CHAPTER 1

TRENDS IN OUTPUT, EMPLOYMENT AND PRODUCTIVITY IN IRELAND, 1995-2005

J.J. SEXTON[1]

ABSTRACT

This chapter reviews trends in real output, employment and labour productivity in Ireland between 1995 and 2005. The chapter concludes that productivity growth appears to have ceased, and may well turn negative, at least for a time. The analysis indicates that structural change in the economy has been the significant influence in reducing overall productivity growth, even though output per worker in some sectors has also made a contribution. With regards to structures, the rapid decrease in the relative importance of the manufacturing sector has been a major causative factor. The nature of these influences would suggest that any significant resumption of productivity growth is unlikely in the short-term unless substantial employment increases occur in high value added sectors.

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1.1 Introduction

1.1.1 General Background

This chapter reviews trends in real output, employment and labour productivity in Ireland over the period since 1995. In order to facilitate an examination of such trends in the context of the overall performance of the economy, the analysis is set within the overall framework of the National Accounts estimates as published by the Central Statistics Office (CSO). It is, therefore, basically of a macro nature, even though it does contain a sectoral dimension, involving seven categories.

It should be borne in mind that the measurement of real output (and as a result productivity) is not a straightforward matter. There are different ways to approach this problem, and in some areas considerable difficulties arise in compiling volume measures. This is an issue that has been much discussed both nationally and internationally in bodies such as the UN, EU, and OECD etc. Generally it is possible to devise reasonable volume output indicators for sectors such as agriculture, industry and construction, and for services related to activities such as distribution and transport and communications, for which consistent and usable volume statistics are available. These are derived either from independent sources, or by deflating nominal or value series by means of appropriate price index series. However, the position is much more problematic in areas such as the public sector and for non-market services generally, where, for the most part, the services provided are not subject to commercial or sales transactions, or are made available in the form of collective services as a public good. Heretofore changes in real output for these spheres of activity have tended to be calculated from employment trends applied to base year value added, the latter usually proxied via labour costs. This effectively implies no change in productivity. Even though not discussed here, such methodological issues are important, and readers who are interested in a more detailed description of these aspects should refer to the study on which this chapter is based.[1]

1.1.2 Data Sources

Virtually all of the Irish data contained in this report has been obtained from CSO sources, either from the National Accounts database or (in the case of employment) from the Quarterly National Household Survey (QNHS). For the most part the output measures used in this chapter relate to Gross Value Added (GVA) at factor cost, as this allows one to simultaneously analyse overall and sectoral trends. Basically GVA is the sale of goods or services less the costs of production, apart from employee remuneration. The calculation is made before any allowance is made for depreciation. GDP, which is very similar to GVA in numerical terms, is obtained by adding product and non-product taxes (minus subsidies) to total GVA.[2] The employment figures relate to the totality of those at work compiled on an annual average basis, and include self employed and part-time workers.[3]

The analyses presented involve a sectoral classification with seven categories covering (1) agriculture; (2) modern manufacturing; (3) other (traditional) manufacturing; (4) building, (5) distribution, hotels, transport etc.; (6) finance and business services; and finally (7) other services. The 'modern manufacturing' category (which is now distinguished in the National Accounts publications) mainly covers high technology multinational enterprises engaged

in manufacturing chemicals, computers (including software replication), instrumentation, electrical machinery and equipment and the reproduction of recorded media.[4] The remaining 'other manufacturing' category comprises more traditional areas such as food, beverages and textiles, and also includes mining and quarrying and utilities. The residual 'other services' group is, in fact, predominantly non-market (80 per cent in employment terms) and, in effect, broadly represents the wider public sector covering central and local administration, security, education and health/welfare services.[5]

1.1.3 Some Qualifications

Apart from the methodological qualifications as described earlier, analyses of the economy's overall performance are presented 'with' and 'without' what is termed the 'modern' manufacturing sector. While it is of interest, and indeed useful, to consider Irish performance in this way, this should not lead one to infer that the presence of the modern sector involved is in some sense questionable, or that the position should necessarily be otherwise. While it is true that Ireland is exceptional (indeed highly exceptional) in terms of the share of national output accounted for by high technology multinationals, this has been the position for quite a long time. Whatever views one might hold about the income losses due to profit repatriation etc., the reality is that the sector currently employs over 90,000 persons, significantly more than in 1995, even if the numbers have fallen in recent years.

While the omission of the modern industry sector from the calculation of the various measures may be mathematically correct, one should exercise caution in interpreting this approach in an economic context. The absence of the multinational high-tech sector from the Irish economy would have significant indirect effects (which are not captured by simple data exclusion). These industries generate knock-on activities in the rest of the economy through purchases of goods and services and the expenditure of wages etc. If these influences were accounted for in the exclusion exercise in question, the performance in the rest of the economy (as measured) would be set at a somewhat lower level.[6] Furthermore, in a human resource context, the expansion of the multinational sector in the period since the 1960s had substantial positive effects in enhancing skill levels and skill acquisition, and in widening attitudes and horizons, features that are now important in view of the imperative to compete in the global market. It is true, however, that the funds from the capital grants and other supports directed to the modern industrial sector would presumably have been available for investment elsewhere in the economy, although probably with less spectacular results. In summary, any comparisons between the two scenarios as described must be qualified, but are still useful and instructive, especially in view of the significant differences involved.

1.2 Output, Employment and Productivity

1.2.1 National Trends

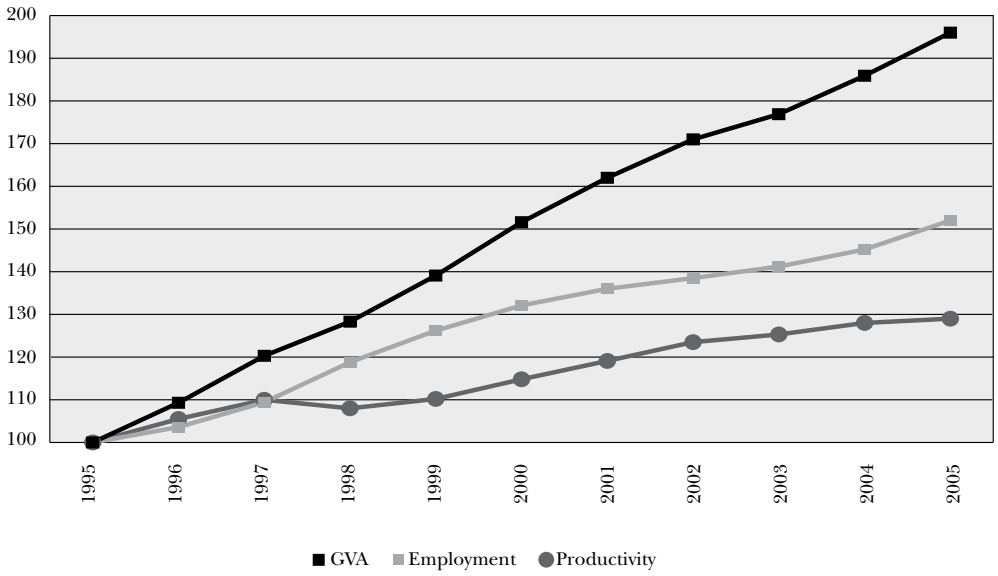
Looking first at overall or national trends, Table 1.1 shows national annual figures for real GVA and average numbers at work for the period from 1995 to 2005. The real GVA figures are expressed in terms of constant 2004 prices. The table also shows the data in index number form, along with labour productivity indexes. The latter were derived by dividing the real output index values by the corresponding values of the employment index (i.e. they reflect GVA per person at work). Figure 1.1 gives a graphical representation of the three index number trends.

