Ireland's Revealed Comparative Advantage

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ABSTRACT

The growth in the Irish economy over the last decade has been attributed to many factors one of which has been the success of the foreign owned or high-technology manufacturing sectors. With the enlargement of the EU and with an increasingly competitive international environment, it is timely to examine the extent to which Ireland has become more specialised in various sectors. Specifically, through analysing trade data for Ireland and the rest of the world by commodity type it is possible to reveal in which sectors and products our comparative advantage lies. The latter term is used in economics to describe the tendency for countries to specialise and export those goods and services that they produce at a lower relative cost compared with other countries. This paper seeks to quantify the extent to which Ireland has a comparative advantage in certain industries and how this has changed over the period between 1997 and 2002. The analysis shows that Ireland has a strikingly high comparative advantage in predominantly foreign-owned sectors and principally in the broad chemicals sector. In contrast, the mainly indigenous sectors seem to be losing comparative advantage due presumably to declining competitiveness combined with wider and ongoing structural changes within the economy.

1. Introduction

Ireland's openness to trade has been one of the factors that facilitated convergence to EU living standards over the last decade. In the light of an increasingly competitive international environment, it is useful to examine where Ireland's comparative advantage lies. Comparative advantage is the term used to describe the tendency for countries to export those commodities that they are relatively adept at producing, *vis-à-vis* the rest of the world. In other words, if a country can produce a good at a lower relative cost than other countries, then with international trade, that country should devote more of its scare resources to the production of the good. Through trade, that country can obtain other goods at a lower price (opportunity cost), in exchange for the good in which it has a comparative advantage.

It is possible to ''reveal'' a country's comparative advantage using a variety of techniques, as proposed by Balassa (1965). This paper seeks to determine Ireland's comparative advantage by using international trade data to compare exports in particular industries with the rest of the world. In simple terms, countries that have a comparative advantage in the production of a good should be found to export a higher proportion of that good relative to other countries. The following section describes the approach and data used, with the results presented in Section 3,

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as well as complementary analysis of trends in industrial employment. Section 4 examines research comparing Ireland with the EU, with Section 5 concluding.

2. Methodology and Data

International Trade and SITC

From trade statistics published by the Central Statistics Office, it is possible to get a detailed breakdown of Irish exports by SITC (United Nations' Standard International Trade Classification), which is the means by which exports are classified according to commodity type. There are nine headline SITC categories as shown in the box below.

Box: Standard International Trade Classification

SITC	Description
0	Food and live animals
1	Beverages and tobacco
2	Crude materials, inedible, except fuels
3	Mineral fuels, lubricants and related materials
4	Animal and vegetable oils, fats and waxes
5	Chemicals and related products n.e.s.
6	Manufactured goods classified chiefly by material
7	Machinery and transport equipment
8	Miscellaneous manufactured articles
9	Commodities and transactions not classified elsewhere

It is possible to further subdivide these categories into their sub-components. For example, the various sub-sectors within the 'Machinery and transport equipment' category include:

- Power generating machinery and equipment
- Machinery specialised for particular industries
- Metalworking machinery
- General industrial machinery and parts
- Office machines and automatic data processing equipment
- Electrical machinery, appliances
- Road vehicles
- Other transport equipment.

These more detailed breakdowns are important, as there are a number of quite diverse categories within each broad SITC heading. The full list of sub-sectors is included in the Appendix. Using this classification, it is possible to examine Irish trade patterns across a range of commodity types. For trade data for the rest of the world, the OECD database was used, with detailed data available up to 2002.

Revealed Comparative Advantage

There are a number of ways to examine whether or not a country has a comparative advantage. One common method is to determine how specialised a country is in the production of a good through constructing 'Balassa indices'. These examine the proportion of a good produced or exported, or the numbers employed in each industry, relative to other countries. In this case, trade data for Ireland and the rest of the world are used.

The formula to measure a country's revealed comparative advantage (RCA) is given by:

$$RCA_i = (X_{i,\ Ireland}/\Sigma X_{Ireland}) \ / \ (X_{i,\ World}/\Sigma X_{World})$$

Where:
RCA_i = revealed comparative advantage for good i.
$X_{i,\ Ireland}$ = exports of good i by Ireland
$\Sigma X_{Ireland}$ = total exports by Ireland
$X_{i,\ World}$ = world exports of good i
ΣX_{World} = total world exports

If $RCA_i > 1$, then Ireland has a comparative advantage in good i.
If $RCA_i < 1$, then Ireland has a comparative disadvantage in good i.

