50.0	12	1.8	19	1.9	18
Canada	-		-		-		21.7	18	-		1.9	21	1.5	11
Czech Republic	-		-		-		-		-		0.0	1	2.9	24
Denmark	52.6	5	3.0	2	54.9	14	32.4	23	57.5	14	1.5	16	1.4	6
Finland	42.1	2	3.5	1	48.8	8	22.5	19	51.9	13	1.4	13	1.7	15
France	58.4	7	-2.1	12	52.5	12	24.5	20	49.6	10	1.3	9	2.1	20
Germany	61.3	8	-1.6	10	48.1	7	16.2	9	46.1	7	0.6	3	1.4	6
Greece	104.0	13	-1.9	11	53.2	13	10.4	3	47.6	9	-		2.2	21
Hungary	-		-		-		-		-		1.1	7	1.6	13
Iceland	-		-		-		18.5	13	-		-		-	
Ireland	47.0	4	2.0	3	38.8	2	17.7	11	40.2	3	1.0	6	0.8	2
Italy	115.6	15	-2.2	13	49.3	9	18.6	14	46.8	8	1.3	9	2.3	23
Japan	-		-8.2	15	38.6	1	8.3	1	30.5	1	1.3	9	1.5	11
Luxembourg	6.7	1	-		-		-		-		-			
Mexico	-		-		-		31.7	22	-		0.8	4	1.9	18
Netherlands	62.6	9	-0.4	6	46.4	5	10.8	4	45.4	6	1.1	7	1.4	6
New Zealand	-		-		-		14.7	6	-		1.5	16	1.3	5
Norway	-		-		-		31.1	21	-		2.1	22	2.2	21
Poland	-		-		-		-		-		1.8	19	3.3	26
Portugal	54.8	6	-1.3	8	47.4	6	18.2	12	43.4	5	2.6	25	1.7	15
Russia	-		-		-		-		-		-			
Spain	63.0	10	-1.4	9	41.6	4	15.0	7	39.0	2	0.8	4	1.6	13
Sweden	66.3	12	1.9	4	57.6	15	33.1	24	59.4	15	1.3	9	1.4	6
Switzerland	-		-		-		11.3	5	-		1.7	18	1.8	17
Turkey	-		-		-		8.8	2	-		1.4	13	2.9	24
UK	45.7	3	0.6	5	40.8	3	19.6	16	40.9	4	2.3	24	0.5	1
US	-		-		-		15.5	8	-		0.5	2	1.0	4
EU	67.4		-1.0		47.8		-		46.2					
OECD	-		-		-		-		-					-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

* Maastricht Criteria Definition

Table A18 Public Administration *continued*

	8		9		10		11		12		13		14	
Indicator	Overall regulatory environment		Index of economic freedom (1.00-5.00)		Scale of state control (Scale 0-6)		Barriers to entrepreneurship (Scale 0-6)		Barriers to trade and investment (Scale 0-6)		Administrative regulation (Scale 0-6)		Economic regulation (Scale 0-6)	
Year	1998		2000		1998		1998		1998		1998		1998	
Source	OECD ECO/CPE/WP1 (98) 15		Heritage Foundation		OECD/ECO/WKP (99) 18		OECD/ECO/WKP (99) 18		OECD/ECO/WKP (99) 18		OECD/ECO/WKP (99) 18		OECD/ECO/WKP (99) 18	
Country	20	Rank	29	Rank	26	Rank	26	Rank	26	Rank	26	Rank	26	Rank
Australia	1.6	6	1.90	5	1.26	4	1.13	4	0.43	1	1.1	4	1.3	5
Austria	2.1	15	2.05	9	2.11	12	1.60	13	0.54	5	1.6	12	2.1	12
Belgium	2.3	17	2.10	11	2.78	18	2.55	23	0.63	9	3.0	23	2.4	18
Canada	1.5	4	2.00	8	1.29	5	0.80	3	2.15	22	0.9	3	1.1	4
Czech Republic			2.20	14	3.30	22	1.38	10	3.83	26	1.7	13	2.5	19
Denmark	1.6	6	2.25	17	2.46	14	1.32	8	0.54	5	1.1	4	2.3	16
Finland	1.9	10	2.20	14	2.68	17	1.93	19	0.63	9	2.2	18	2.1	12
France	2.1	15	2.50	23	2.63	16	2.73	24	1.03	16	3.1	25	2.3	16
Germany	1.9	10	2.20	14	1.76	10	2.10	20	0.54	5	2.7	21	1.4	7
Greece			2.75	25	3.87	24	1.66	15	1.32	19	2.0	15	3.1	23
Hungary			2.55	24	2.94	20	0.68	2	1.14	18	0.5	1	2.6	21
Iceland			2.15	12										
Ireland	1.3	2	1.85	4	0.94	3	1.20	5	0.43	1	1.5	8	0.8	2
Italy	2.3	17	2.30	18	3.92	25	2.74	25	0.49	4	3.0	23	3.5	25
Japan	1.7	8	2.15	12	1.29	5	2.33	22	1.02	15	2.7	21	1.4	7
Luxembourg			1.80	2										
Mexico			3.00	28	1.71	9	1.65	14	2.21	24	2.0	15	1.5	10
Netherlands	1.9	10	2.05	9	2.28	13	1.41	11	0.54	5	1.5	8	2.1	12
New Zealand	1.5	4	1.70	1	1.66	8	1.21	6	0.95	14	1.5	8	1.4	7
Norway	2.5	19	2.30	18	3.19	21	1.33	9	2.15	22	1.4	7	2.7	22
Poland			2.80	27	4.25	26	1.83	18	3.71	25	1.8	14	3.6	26
Portugal	2.9	20	2.30	18	2.83	19	1.46	12	1.07	17	1.5	8	2.5	19
Russia			3.70	29										
Spain	1.9	10	2.40	22	2.59	15	1.77	16	0.68	11	2.3	19	2.1	12
Sweden	1.9	10	2.35	21	1.51	7	1.80	17	0.84	12	2.0	15	1.3	5
Switzerland	1.7	8	1.90	5	2.08	11	2.24	21	1.32	19	2.6	20	1.9	11
Turkey			2.75	25	3.30	22	3.37	26	2.07	21	3.5	26	3.1	23
UK	1.4	3	1.90	5	0.55	1	0.48	1	0.43	1	0.5	1	0.6	1
US	0.6	1	1.80	2	0.85	2	1.26	7	0.87	13	1.2	6	1.0	3
EU														
OECD	-													