The data indicate that total GVA almost doubled in real terms between 1995 and 2005, or by seven per cent on an annual average basis. Output growth has been strong over the entire period, even though it displayed a tendency to moderate in recent years. The total number of persons at work in the Irish economy rose by nearly 670,000 over the ten-year span concerned, reaching a total of 1,952,100 in 2005. This represents a relative increase of more than 50 per cent, or 4.3 per cent annually on average. The increases were particularly rapid during the final years of the 1990s, peaking at well over 100,000 between 1997 and 1998. The increments moderated during the early years of this decade, but have recently accelerated.

Table 1.1: Real Output (GVA) Employment and Labour Productivity, 1995-2005

Year	GVA (2004 Prices) Euro Millions	Employment (000)	GVA	Employment Index 1995=100	Labour Productivity
1995	70034	1284.7	100.0	100.0	100.0
1996	76556	1330.7	109.3	103.6	105.5
1997	84221	1405.0	120.3	109.4	110.0
1998	89846	1525.8	128.3	118.8	108.0
1999	97412	1621.1	139.1	126.2	110.2
2000	106175	1696.4	151.6	132.1	114.8
2001	113481	1747.5	162.0	136.0	119.1
2002	119754	1778.6	171.0	138.5	123.5
2003	123869	1814.0	176.9	141.2	125.3
2004	130178	1865.0	185.9	145.2	128.0
2005	137293	1952.1	196.0	152.0	129.0
Annual Average Change (%)			**7.0%**	**4.3%**	**2.6%**

Figure 1.1: Indexes of GVA, Employment and Productivity (1995=100)



The productivity figures reveal some interesting features. Total labour productivity in the Irish economy rose by almost 30 per cent between 1995 and 2005, or annually by 2.6 per cent on average. However, while this measure recorded near continuous growth over most of the period, this began to slow noticeably after 2002, and the most recent data shows that the level of labour productivity remained virtually unchanged between 2004 and 2005. This recent trend, which differs from current experience in other developed economies, is examined further later in this chapter.

1.2.2 Sectoral Shares of Output and Employment

Before proceeding to analyse trends for output and other data on a sectoral basis, it is useful to provide, in a cross-sectional context, some information on the relative size of the different sectors in order to indicate the scale of the contribution of each to economic activity. In this regard Table 1.2 shows the sectoral subdivision of employment and GVA for 2005, and figures for average GVA per person employed in different sectors (both calculated at 2004 prices).

With regard to GVA, manufacturing and finance and business services account for the greatest shares (over 25 per cent in each case). The modern sub-sector of manufacturing accounts for over 16 per cent of national output, but less than five per cent of employment. In fact both of the sectors referred to are in the high value added category, and between them are responsible for more than half of total GVA, but account for only 28 per cent of employment. In contrast the broad area covering other services (including distribution and transport) covers some 36 per cent of output, but over half of total employment. The building and construction industry accounts for less than ten per cent of national GVA and nearly 13 per cent of the jobs market.

Table 1.2: GVA and Employment Shares by Sector, 2005

Sector	GVA	Employment %	GVA/Person Employed (Euro Annual)
Agriculture	2.9	5.9	34,700
Manufacturing	26.8	15.0	125,600
Modern Manufacturing	16.3	4.7	241,800
Other Manufacturing	10.6	10.3	72,200
Construction	9.3	12.6	51,900
Distribution, Hotels, Transport etc.	17.5	26.1	47,200
Finance, Business Services, Insurance	25.2	13.3	133,500
Other Services	18.3	27.1	47,300
Total	**100.0**	**100.0**	**70,300**
Total excl Modern Manufacturing	-	-	**61,800**

Note: The financial data are at 2004 prices.

The figures for average GVA per head, shown in the final column of the table, essentially indicate why the output and employment shares vary so much across sectors. While the overall national average GVA per person employed is calculated at €70,000, this varies substantially across sectors. The figures that immediately stand out are those for manufacturing, with the average GVA per person for the modern sub-sector being as high as €242,000, compared with €72,000 for the 'other manufacturing' category. There are a number of reasons for this divergence. Value added for multinational chemical and high technology enterprises would incorporate research and development costs which, for the most part, are carried out externally, and would not necessarily feature in the cost structure for these companies in Ireland, especially in relation to aspects such as methodology and intellectual property. The much discussed and controversial issue of transfer pricing, which would serve to boost the profit component of total GVA, would be a further contributing factor. It should be noted (from the final row of this table) that the impact of the activities of these enterprises on GVA at a national level is substantial. If 'modern manufacturing' is excluded from the calculations the economy wide figure for GVA per person decreases to just under €62,000, a reduction of 12 per cent on the figure quoted previously.[7]

The GVA per person average is also relatively high for finance, insurance and business services activities (€133,500). This is not altogether surprising, as this sector involves sizeable numbers of employees with medium to high level skills and is essentially a high value added sector. The figures for construction, distribution and 'other services' lie within the €45,000 to €55,000 range. As for the last mentioned category, as this mainly consists of public service activities, output measurement is almost exclusively based on employee remuneration and must be viewed somewhat differently from other sectors. The lowest average GVA per person at work (under €35,000) is recorded for the agricultural sector.

1.2.3 Sectoral Trends in Economic Activity, 1995-2005

Sectoral trend changes in output, employment and productivity over time are best illustrated as index numbers, and in graphical form. In this regard the following commentary sets out annual average changes for a ten-year period for six sectors in Table 1.3, while Figures 1.2 to 1.4 chart sectoral movements in output, employment and productivity on an annual basis in index number form.

Table 1.3: Annual Average Change in Real GVA, Employment and Labour Productivity, 1995-2005

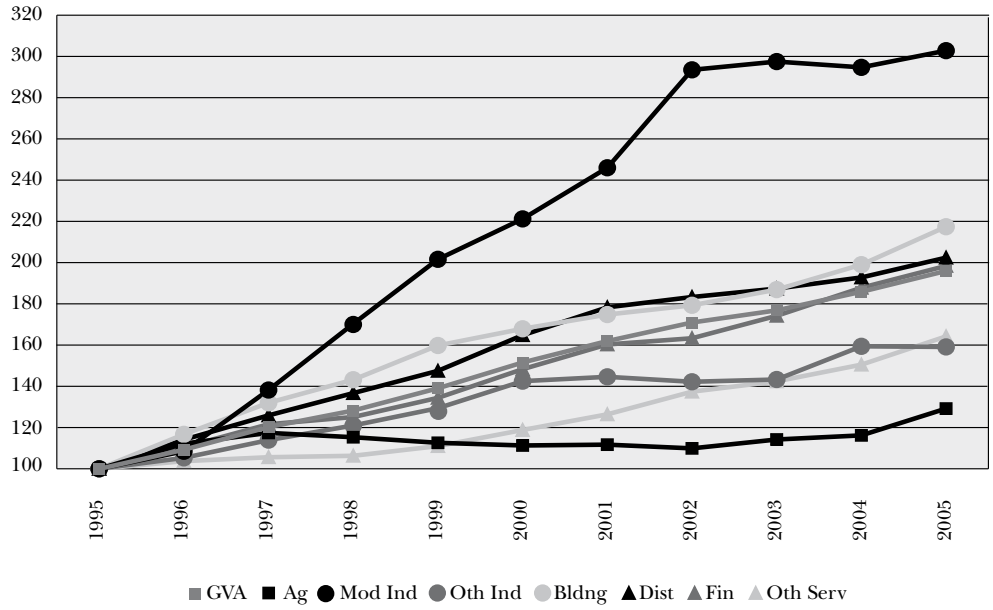
Sector	GVA	Employment	Productivity
Agriculture	2.6	-1.7	4.3
Manufacturing	8.4	0.9	7.4
Modern Manufacturing	11.7	2.1	9.4
Other Manufacturing	4.8	0.4	4.3
Construction	8.1	9.9	-1.7
Distribution, Hotels, Transport etc.	7.3	4.9	2.3
Finance, Business Services, Insurance	7.1	7.4	-0.3
Other Services	5.1	4.4	0.6
Total	**7.0**	**4.3**	**2.6**
Total Excl Modern Manufacturing	**6.3**	**4.4**	**1.8**