Through applying the formula above to Irish and world trade data, it is possible to identify the sectors and industries in which Ireland has a comparative advantage. The following section describes the results obtained from the analysis.

3. Results

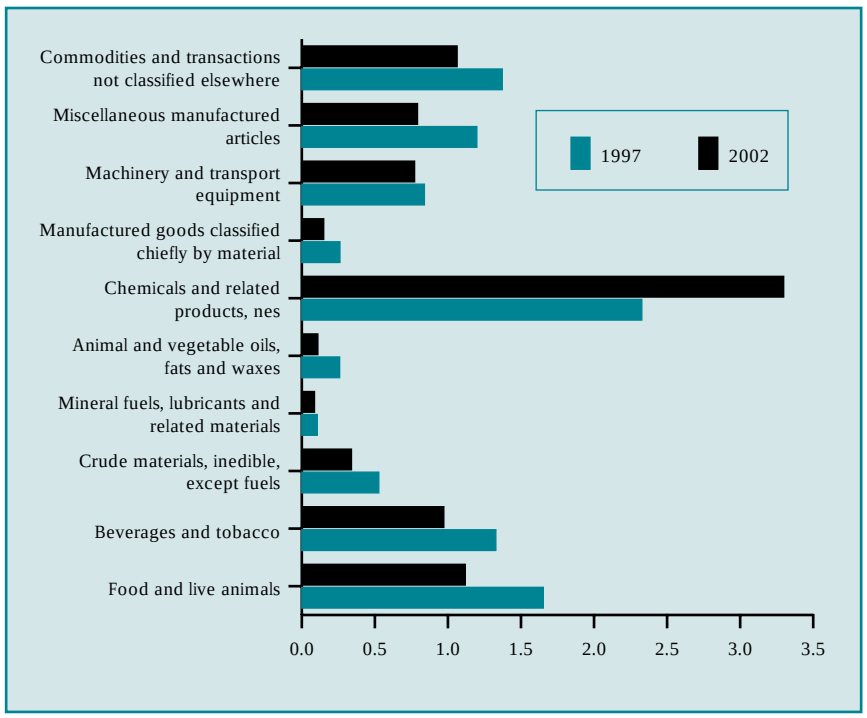
The data were analysed by SITC for 2002 (the latest year for which complete trade data were available) for both Ireland and the rest of the world. In order to get an appreciation for trade dynamics, the year 1997 was also examined. RCA was tested for the headline SITC categories, as well as for their respective subcomponents, which will be discussed in turn (the results in detail are shown in the Appendix).

The results of these computations are not too surprising. The indices for 2002 show that Ireland has a comparative advantage in two broad sectors, namely, 'Chemicals and related products (SITC 5)' and 'Food and live animals (SITC 0)' (see Table 1 and Figure 1). The extent of comparative advantage in the former is particularly striking with a RCA of 3.3. Conversely, Ireland is seen to have a comparative disadvantage in producing a number of broad commodity types such as fuels (SITC 3), animal and vegetable oils (SITC 4), manufactured goods by material (SITC 6) and crude materials (SITC 2). Part of this reflects, as would be suggested by Heckscher-Ohlin[1] considerations, the absence of natural resources and raw materials in these sectors and also

1 According to the Heckscher-Ohlin theorem, a country will export those goods that require relatively intensive use of the factor endowment in which it is relatively abundant.

the fact that many of these products encompass older and more traditional type industries.

Figure 1: RCA: Ireland and Rest of the World, 1997 and 2002



Comparative advantage is very much a dynamic concept in the sense that a country's ability to produce certain goods changes through time, in response to a variety of endogenous and exogenous factors such as changes in factor endowments, including technology and human capital. In the light of this, it is useful to compare the results for 2002 with five years previously in 1997 (Table 1). This shows that Ireland has a reduced degree of RCA in each of these broad categories with the exception of 'Chemicals and related products', where the RCA has strengthened (from 2.3 to 3.3, an improvement of 42 per cent). Indeed in percentage terms, RCA has declined by approximately one third across the other SITC groupings between 1997 and 2002. For example, although Ireland maintains a RCA in the production of 'Food and live animals', the index has fallen from 1.7 in 1997 to 1.1 in 2002 (a fall of approximately 32 per cent).