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

Table A19 Socio-Economic Performance

	1		2		3		4		5		6		7		8	
Indicator	Cumulative employment growth, (%)		Consumer prices, 12 month rate of change to Dec 1999		Real GDP growth (GNP for Ireland)		GDP per capital (GNP for Ireland)/EU GDP per capita (PPS)		Standardised unemployment rate		Total factor productivity growth		Total expenditure on health (as % of GDP; GNP for Ireland)		Public expenditure on health (as % of GDP; GNP for Ireland)	
Year	1997-99		1999		1999e		1999e		Q4 1999		1999		1996		1996	
Source	OECD, Employment Outlook, June 1999 and Dept. of Finance		OECD Economic Indicators, Feb 2000 1999 plus Dept. of Finance		OECD Economic Outlook Dec. No. 1 2000 and of Finance		EC economic data pocket book No. 68, 1999 Dept. of Finance estimate		OECD Main Economic Indicators, Feb 2000		European Economy		OECD in figures 1999		OECD in figures 1999	
Country	28	Rank	28	Rank	28	Rank	17	Rank	23	Rank	15	Rank	28	Rank	28	Rank
Australia	4.67	13	1.8	8	3.9	4	-		6.7	13			8.6	6	5.9	14
Austria	1.41	22	1.4	6	2.2	18	111	5	4.2	6	0.6	9	8.0	11	5.7	19
Belgium	2.82	18	1.8	8	1.8	19	111	5	8.7	17	0.5	10	7.8	14	6.8	5
Canada	7.16	6	2.6	16	3.7	8	-		7.0	15			9.2	5	6.4	9
Czech Republic	-3.17	28	2.6	16	-0.5	27	-		9.0 +	18			7.2	20	6.6	7
Denmark	4.97	12	3.0	22	1.3	23	118	3	4.2	6	0.4	12	7.6	16	6.2	11
Finland	5.91	8	2.0	11	3.7	8	103	9	9.9	20	2.1	2	7.4	17	5.8	15
France	3.03	15	1.3	4	2.4	17	101	11	10.5	21	1.0	5	9.8	4	7.3	2
Germany	-1.00	27	1.2	3	1.3	23	107	8	9.1	19	0.8	7	10.5	2	8.2	1
Greece	0.00	25	2.6	16	3.3	13	67	17	-		1.9	3	6.8	23	5.2	23
Hungary	3.33	14	11.2	26	3.8	6	-		7.1 +	16			6.7	25	4.7	25
Iceland	7.06	7	5.8	24	6.0	2	-		-				8.2	10	6.8	5
Ireland	15.87	2	3.4	23	7.4	1	97	14	5.9	10	4.3	1	7.8	13	5.8	18
Italy	0.80	23	2.2	13	1.0	25	99	13	11.2 +	22	0.8	7	7.8	14	5.5	22
Japan	-0.51	26	-1.1	1	1.4	21	111	5	4.7	9			7.2	20	5.7	19
Luxembourg	10.43	3	2.4	15	5.1	3	180	1	2.8 +	1	0.0	14	6.8	23	6.2	11
Mexico	21.94	1	12.3	27	3.4	12	-		-				4.6	27	2.7	27
Netherlands	8.21	5	2.2	13	3.0	15	112	4	3.1 +	3	0.5	10	8.6	6	6.2	11
New Zealand	0.40	24	-0.5	2	2.7	16	-		6.8 +	14			7.4	17	5.7	19
Norway	5.16	11	2.8	20	0.6	26	-		3.3 +	4			7.9	12	6.5	8
Poland	2.82	17	9.8	25	3.5	11	-		-				5.0	26	4.6	26
Portugal	5.39	10	2.0	11	3.1	14	75	16	4.3	8	1.0	5	8.3	9	4.9	24
Russia	-		-		-		-		-				-		-	
Spain	9.16	4	2.9	21	3.7	8	82	15	15.2	23	0.3	13	7.4	17	5.8	15
Sweden	1.99	19	1.3	4	3.9	4	101	11	6.6	12	1.2	4	8.6	6	7.2	3
Switzerland	1.60	20	1.6	7	1.4	21	-	-	3.0 *	2			10.2	3	7.1	4
Turkey	1.55	21	68.9	28	-2.3	28	-	-	-				3.8	28	2.7	27
UK	2.92	16	1.8	8	1.7	20	102	10	5.9 +	10	0.0	14	6.9	22	5.8	15
US	5.70	9	2.7	19	3.8	6	153	2	4.1	5			13.6	1	6.3	10
EU	2.72		1.8		2.1		100		8.9		0.7		-		-	
OECD	3.44		1.8		2.8		-		6.6				-		-	-