Trends in Real Output

Turning first to output, it has already been noted that total GVA almost doubled in real terms between 1995 and 2005, or by seven per cent on an annual average basis. The most notable changes are in the manufacturing area, with output in modern manufacturing showing a rise of some 200 per cent over the ten-year period in question (nearly 12 per cent annually). The more traditional 'other manufacturing' sector expanded by 60 per cent, or by 4.8 per cent annually. Figure 1.2 shows, however, that real output in modern industry has recorded virtually no growth since 2002. Throughout this more recent period, as indicated below, job losses in this sector were substantial. These trends are somewhat different to those for the more traditional manufacturing enterprises. In this area output continued to rise in recent years (albeit very slowly), and the employment level held up, at least until 2005 when it declined noticeably.

Real growth in the building industry was particularly strong and continuous over the entire period from 1995 to 2005, averaging more than eight per cent annually. As Figure 1.2 shows, expansion was particularly strong in 2004-05 (over nine per cent). Output performances in distribution, hotels, transport etc. and in financial and business services were also robust and sustained, recording annual increases of more than seven per cent on average.

Figure 1.2: Output Indexes (Real GVA) by Sector, 1995-2005 (1995=100)



The volume rise in 'other services' activities, which mainly involves public or non-market services, was lower than in other areas (apart from agriculture), increasing by just over five per cent annually between 1995 and 2005. However, this divergence would be partly due to methodological differences in measuring real output. One would expect (or hope) that if a productivity element were included in the output calculations for this sector, the volume growth rates would be higher.

Real output growth in agriculture can only be described as minimal in the ten years up to 2005. It amounted to less than 30 per cent over the full ten-year period, averaging only 2.5 per cent per year. Some significant expansion was recorded in the early years of this period, but broadly speaking; in subsequent years output growth has been negative, apart from 2004 to 2005 when a significant gain was recorded. However, this was, in effect, a once-off phenomenon and more in the nature of a distortion, being due mainly to the change in the method of payment of farm supports from production based subsidies to fixed or flat payments.

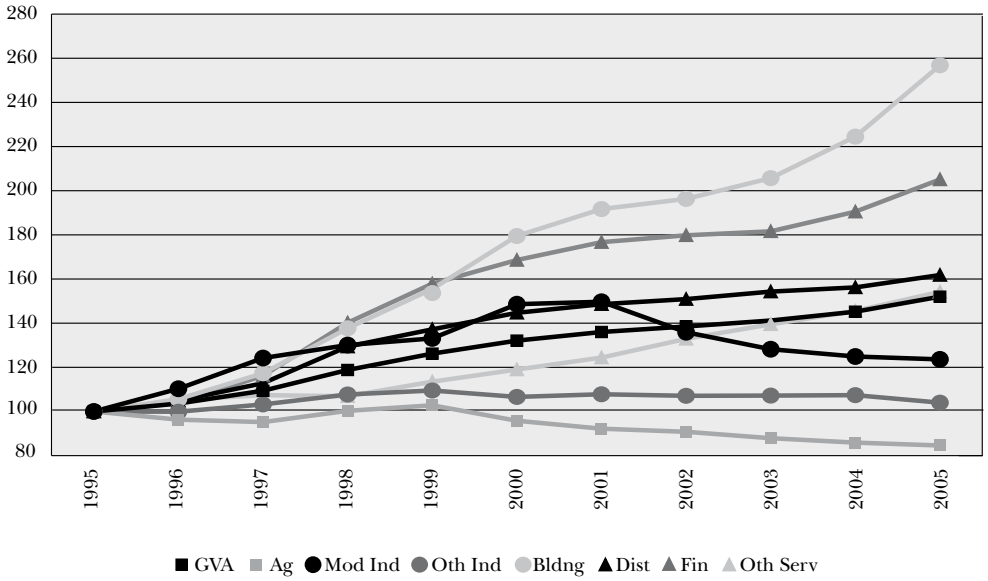
Finally, it is of interest to observe the extent to which growth in modern or high technology manufacturing affects overall economic expansion. If this sub-sector is excluded from the total GVA real growth calculation, the annual average rate for the 1995-2005 period is reduced by 0.7 of a percentage point, from 7.0 to 6.3 per cent, not an unduly large amount, but significant nonetheless. However, as explained earlier, the exclusion of modern manufacturing from the growth calculation as illustrated here should, ideally, be done in a wider context that takes account of secondary effects.

Trends in Employment

Our earlier analysis has already indicated that the total number at work in the Irish economy increased by an average of 4.3 per cent per year over the ten years between 1995 and 2005. Table 1.3 showed that the fastest rates of increase were recorded in building and construction (nearly ten per cent annually), in finance, insurance and business services (7.5 per cent) and, to a lesser extent, in the broad sector covering distribution, hotels and restaurants and transport and communications. The graphical representation (Figure 1.3) reveals that the rate of increase in the building industry accelerated noticeably after 2003 (it rose by as much as 14 per cent in 2004/2005).

The annual average rise in 'other services' (i.e. mainly public sector activities) was more modest at nearly 4.5 per cent, but Figure 1.3 indicates that this rate of expansion remained steady over the entire ten-year period. The increase for total manufacturing at one per cent was relatively small. Within this group it was over two per cent for the 'modern' sub-sector, but less than 0.5 per cent for other manufacturing. Employment in the former peaked at the beginning of this decade and has declined markedly since that time. The numbers in traditional manufacturing also decreased in recent years, albeit more slowly, except in 2004-2005 when there was a sharp drop of nearly 7,000.

Figure 1.3: Employment Indexes (Real GVA) by Sector, 1995-2005 (1995=100)



1.2.4 Labour Productivity

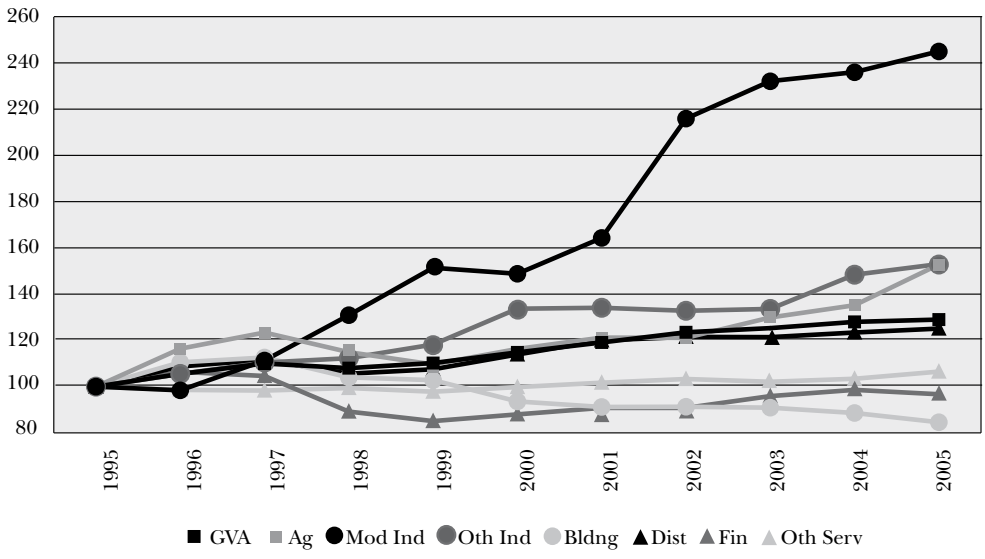
Let us now consider recent trends in labour productivity – perhaps the most interesting feature in this study. Table 1.3 showed that total labour productivity in the Irish economy rose by 2.6 per cent annually on average between 1995 and 2005, or by nearly 30 per cent over the full period. However, the growth in productivity has declined noticeably in the last few years

and the level remained more or less static in 2004 and 2005. This has been mainly as a result of a number of parallel influences, involving structural changes in the economy, falling productivity in certain sectors (notably building and construction), as well as a tapering off in productivity growth in a number of other areas (e.g. financial and business services).