Table 1: Revealed Comparative Advantage in Ireland, 1997 and 2002

SITC	Description	1997	2002	% Change in RCA
0	Food and Live Animals	1.65	1.12	–32.3
1	Beverages and Tobacco	1.33	0.97	–26.8
2	Crude materials, inedible, except fuels	0.53	0.34	–35.4
3	Mineral fuels, lubricants and related materials	0.11	0.09	–18.5
4	Animal and vegetable oils, fats and waxes	0.26	0.11	–57.4
5	Chemicals and related products	2.33	3.30	41.7
6	Manufactured goods	0.26	0.15	–42.7
7	Machinery and transport equipment	0.84	0.77	–7.9
8	Miscellaneous manufactured articles	1.20	0.79	–33.9

These results could be due to two main forces, namely declining competitiveness and structural change. As regards the former, the fall in the RCA indices across a number of sectors presumably reflects the fact that many indigenous and traditionally labour-intensive sectors (e.g. clothing and footwear) have found it increasingly difficult to compete. This has been caused by quite high rates of wage inflation in Ireland over the last decade and greater competition from international markets. Certainly, over the last decade, there has been a considerable relocation of many labour-intensive sectors to lower cost labour abundant Asian and Central European economies.

As regards structural change, the fall in RCA reflects the fact that comparative advantage is dynamic rather than static. There has been a considerable amount of structural change within the Irish economy over the last decade, as high-tech sectors driven by very high levels of FDI have grown, while many indigenous industries have been in decline. These sectors typically require highly skilled labour in which Ireland became increasingly abundant in the 1990s given the age and educational attainment profile of the population.

RCA by Industry Type

While the results above are informative, they mask developments within the SITC sectors. For example, Ireland is known to have a heavy presence in ‘‘IT’’ type industries, some of which are incorporated within SITC 7, ‘Machinery and transport equipment’. Thus, using a further decomposition of the SITC, it is possible to gain a deeper insight into the extent of Ireland’s RCA within each of these broad sectors. The full list of industries within each sector is shown in the Appendix.

Chemicals and related products (SITC 5)

Within the chemicals sector, Ireland has a strong comparative advantage in the production of the following:

— Organic chemicals (RCA of 7.0);

— Medicinal and pharmaceutical products (RCA of 4.8);

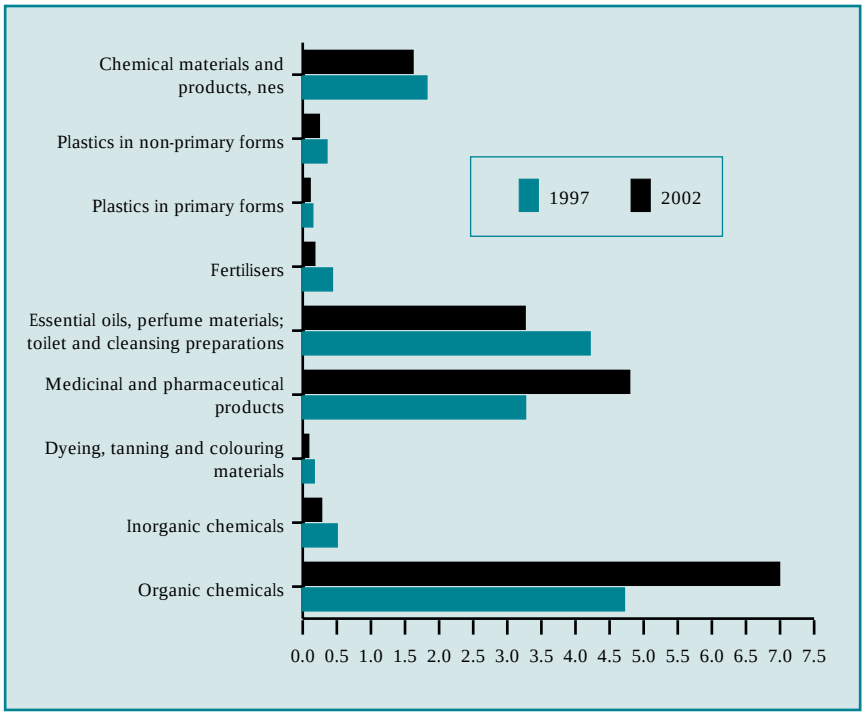
— Essential oils, perfume materials and toilet preparations (RCA of 3.3);

— Chemical materials and products (RCA of 1.6).