a 1993 Data
b 1994 Data
c 1995 Data
d 1996 Data
e 1997 Data
f 1998 Data

* Second Quarter 1999
\+ Third Quarter 1999

Table A19 Socio-Economic Performance *continued*

	9		10		11		12		13		14		15	
Indicator	Seats held in parliament by women (%)		Administrator and managers (% women)		Earned income share (% to women)		Prisoners (per 100,000 people)		Drug crimes (per 100,000 people)		Injuries and deaths from road accidents (per 100,000 people)		Income inequality ratio: share of richest 20% to poorest 20%	
Year	1999		Latest year available		Latest year available		1994		1994		1997		1999	
Source	Human Development Report 1999		Human Development Report 1999		Human Development Report 1997		Human Development Report 1999		Human Development Report 1999		Human Development Report 1999		Eurostat	
Country	29	Rank	28	Rank	26	Rank	22	Rank	22	Rank	25	Rank	15	Rank
Australia	25.9	8	43.3	3	40	6	129.4 *	5	398.4 *	20	-		-	
Austria	24.7	10	21.8	17	34	14	216.2	19	148.4	15	651	21	4.7	7
Belgium	15.8	16	18.8	20	33	18	169.0	10	148.0	14	700	23	4.6	6
Canada	23.3	11	42.2	4	38	11	419.3	22	207.1	17	741	24	-	
Czech Republic	13.9	17	23.2	15	-		159.7	8	-		371	13	-	
Denmark	37.4	2	20.0	18	42	2	289.5	21	270.9 *	18	192	5	3.2	2
Finland	33.5	4	26.6	12	41	4	171.3	11	116.5	12	183	4	3.1	1
France	9.1	24	9.4	25	39	8	138.3 *	6	93.1	11	304	10	4.5	4
Germany	29.8	6	26.6	12	35	12	-		-		621	20	4.9	9
Greece	6.3	28	12.1	23	31	20	46.5	2	24.2	5	330	11	6.2	14
Hungary	8.3	26	32.8	8	40	6	177.6	13	2.5	1	257	8	-	
Iceland	25.4	9	23.1	16	-		-		-		552	18	-	
Ireland	13.7	18	17.3	21	26	24	182.6 *	15	128.6	13	371	13	6.0	13
Italy	10.0	23	53.8	1	31	20	177.2	12	67.3	10	483	17	5.3	10
Japan	8.9	25	9.3	26	34	14	38.5	1	18.4	4	-		-	
Luxembourg	20.0	13	8.6	27	25	25	-		196.6 *	16	374	15	4.8	8
Mexico	16.9	15	19.8	19	25	25	-		-		-		-	
Netherlands	31.6	5	16.8	22	34	14	182.4 *	14	39.4 *	6	82	1	3.9	3
New Zealand	29.2	7	24.2	14	39	8	187.4 *	16	-		-		-	
Norway	36.4	3	30.6	9	42	2	272.2	20	533.4	21	276	9	-	
Poland	12.9	20	33.5	6	39	8	196.9	17	10.4	3	234	6	-	
Portugal	13.0	19	36.6	5	34	14	79.6	3	60.2	8	694	22	7.2	15
Russia	7.5	27	-		-		-		50.4	7	139	2	-	
Spain	19.9	14	12.0	24	29	23	156.7	7	65.5 *	9	330	11	5.4	11
Sweden	42.7	1	27.9	11	45	1	161.7	9	350.5	19	246	7	4.5	4
Switzerland	20.3	12	29.1	10	30	22	-		563.2	22	384	16	-	
Turkey	2.4	29	8.6	27	33	18	100.6	4	3.9	2	176	3	-	
UK	12.3	22	33.0	7	35	12	-		-		559	19	5.5	12
US	12.5	21	44.3	2	41	4	207.7	18	-		1266	25	-	
EU	-				-		-		-		-		5.0	
OECD	-				-		-		-		-		-	-

a *1993 Data*
b *1994 Data*
c *1995 Data*
d *1996 Data*
e *1997 Data*
f *1998 Data*

* *Data refer to 1990*