Turning first to sectoral trends for manufacturing as a whole. Productivity more than doubled in this period, but within this category productivity in modern manufacturing rose by 145 per cent (9.4 per cent annually) and by nearly 55 per cent in the more traditional area, or 4.3 per cent per year on average (see Figure 1.4). An interesting point to note in regard to the modern technology-based category is that since 2001 the rapid gain in productivity has derived more from declining employment rather than from rising output. A contributing factor was that many of the job losses related to the lower skill end of the sub-sector in question. This type of effect has now also begun to apply to labour productivity in traditional manufacturing; this sub-sector recorded a sizeable fall in employment in 2004-2005, but productivity continued to rise.

Outside of manufacturing, significant productivity gains were recorded in agriculture (4.3 per cent annually between 1995 and 2005) and in distribution, hotels, transport etc. which recorded an annual average rise of 2.3 per cent. In agriculture these gains were mainly achieved due to falling numbers at work in the sector. It should be noted, however, that for agriculture the average percentage increase has been significantly influenced by the large productivity growth recorded in 2005 (13 per cent), which is attributable mainly to the changes in the method of payment for farm subsidies. Productivity actually declined in building and construction – by 1.7 per cent per year on average over the full period covered – with the result that the level recorded in 2005 was over 15 per cent lower than in 1995. While this may appear somewhat surprising, it should be borne in mind that this sector has recorded extremely large employment increases during this time. A closer inspection of the results shows that productivity in this sector actually increased during the early years of the period covered, but has been falling continuously since 1997.

Figure 1.4: Labour Productivity Index by Sector, 1995-2005 (1995=100)



Labour productivity in the financial and business services sector also declined (albeit slightly) in the ten-year period between 1995 and 2005 – by just over three per cent (or 0.3 per cent annually). However, the trend within this period has been somewhat erratic. It rose initially between 1995 and 1997, but then fell sharply in the following two years when employment in the sector rose rapidly. However, it has been increasing steadily at a moderate pace since 1999, with the result that by 2005 the level was nearly 14 per cent above that for the 1999 valley point.

As indicated earlier, the 'other services' category consists predominantly of public service activities. As the methodological basis of the output calculations for this large component effectively implies a situation of zero productivity growth, one would expect that the productivity trend figures should reflect this. This is indeed evident from Figure 1.4, the values of which remain at or near the base-year axis (100) throughout the entire period involved. There is some evidence of a slight rise in productivity in the sector in recent years, which one presumes must derive from the small private sector component.

The Impact of Structural Changes on National Productivity Growth

While analyses of productivity for specific sectors are important and instructive, one must also bear in mind that overall productivity change at national level reflects the effect of structural variations in the economy over time. Such changes arise from the increasing importance in employment terms of certain sectors and corresponding relative declines elsewhere. The declining influence of the agricultural sector provides an example, a development that of itself resulted in an increase in the overall level of output per person employed due to the replacement of jobs giving low value added with higher output employment. Often such underlying causative factors tend to attract little attention, but they are, nonetheless, important.

This type of development was illustrated in Keating (2000). The method he employed was to estimate what output levels would have been in a current year if the distribution of the numbers employed in different sectors of the economy was as in the base-year of the period under discussion, and output per worker in each sector was expressed in current terms. In other words, with this procedure the only movements recorded relate to intrinsic changes in productivity, and the difference between this and the actual change reflect the impact of structural shifts in the economy. In Keating (2000), the period covered was from 1990 to 1999.

The results of a similar simulation for the period from 1995 to 2005 using sectoral data on output and employment from the present study are shown in Table 1.4. As well as applying the procedure to the full ten-year period, results are also given for two sub-periods, 1995-2000 and 2000-2005. The figures for the full period indicate the structural changes in the employment profile of the economy had little net effect on overall productivity growth over this ten-year time span. The actual growth in productivity was 29 per cent (or 2.6 per cent on average annually as indicated earlier), of which only a minimal amount (less than one percentage point) could be attributed to structural shifts. We are already aware that substantial structural changes did occur during this time, but these were clearly offsetting in terms of their impact on national productivity.

The results for the two sub-periods are quite different. Between 1995 and 2000 real national productivity growth was nearly 15 per cent, of which nine per cent related to intrinsic productivity growth within sectors, but this was augmented by a further six per cent arising from changes in the employment profile across sectors of the economy. The reasons for this are not difficult to identify.

Table 1.4: Relative Growth in Overall Real Productivity Between 1995 and 2005 Assuming No Change in the Sectoral Structure of Employment

	1995-2000	2000-2005	1995-2005
		%	
Productivity Growth with Base Year Employment Structure	9.0	17.2	28.1
Actual Productivity Growth	14.8	12.4	29.0

This was a time when employment in high productivity areas such as modern manufacturing and finance and business services was increasing rapidly. This, of itself, served to boost national productivity levels, irrespective of productivity movements within these sectors. However, the results for the period from 2000 to 2005 indicate trends which are, in effect, the opposite of those evident for the earlier sub-period. Actual real productivity growth was nearly 12.5 per cent, but the growth component involving the constant base year employment structure was actually higher, by almost five percentage points at 17.2 per cent. This indicates that the impact of structural trends in the economy were negative during this time, and in contrast to the earlier period, had the effect of reducing, not increasing, overall productivity. Again the underlying reasons are evident. This period saw a significant decline in the share of total employment accounted for by high value added manufacturing (both modern and traditional) and a rise in the share attributable to the low productivity in building and construction and 'other services' sectors. Furthermore, the employment share related to financial and business services, where productivity is high and stabilised after a period of increase.

Productivity Declines in Individual Sectors

In addition to the recent near disappearance of overall productivity growth, the sizeable decrease in output per worker in certain sectors has also become a source of debate (Keenan, 2006). It has been suggested, for example, that the absence of recording of black economy activity may have contributed to this phenomenon, or the recruitment of large numbers of foreign workers at relatively low rates of pay since the late 1990s. If the latter tends to depress real wages while simultaneously increasing employment, this can transmit into reductions in productivity. Not surprisingly, in view of the sectoral trends already indicated, the building industry has, in particular, been referred to as an area where these influences may apply, as has the catering sector. While one cannot offer any direct proof that events have materialised as suggested (or even if true whether they can be attributed to foreign workers), they are within the realm of possibility. If the cost of labour in a sector increases more slowly in real terms than that for other inputs, it allows the engagement of more workers while at the same time

achieving real increases in what is termed the 'gross operating surplus' (i.e. GVA less wages). In these circumstances the additional increase in employment can result in a reduction in productivity in the sector as it is currently measured.

In summary, however, our analyses show that, in addition to declining productivity within some sectors, structural changes in the economy have been an even more significant influence in reducing overall national productivity growth in recent years. In view of this, since structural patterns tend to change slowly, any significant resumption of productivity growth is unlikely in the short-term, unless substantial employment increases occur in high value added sectors such as finance and business services.