This is illustrated in Figure 2, which shows that Ireland has a strong RCA in the production of chemicals, pharmaceutical and medicinal products. The organic chemicals sub-sector includes a whole host of highly technical chemical products, many of which would appear to be intermediate inputs, as part of the

production process in pharmaceuticals. In addition, Ireland's RCA has strengthened considerably in the production of organic chemicals and medicinal and pharmaceutical products as can be seen in the figure.

Figure 2: RCA: Ireland and Rest of World: Chemicals, 1997 and 2002

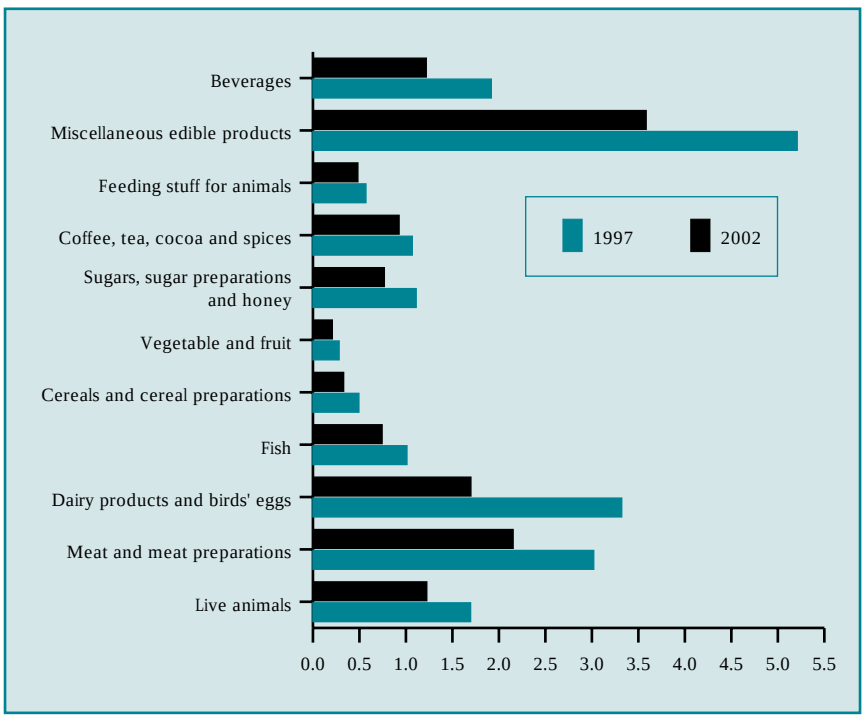


A large part of the chemicals sector in Ireland includes foreign multinationals, and in particular US firms, engaged in high-skilled manufacturing. Furthermore, the evidence suggests that the economy has become increasingly reliant on these sectors as a source of comparative advantage.

Food and drink products (SITC 0 and 1)

Ireland also has a RCA in food and drink products, which encompasses live animals, meats, dairy produce as well as various categories of edible products and food preparations (Figure 3). It is evident, however, from the figure that Ireland's relative specialisation has declined in all of these categories. In particular, Ireland has lost its RCA in the production of a number of industries, specifically, 'Teas', 'Fish' and 'Sugar products'. The largest proportionate falls were in dairy produce where the RCA fell from 3.3 to 1.7 (down 48.8 per cent) and beverages, down from 1.9 to 1.2 (down 36.5 per cent) between 1997 and 2002.