Productivity Measured in Terms of Hours Worked

It is also relevant to consider the question of how different (or similar) the productivity outcomes would be if hours worked were used as a denominator instead of employment. Generally there have been indications for quite some time that the level of average weekly hours worked per person has been declining. This can be either due to a rising incidence of part-time work (at least in some sectors) and/or a tendency to work fewer hours anyway, irrespective of full-time or part-time status.

In dealing with this issue the basic data used relate to the information on usual weekly hours worked as obtained in the CSO QNHS. This, of course, ensures consistency with the employment data used earlier in this chapter and also allows the compilation of hours worked data for the same sectors. The time span covered extends from 1998 to 2005, and within this period data on hours worked for each quarter were used in order to derive a more representative picture on an annual basis.[8] In compiling the productivity series the output figures used as numerators were the same real GVA data as used in calculating the labour productivity indicators. Thus the essential difference between the two series derives solely from the use of hours worked figures instead of employment as denominator inputs. The results are summarised in Tables 1.5 and 1.6 and in Figures 1.5 and 1.6.

The aggregate index numbers for the two types of productivity measures given in Table 1.5 show that overall labour productivity rose by over 19 per cent between 1998 and 2005, while productivity based on hours worked increased by nearly 26 per cent. These represent annual average increases of 2.6 and 3.4 per cent respectively. The differences are significant, but not unduly large. The corresponding Figure 1.5 shows that the trend pattern for each indicator is very similar, with a noticeable tendency towards slower productivity growth in recent years. The divergence between the two measures widened progressively in the early years of the period covered, but seems to have stabilised somewhat over the last few years.

Table 1.6 shows annual average relative changes in labour and hours worked productivity by sector during the 1998 to 2005 period. The changes are also represented graphically in bar chart form in Figure 1.6. The pattern of change across sectors is much the same as shown by each measure, even though generally the increases in productivity indicated by the hours worked measure tend to be somewhat greater. However, in the case of agriculture, manufacturing and financial and business services these differences are minimal: in the building sector, where productivity fell, the relative changes are almost identical. However, for the distribution, transport etc. sector and for 'other services' the differences in question are more marked. In the case of the former category the annual average rise in labour productivity between 1998 and 2005 was 2.4 per cent, but 3.3 per cent when based on the hours worked related measure.

For 'other services' (which is predominantly public sector) the variation is relatively greater, the corresponding increases being one and 1.8 per cent respectively. It is of interest to note that these two sectors recorded the greatest reductions in average weekly hours worked between 1998 and 2005. Furthermore, as these sectoral categories are large in terms of their shares of total economic activity, the percentage increases in question have a significant effect on the overall economy wide difference between the two measures.

Table 1.5: Indexes of Overall Labour and Hours Worked Productivity (1998=100)

Year	Labour	Hours Worked
1998	100.0	100.0
1999	102.0	102.6
2000	106.3	108.9
2001	110.3	113.5
2002	114.3	118.4
2003	116.0	121.5
2004	118.5	124.4
2005	119.4	125.9
Ann. Average Change (%)	**2.6**	**3.4**

Table 1.6: Annual Average Changes in Labour and Hours Worked Productivity by Sector, 1998-2005

Sector	Labour Productivity %	Hours Worked Productivity %
Agriculture	4.2	4.5
Manufacturing	7.2	7.6
Building	-2.9	-2.8
Distribution, etc.	2.4	3.3
Finance, Business, Insurance	1.2	1.4
Other Services	1.0	1.8
Total	**2.6**	**3.4**

Figure 1.5: Indexes of Labour and Hours Worked Productivity (1998=100)

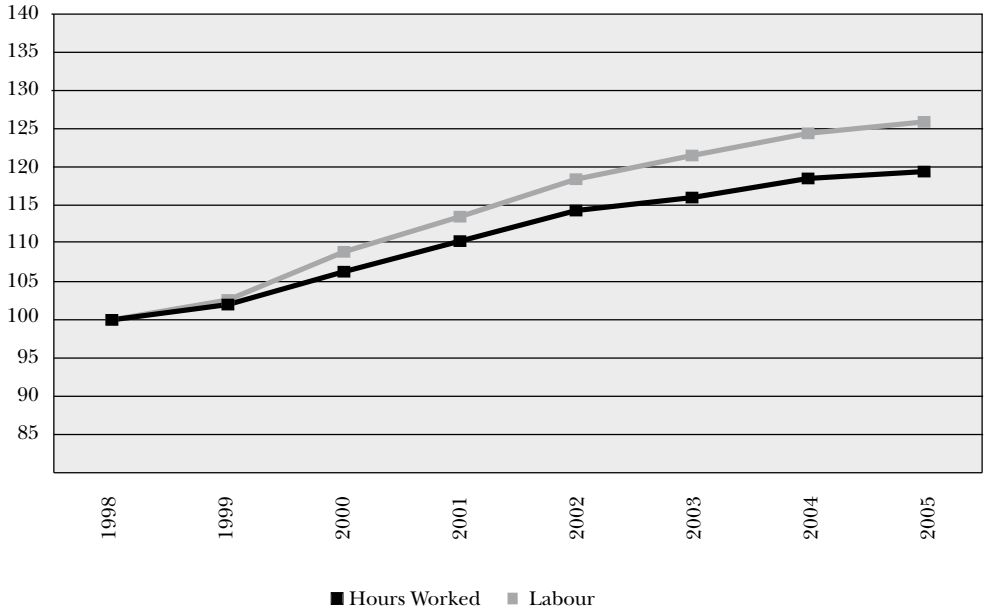
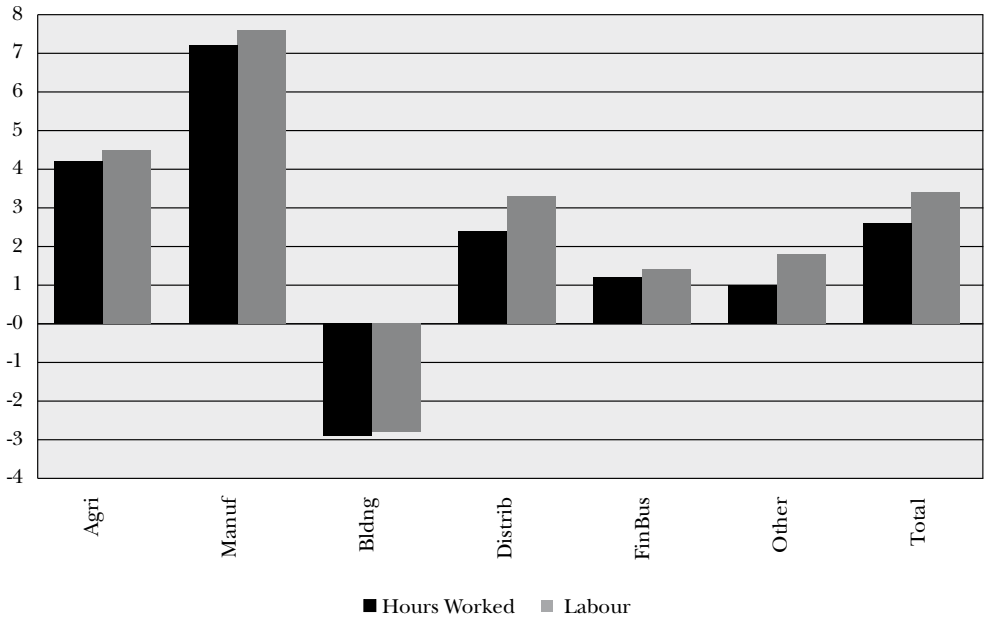


Figure 1.6: Annual Average Changes (%) in Labour and Hours Worked Productivity, 1998-2006



In summary, however, while the differences between the labour and hours worked productivity measures are significant and must be acknowledged, the message emerging from the analysis of each is much the same, and the variations are not of a sufficient order of magnitude so as to materially alter the conclusions of the earlier analyses based on labour productivity only.