Figure 3: RCA: Ireland and Rest of the World:
Food and Drink, 1997 and 2002



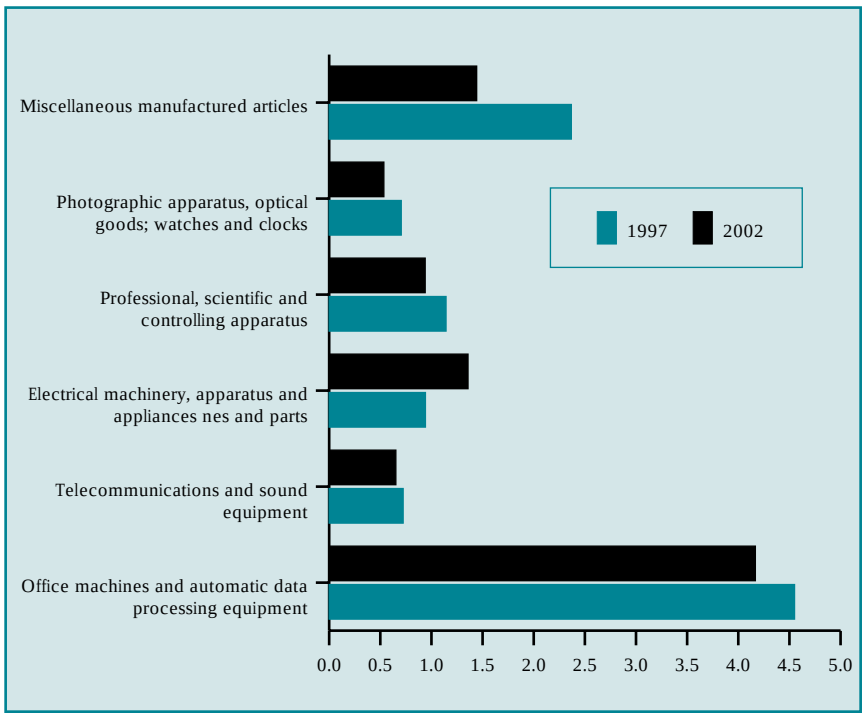
Machinery, transport equipment and miscellaneous manufacturing (SITC 7 and 8)

The sub-division of the SITC categories is particularly useful when examining 'Machinery and transport equipment' and 'Miscellaneous manufactured articles'. The headline figures show that the economy is slightly disadvantaged in the production of these goods (RCA of 0.8). Within these categories, however, Ireland has a very strong comparative advantage in the 'Office machinery and automatic data processing equipment' sub-sector (Figure 4). Furthermore, the 'Electrical machinery and appliances' category also shows a RCA (approximately 1.4). Indeed, Ireland has developed a comparative advantage in the latter since 1997. However, Ireland's RCA in the 'Professional, scientific and controlling apparatus' industry, declined from 1.1 to 0.9 between 1997 and 2002.

These industries encompass the IT sector in Ireland where again there is a heavy presence of foreign multinationals. As has been well documented, this sector experienced dramatic growth in the 1990s but, more recently, suffered a correction as part of the global downturn in IT. The figure shows, however, that Ireland has maintained a comparative advantage in the production of high-technology IT equipment through this difficult phase.

In light of the above analysis, it is useful to examine employment trends in some of the sectors in which Ireland has a RCA. Table 2 shows the levels of employment in industry in 1997 and 2003, as well as relative shares. The biggest employers are clearly the 'Food, beverages and tobacco', 'Chemicals' and 'Optical and electrical equipment' industries, the latter in effect constituting the IT sector. Furthermore, the relative employment shares

Figure 4: RCA: Ireland and Rest of the World: Machinery and Equipment, 1997 and 2002



increased significantly across all three sub-sectors over the period. Within the IT sector there was marked employment growth in the 'Medical, precision and optical instruments', with the number of persons engaged in the industry increasing from 14,600 to 20,800 between 1997 and 2003 (up 42.3 per cent) over the period with modest growth in the office machinery and computers sector from 15,300 to 15,900 persons (up 3.8 per cent) suggesting increased specialisation. In contrast, numbers employed fell by approximately one third in both the electrical machinery and telecommunications sub-sectors with approximately 17,100 employed in these two sectors combined in 2003 compared with 25,100 persons in 1997.