1.3 Ireland's Performance Compared with Trends in the International Economy

In this section recent output, employment and productivity trends in Ireland are compared with those in two of the major regions of the international economy, i.e., the European Union and the United States.[9] The relevant data are given in Tables 1.7 to 1.9 and in Figures 1.7 to 1.9. All the trends are, as in most of the earlier analyses, shown in index number form to base 1995=100. For reasons of consistency with other tables in the chapter, the Irish data are based on GVA, even though those for the EU15 and the US relate to GDP. However, as already explained, the use of GVA instead of GDP makes little difference to the comparisons.

The comparative output data for the areas in question reveal considerable trend differences. Economic expansion has been much faster in Ireland than in both EU15 and the US. Annual real output growth averaged seven per cent in real terms in Ireland between 1995 and 2005, compared with just over two per cent in EU15 and 3.4 per cent in the US. As already indicated, if the 'modern manufacturing' sector is excluded from the Irish data, the annual real GVA increase for Ireland falls to 6.3 per cent. Leaving aside differences in growth levels, the graphical representation in Figure 1.7 shows that output in all regions rose steadily in the ten-year period concerned. It is noticeable however, that expansion faltered somewhat in the US at the beginning of the current decade, but began to increase again at a more rapid pace in recent years.

Table 1.7: Indexes of the Trend of Real Output in Ireland, EU15 and the US

Year	IRL GVA	IRL GVA Excl Mod Ind	EU15 GDP	US GDP
		1995=100		
1995	100.0	100.0	100.0	100.0
1996	109.3	109.4	101.6	103.7
1997	120.3	118.1	104.1	108.4
1998	128.3	123.3	107.2	112.9
1999	139.1	131.7	110.3	118.0
2000	151.6	143.4	114.2	122.4
2001	162.0	152.1	116.2	123.3
2002	171.0	156.6	117.5	125.7
2003	176.9	162.7	118.6	129.6
2004	185.9	173.1	121.4	135.4
2005	196.0	183.5	123.7	140.3
Ann Average Change (%)	**7.0**	**6.3**	**2.1**	**3.4**

Table 1.8: Indexes of Employment for Ireland, EU15 and the US

Year	IRL Total	IRL Excl Mod Ind	EU15	US
		1995=100		
1995	100.0	100.0	100.0	100.0
1996	103.6	103.2	100.5	101.7
1997	109.4	108.4	101.5	103.9
1998	118.8	118.1	103.3	106.3
1999	126.2	125.8	105.2	108.6
2000	132.1	131.0	107.3	111.1
2001	136.0	135.2	108.8	111.0
2002	138.5	138.6	109.5	110.1
2003	141.2	142.0	109.8	110.1
2004	145.2	146.4	110.6	111.3
2005	152.0	153.7	111.4	112.5
Ann Av. Change (%)	**4.3**	**4.4**	**1.1**	**1.2**

Table 1.9: Indexes of Labour Productivity for Ireland, EU15 and the US

Year	IRL Total	IRL Excl Mod Ind	EU15	US
		1995=100		
1995	100.0	100.0	100.0	100.0
1996	105.5	106.0	101.2	101.9
1997	110.0	108.9	102.8	104.1
1998	108.0	104.5	104.0	106.1
1999	110.2	104.7	105.3	108.7
2000	114.8	109.5	107.0	110.4
2001	119.1	112.6	107.5	111.0
2002	123.5	113.0	108.2	114.3
2003	125.3	114.5	108.9	117.9
2004	128.0	118.2	110.7	121.8
2005	129.0	119.4	112.5	124.9
Ann. Av. Change (%)	**2.6**	**1.8**	**1.2**	**2.2**

Note: The data for EU 15 and the US contained in Tables 1.7 to 1.9 are taken from the EU Commission publication 'Employment in Europe, 2005'

Figure 1.7: Indexes of Real Output in Ireland, EU15 and US (1995=100)

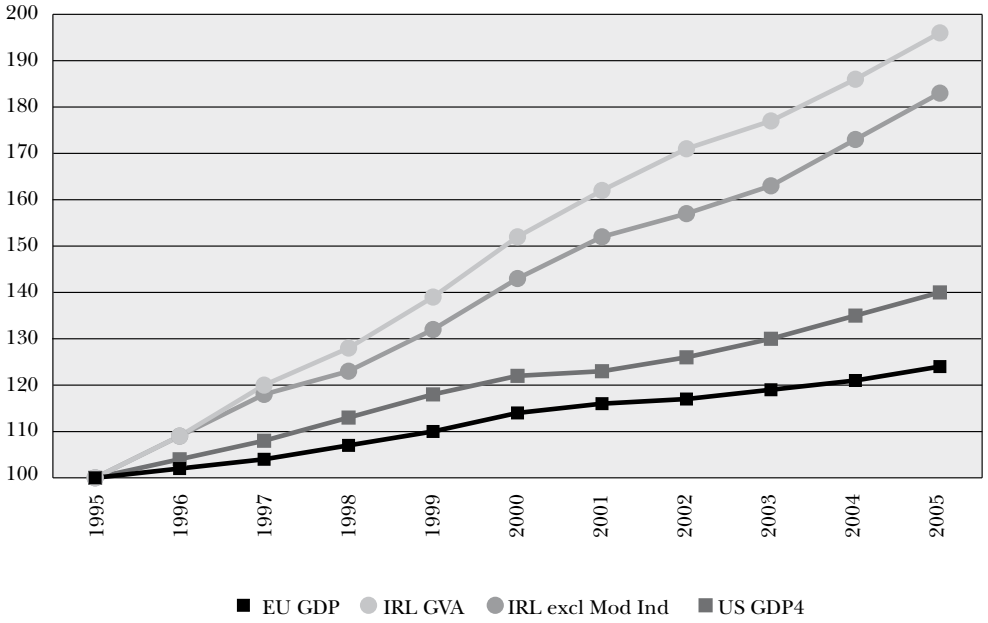


Figure 1.8: Employment Indexes for Ireland, EU15 and US (1995=100)