Table 2: Industrial Employment in Ireland, 1997 to 2003

Description	1997		2003	
	'000s	%	'000s	%
Mining and quarrying	5.0	2.0	5.7	2.3
Food, beverages and tobacco	45.3	18.0	48.0	19.7
Textiles and textile products	17.8	7.1	6.8	2.8
Leather and leather products	1.1	0.4	0.5	0.2
Wood and wood products	4.6	1.8	6.1	2.5
Pulp, paper, printing	22.2	8.8	22.3	9.1
Chemicals and chemical products	20.3	8.1	23.8	9.8
Rubber and plastics	10.1	4.0	8.8	3.6
Non-metallic minerals	9.8	3.9	10.6	4.3
Basic metals and fabricated metals	14.3	5.7	14.0	5.7
Machinery and equipment	14.6	5.8	12.0	4.9
Optical and electrical equipment	55.0	21.8	54.2	22.2
Transport equipment	9.3	3.7	9.2	3.8
Recycling; coke; refined petroleum and nuclear fuel	10.3	4.1	9.9	4.1
Electricity, gas and water supply	11.9	4.7	12.4	5.1
All industries	251.6		244.1	

Source: Central Statistics Office

These figures are consistent with the overall evidence on manufacturing employment in the EU that shows that Ireland is heavily specialised in high-tech and low-tech sectors with below average specialisation in the medium-tech sectors (Central Bank, 2003). The same research has shown that the four sub-sectors, in which Ireland has the greatest degree of specialisation relative to the EU, are:

- office machinery and computers
- medical, precision and optical equipment
- radio, television and communications equipment
- chemicals.

These are all high-technology sectors. Furthermore, the employment content in these industries is well above average levels in the EU, as shown in Table 3.[2]

Table 3: Share of Total Manufacturing Employment in Selected Sectors: Ireland and the EU, 2001

	Office machinery and computers	Medical precision and optical instruments	Radio, television and communication equipment	Chemicals	Total (from sub-sectors)
Ireland	7.9	7.9	5.1	9.7	30.6
EU	0.7	2.9	2.8	5.7	12.1

Source: Eurostat

4. Related Studies

The European Central Bank (ECB), in cooperation with the National Central Banks (NCBs) in the euro area, in a recent study (ECB, 2004) examined the degree of sectoral specialisation across the EU over the last twenty years. Each country was examined in terms of the weight of five sectors (agriculture, manufacturing, business services, construction and all other sectors) in the total economy. The results, as contained in Table 4, show that Ireland is an outlier in the EU, as the share of manufacturing in the economy increased between 1990 and 2001, whereas it declined across the EU. Similarly, the share of business services in Ireland fell over the decade, whereas it increased in the EU.

Table 4: Structure of value added at constant prices, % of total value added: Ireland and the EU

	Agriculture	Manufacturing	Business services	Construction	Other
1990					
Ireland	9.6	24.1	39.8	5.2	21.3
EU	2.8	21.8	44.6	6.4	24.5
2001					
Ireland	4.9	37.0	37.8	5.2	15.1
EU	2.4	19.7	48.5	5.2	24.3

Source: European Central Bank

2 In a recent paper examining the competitive performance of Irish industry, O'Malley (2004) reports that Ireland's share of EU production and employment increased significantly in the ''high-tech'' sectors over the period from 1991 to 2001.

When examining employment shares, however, the trends in Ireland are more similar to those in Europe (Table 5). The relative share of manufacturing employment has declined in Ireland and the EU over the last decade, with business services rising. The fact that the relative employment share of manufacturing has fallen in Ireland partly reflects the very high productivity levels attained in the foreign-owned manufacturing sector and some degree of transfer pricing. In addition, the distinction between high-tech manufacturing and many business services has become increasingly blurred given the growth in the internationally traded services sub-sector. It would seem plausible that some jobs, which might have been formally classified as manufacturing, are now being classified as services-type activities.

Table 5: Employment by Sector, % of total

	Agriculture	Manufacturing	Business services	Construction	Other
1991					
Ireland	14.0	21.3	33.1	7.5	24.0
EU	5.8	23.1	36.2	6.9	28.0
2003					
Ireland	6.5	16.8	39.6	10.9	26.4
EU	4.0	17.9	41.1	6.6	30.3

Source: Eurostat

Overall, the value added figures are consistent with the hypothesis that Ireland has increasingly specialised in a number of high-technology industries over the last decade notably in the chemicals and IT sectors. As a result, the share of manufacturing in the overall economy has risen compared with the trend in the EU, where many industries have closed in the face of more intense competition from Asia and Eastern Europe. One clear explanation for this increased manufacturing share is the very large value added in these new high technology sectors; the great bulk of this value added accrues to the mainly foreign owners of these enterprises.