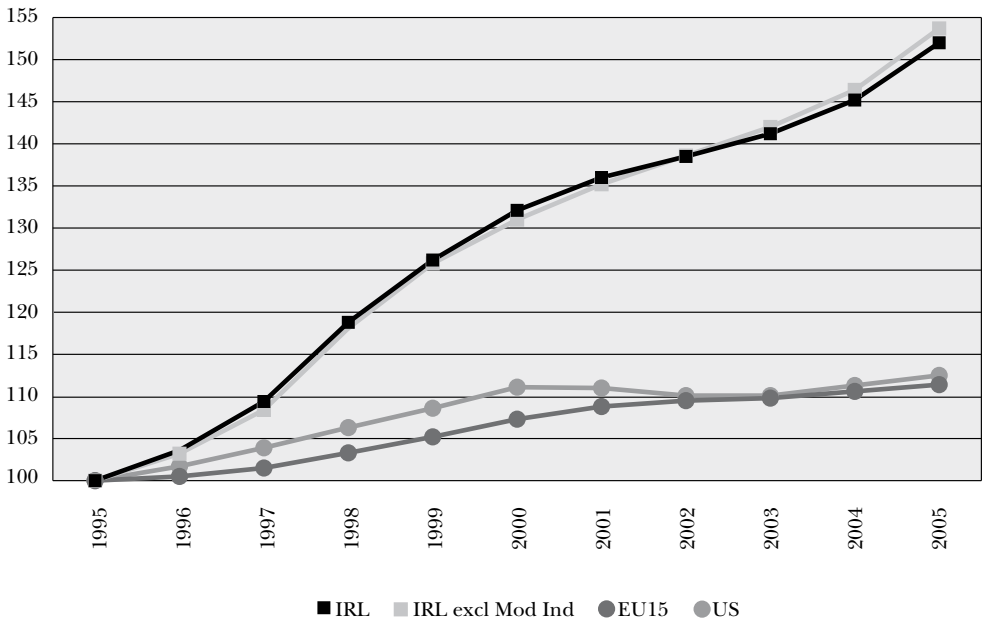
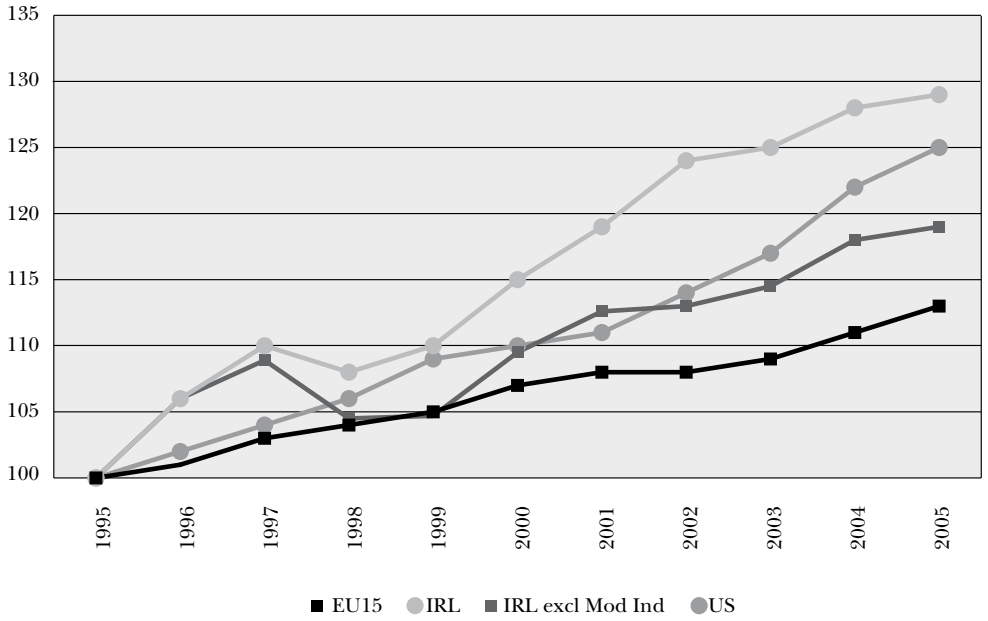


Figure 1.9: Indexes of Labour Productivity in Ireland, EU15 and US (1995=100)



The comparative employment trends (Table 1.8 and Figure 1.8) show even greater divergence between Ireland and the other two regions. The annual average jobs gain in Ireland between 1995 and 2005 was 4.3 per cent, compared with corresponding increases of just over one per cent for both EU15 and the US. While the upward trend in employment in EU15 applied consistently throughout the period, the figures for the US reveal a somewhat different pattern. Figure 1.8 shows that the number of persons at work in the US rose more rapidly than in Europe in the second half of the 1990s, but then actually declined between 2000 and 2002, after which time it began to increase again, but slowly. While employment growth in EU15 was maintained over the ten-year period, it can only be described as painfully slow, largely due to the sluggish performance of the large German and French economies.

The variations in the pattern of output and employment trends as described (even though they may not appear all that substantial) have had a profound impact on differences in productivity trends for the three regions. Table 1.9 shows that labour productivity trends in Ireland, and those for EU15 and the US do not diverge to the same degree as for output or employment. During the period in question Ireland also achieved a much faster rate of employment expansion. The indexed data in Table 1.9 show that labour productivity in Ireland rose by nearly 30 per cent between 1995 and 2005, or 2.6 per cent on average annually. The corresponding increase in EU15 for the same period was nearly 13 per cent (1.2 per cent annually) and 25 per cent (2.2 per cent per year on average) in the US. However, if the high technology modern sector is excluded from the Irish data, it is interesting to note that the productivity increase for the period concerned is reduced to 1.8 per cent, which is somewhat below the US annual average figure.

The trends in Figure 1.9, from which one can more readily observe changes over time, provide a more revealing picture. While labour productivity growth has been substantial in Ireland over almost the entire period under study, as noted earlier, it began to decelerate after 2002. The productivity rise in EU15, as with output and employment, has been slow but consistent.

The data for the US is, perhaps, the most interesting. Productivity increased significantly throughout most of the 1995-2005 period, even though it lost its upward momentum and all but stabilised for a short period at the beginning of this decade (even though employment fell). It is of interest to note, however, that it increased strongly thereafter, in parallel with the (admittedly slow) resumption of jobs growth. This indicates that the labour market adjustments that occurred in the US at this time initially involved job losses among low productivity, low skill workers, while the increasing job opportunities that subsequently emerged benefited workers with higher skills. This is the opposite of what now appears to be happening in Ireland, where the disappearance of productivity growth at a time of continued high employment expansion suggest that the latter primarily involves low skill employees. On balance, leaving aside other economic considerations (US budget deficits etc.) the US productivity trends reveal a more solid basis for future growth.

1.4 Concluding Remarks and Policy Issues

1.4.1 Changing Growth Patterns

Arising from the results as presented, an important aspect which calls for comment is the extent to which the structure of economic growth in Ireland has altered over the ten year time span covered, especially in recent years. The widely varying growth rates for different sectors have created a situation where the current basis of output expansion is heavily dependent on building and construction and on the public services dominated 'other services' category. Table 1.10 shows that these two categories alone accounted for nearly 45 per cent of total growth in 2004-2005, with the distribution, hotels, transport etc., (which, apart from tourism related activities, is primarily driven by domestic consumption) adding a further 15 per cent. This means that 60 per cent of the overall growth increment in this twelve month period was generated by these three sectors, with about 40 per cent generated by the goods producing areas and business and financial services. It should be noted that, apart from tourism, the latter broad group encompasses almost all of the export-oriented activities in the economy. The position was virtually the opposite five years earlier in 2000/2001, when the two growth shares were just under 57 per cent for goods producing and business activities, and 44 per cent in aggregate for the other mainly non-traded sectors. The imbalances as described are even more extreme if economic expansion is viewed in terms of employment.

Table 1.10: Shares of Annual Real Output (GVA) Growth in 2001 and 2005

Sector	2000-01 %	2004-05 %
Agriculture	0.2	5.7
Manufacturing	27.7	8.0
Modern Manufacturing	25.1	8.4
Other Manufacturing	2.6	-0.4
Construction	5.6	15.1
Distribution, Catering, Transport etc.	21.9	15.9
Finance, Business Services	28.7	25.9
Other Services	16.0	29.3
Total	**100.0**	**100.0**

This is a situation which cannot be sustained for long and calls for steps to be taken to constrain output demand in building and construction and, possibly, some curbs on personal spending (or at least the discretionary parts thereof). While every effort should be made to promote expansion in export oriented goods producing sectors and in business services (see below), it is not realistic to expect that growth in these areas, where enterprises face strong competition in the global market, can be raised to the extent that an appropriate balance can be restored. In effect, what is being suggested implies slower but more sustainable growth. It is recognised that, when viewed in political terms, this is not an easy time to apply curbs, but it would be preferable to exercise a measure of control over corrective mechanisms, rather than allow them to be imposed in an uncontrolled manner by economic imperatives which may be much more painful.