The ECB also measured the degree of specialisation, encompassing the degree of ‘‘technology intensity’’ within manufacturing. This was done by constructing ‘Balassa indices’; similar to what was done above, but by using output shares, for the period between 1985 and 2001, rather than trade shares. The results show that the manufacturing sector in Ireland is quite specialised relative to the EU. In particular, Ireland’s industrial structure changed significantly over the period with the growth of ‘‘high technology’’ intensity-type industries. This was caused by an increasing specialisation in information and communication technology (ICT) sectors primarily the result of

investment from US firms. Table 6 shows the composition of the ICT sector in Ireland and the EU. It is evident that Ireland is quite specialised in computer and telecommunications equipment.

Table 6: Composition of the ICT sector in Ireland and the EU, % of total ICT gross value added, 2001

	Office machinery and computers	Electrical machinery and apparatus	Radio, television and communication equipment	Medical precision and optical instruments
Ireland	30.6	13.3	34.3	21.8
EU	7.2	39.4	29.9	23.4

Source: European Central Bank

5. Summary

It is clear that Ireland has a RCA in the food and beverages, chemicals and IT sectors. The latter two sectors include predominantly foreign-owned manufacturers and the extent of RCA could be somewhat exaggerated by the high value of research and development incorporated in output together with transfer pricing activities between Ireland and the parent country. Nevertheless, even allowing for transfer pricing, it would appear that Ireland has a significant competitive edge in these sectors.

A particular problem with the RCA methodology, however, lies in its poor predictive ability, as shown by Barry and Hannan (2001). In Ireland's case, RCA techniques would not have predicted the sectoral developments and trade patterns that followed as a result of EU entry. Specifically, RCA analysis showed that sectors such as clothing, food, drink and tobacco were expected to gain following accession to the EU. In contrast, however, Ireland increasingly specialised in high-technology sectors such as chemicals and IT after accession. These were the very sectors in which Ireland was expected to do badly given RCA results at the time.

The poor predictive ability of RCA techniques reinforces the dynamic nature of comparative advantage. In other words, although a country may have a RCA in a particular industry at a specific moment in time, this does not guarantee that that comparative advantage will be maintained going forward, as was evidenced so dramatically by Ireland's experience pre- and post-accession to the EU. RCA methodology's poor predictive ability was caused partly by substantial inflows of FDI into sectors in which traditionally Ireland did not have a comparative advantage.

Even in spite of its shortcomings, it is clear that Ireland's RCA has changed over the last five years in nearly all categories and industries. The chemicals sector is the only area where Ireland has improved its position relative to the rest of the world. This has been driven by growth in the production of 'Organic

chemicals' and 'Medicinal and pharmaceutical products'. Furthermore, given the degree of foreign direct inward investment in these sectors, it would appear that foreign manufacturers are the key players determining Ireland's RCA. In terms of the food and beverages sector, it seems likely that with more competition from the accession states, agricultural decoupling, and with further liberalisation, it may be difficult to sustain a comparative advantage in some of these sub-sectors.

Looking at European data, it appears that the Irish experience has been quite distinctive, particularly in the light of the upward trend in the contribution of the manufacturing sector to output growth. This has been caused by substantial inward foreign direct investment. These firms are predominantly engaged in high-technology manufacturing and Ireland's specialisation in these sectors has enabled the economy to grow at a faster rate. Looking ahead, however, there is a risk that Ireland could increasingly be exposed to asymmetric shocks given the degree to which the economy is specialised in these industries.

Appendix

SITC Categories, and Revealed Comparative Advantage Indices for Ireland for 1997 and 2002

	SITC Description	1997	2002	
0	**Food and Live Animals**		**1.6527**	**1.1189**
'00'	Live animals other than fish	1.6958	1.2245	
'01'	Meat and meat preparations	3.0202	2.1531	
'02'	Dairy products and birds' eggs	3.3211	1.6990	
'03'	Fish	1.0113	0.7439	
'04'	Cereals and cereal preparations	0.4944	0.3304	
'05'	Vegetables and fruit	0.2819	0.2087	
'06'	Sugars, sugar preparations and honey	1.1107	0.7681	
'07'	Coffee, tea, cocoa	1.0685	0.9267	
'08'	Feeding stuff for animals	0.5703	0.4834	
'09'	Miscellaneous edible products	5.2084	3.5838	
1	**Beverages and Tobacco**		**1.3283**	**0.9721**
'11'	Beverages	1.9187	1.2190	
'12'	Tobacco and tobacco manufactures	0.3003	0.3626	
2	**Crude materials, inedible, except fuels**		**0.5265**	**0.3400**
'21'	Hides, skins and furskins, Raw	1.4488	0.9137	
'22'	Oilseeds and oleaginous fruit	0.0029	0.0064	
'23'	Crude rubber	0.0264	0.0079	
'24'	Cork and wood	0.1852	0.1733	
'25'	Pulp and waste paper	0.0414	0.0604	
'26'	Textile fibres	0.7107	0.4292	
'27'	Crude fertilisers and minerals	0.4079	0.2355	
'28'	Metalliferous ores and metal scrap	1.2027	0.7515	
'29'	Crude animal and vegetable materials	0.5426	0.2819	
3	**Mineral fuels, lubricants and related materials**		**0.1063**	**0.0867**
'32'	Coal, coke and briquettes	0.2124	0.2430	
'33'	Petroleum, petroleum products	0.1153	0.0948	
'34'	Gas, natural and manufactured	0.0132	0.0083	
'35'	Electric current	0.0123	0.0011	
4	**Animal and vegetable oils, fats and waxes**		**0.2591**	**0.1105**
'41'	Animal oils and fats	1.3910	0.6684	
'42'	Fixed vegetable oils and fats	0.0387	0.0108	
'43'	Animal and vegetable oils and fats	0.2019	0.0640	
5	**Chemicals and related products**		**2.3275**	**3.2975**
'51'	Organic chemicals	4.7183	6.9933	
'52'	Inorganic chemicals	0.5059	0.2772	
'53'	Dyeing, tanning and colouring materials	0.1688	0.0880	
'54'	Medicinal and pharmaceutical products	3.2686	4.7951	
'55'	Essential oils, perfume materials; toilet preparations etc.	4.2149	3.2619	
'56'	Fertilisers, manufactured	0.4358	0.1771	
'57'	Plastics in primary forms	0.1477	0.1087	
'58'	Plastics in non-primary forms	0.3554	0.2441	
'59'	Chemical materials and products, not elsewhere specified	1.8210	1.6176	
6	**Manufactured goods**		**0.2614**	**0.1498**
'61'	Leather	0.4874	0.2373	
'62'	Rubber manufactures	0.2383	0.1195	
'63'	Cork and wood manufactures	0.4337	0.4027	
'64'	Paper, paperboard	0.1392	0.0926	
'65'	Textile yarn, fabrics	0.3895	0.2081	
'66'	Non-metallic mineral manufactures	0.3731	0.2266	
'67'	Iron and steel	0.1022	0.0229	
'68'	Non-ferrous metals	0.1043	0.0498	
'69'	Manufactures of metal	0.3821	0.2240	

	SITC Description	1997		2002	
7	**Machinery and transport equipment**		**0.8391**		**0.7725**
'71'	Power generating machinery and equipment	0.2424		0.1521	
'72'	Machinery specialised for particular industries	0.1358		0.0915	
'73'	Metalworking machinery	0.1053		0.1558	
'74'	General industrial machinery & parts	0.3581		0.2419	
'75'	Office machines and automatic data processing equipment	4.5500		4.1669	
'76'	Telecommunications and sound recording, reproducing equipment	0.7232		0.6519	
'77'	Electrical machinery, appliances etc., not elsewhere specified	0.9411		1.3575	
'78'	Road vehicles	0.0405		0.0488	
'79'	Other transport equipment	0.1485		0.0352	
8	**Miscellaneous manufactured articles**		**1.1977**		**0.7916**
'81'	Prefab buildings; plumbing & electrical fixtures & fittings	0.4117		0.2848	
'82'	Furniture and parts thereof	0.2615		0.1251	
'83'	Travel goods, handbags and similar containers	0.1586		0.1547	
'84'	Articles of apparel and clothing accessories	0.4410		0.1883	
'85'	Footwear	0.1028		0.0525	
'87'	Professional, scientific and controlling apparatus	1.1426		0.9387	
'88'	Photographic apparatus, optical goods; watches and clocks	0.7047		0.5346	
'89'	Miscellaneous manufactured articles	2.3676		1.4421	
9	**Commodities and transactions, n.e.s.**		**1.3715**		**1.0632**
'93'	Commodities and transactions not classified elsewhere	1.3715		1.0632	

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