1.4.2 Best Prospects for Future Growth

Another major issue of relevance to future economic performance is which sectors should be targeted, and if necessary supported, if reasonable growth rates are to be maintained. In addressing this issue it is, however, necessary to lower our sights overall, as one cannot expect to repeat the extraordinary overall growth rates achieved in recent years, at least not in the medium term.

While policy must strive to enhance growth in all areas of the economy, both traded and non-traded, our main concern must focus on those areas that have export potential and are not unduly dependant on domestic demand. The possibilities are not numerous. The main contributions to growth in the past have come from exports from agriculture and manufacturing industry and export tourism. In more recent years, international business services have become increasingly important, a feature which is discussed in more detail below.

Historically agriculture, or agriculture based industries, has been an important contributor to growth (prior to the 1960s they were virtually the only source). However, our analyses show that output in the primary sector has now become more or less static, as Ireland has been obliged to reduce trade barriers and dismantle internal supports as part of the wider application of WTO sponsored global trade agreements. This trend is unlikely to change, as trade liberalisation is likely to progress, even if slowly.[10] While agriculture will, of course, remain an important output component in the Irish economy, it cannot be expected to make a substantial or above average contribution to future economic expansion.

Manufacturing (especially the multinational high-technology sector) has effectively been the engine of growth in the Irish economy for many decades. This has been due not only to rapidly rising output in the sector, but also from knock-on effects in the rest of the economy. Furthermore, in a wider sense, the positive social or psychological impact on Irish society in having developed a sizeable high-tech sector, which provided numerous high-skill employment opportunities, has been substantial. However, things are obviously beginning to change. The data presented earlier in this chapter show that volume output in the modern sector has moderated and employment has declined substantially in the last few years. This cannot be attributed to cyclical influences, but is of a more fundamental nature as enterprises (particularly those at the lower skill end of the sector) transfer operations to low-cost countries. The ultimate vision here is a sector that has fewer but larger units engaged in a range of core activities (including research and development) which require significant investment and high-skill HR inputs. Because of its strategic value, high-technology manufacturing will continue to be an important, indeed crucial, element in fostering economic growth in Ireland, but is unlikely to occupy the dominant position it has held since the 1960s.

With regard to tourism, while this sector has also contributed substantially to growth over a prolonged period, this has not been the case in recent years. Total gross income from international tourism and travel (which amounted to €4.3 billion in 2005) rose by 11 per cent per year between 1995 and 2000, but this rate declined to 3.3 per cent in 2000-2005 (CSO, 2005). The latter figure in fact represents a slight decrease in real terms when the cost inflation is taken into account.[11] The output figures just quoted are broadly consistent with recent trends in employment in the tourism related sector covering hotels, restaurants etc. which has recorded a minimal net jobs increase since 2000, even though total employment in the economy rose by as much as 250,000 between 2000 and 2005.

The foregoing comments should not, of course, be taken to imply that the current situation in tourism will (or should be allowed to) continue indefinitely. Export tourism will continue to be an important component in achieving growth and every effort should be taken to ensure that it will continue to expand as rapidly as possible. Current trends do suggest, however, that in the year's ahead growth rates will be constrained and, thus, any contribution to overall expansion will be limited, at least in the medium term. All the signs are that many of the major difficulties affecting tourism (e.g. uncompetitive prices, environmental issues and attitudinal problems) are features that permeate throughout the economy generally, and corrective measures will take time to have effect.[12] While acknowledging the pressures of international competition, tourism is, nonetheless, an area where corrective measures are largely in our own hands, and thus offers real opportunities for contributing to growth.

On the basis of the above brief sectoral review, international business services would appear to be the most obvious export oriented area which offers the opportunity to generate rapid or above average growth and become the prime focus or centrepiece of overall economic advance. Expansion in this area (both in a domestic and international context) has the added advantage in that it involves high value added activities and thus can make an important contribution to raising overall productivity levels. It should be mentioned that 'services exports' as referred to in this context are intended to embrace more than what may be described as conventional commercial activities. It also covers professional expertise in areas such as professional and technical agricultural assistance, education, public administration etc.

This is, in fact, an area which has already been recommended for targeting by the State development agencies and, indeed, considerable progress has been made to date. [13] The value of services exports from Ireland increased nearly fourfold between 1998 and 2005 from €12.4 billion to €46.1 billion, representing an annual average rise of over 20 per cent.[14] While a volume series is not available, the scale of domestic and international price movements over this period makes it clear that this is a very substantial advance in real terms.[15] Within this broad services category business and financial services accounted for about €39 billion in 2005 (85 per cent), within which computer services comprised €15 billion, or nearly a third of the overall total. Nearly two thirds of Irish service exports went to EU25 countries, but a surprisingly small share (just over five per cent) went to the US and Canada. The latter feature does, perhaps, point to an area which offers opportunities for further expansion.

One notable setback in relation to fostering international trade in services (outside of the EU) is the failure of the recent WTO Trade Negotiations (in which services was an important element) to conclude a satisfactory agreement. While this may have caused some interests here to heave a sigh of relief, in the wider context of overall growth prospects for Ireland it is a setback, and is likely to result in a slower rate of expansion in world trade than would otherwise emerge. However, the threads of these negotiations are likely to be picked up again, and the general movement towards greater free trade is likely to continue, even if more slowly.

1.4.3 Productivity

Finally the trends in recent years which reveal a marked decline in labour productivity growth in the economy call for some comment.[16] At present productivity growth seems to have ceased, and may well turn negative, at least for a time. Our analysis indicates that changes in the sectoral profile of the economy has been a significant influence in reducing overall productivity growth in recent years, even though output per worker in some sectors (e.g. building) has also contributed to this. With regard to structures, the rapid decrease in the relative importance in the economy of the manufacturing sector (especially in the high-technology area) has been a major causative factor. Falling productivity in building and construction has tended to attract much attention in the current debate, but in fact changing sectoral structures have been a more important, if silent, influence. The nature of these influences would suggest that any significant resumption of productivity growth is unlikely in the short-term, unless substantial employment increases occur in high value added sectors such as finance and business services.

The imperative of having to compete in the high-skill/technically advanced end of the global market renders it essential that national productivity be enhanced, not only by targeting high value added sectors, but also through productivity across the wider spectrum of economic activities. In this context recent Government initiatives to aid and promote research and development and high-skill education/training are to be welcomed.

The achievement of higher productivity should not, however, be regarded solely as an end in itself. The average output per worker or per inhabitant may well increase, but it may conceal a less than equitable distribution of the additional wealth created, with some interests benefiting, and others being left behind. This is an issue on which the Celtic Tiger phenomenon has been criticised. Therefore redistributive options may have to be considered, bearing in mind the need to maintain growth rates and to remain globally competitive.

Notes

1 This chapter is a shortened version of Sexton (2006).
2 Typically, on the basis of recent data, this aggregate represents almost 90 per cent of GDP at market prices. Annual average real GVA growth between 1995 and 2005 was seven per cent, compared with 7.3 per cent for GDP.
3 The share of persons in part-time work remained reasonably constant over the period covered. It is unlikely, therefore that part-time work trends would have a major effect on productivity movements in the period under consideration. It should be noted that, in any event, the chapter contains a supplementary analysis in which productivity is based on hours worked rather than employment.
4 In terms of the EU NACE industrial classification the categories cover classes 223, 24, 30, 31, 32 and 33.
5 It should be noted that while most of the sectoral data shown was provided by the CSO, the separate trend volume indicators for financial and business services and the residual services category were estimated by the author as the CSO could only provide aggregate figures. The methodology used is described in Sexton (2006).
6 There is evidence to suggest that the secondary effects are significant (O'Malley, 1995).
7 Further insights into the issues raised here are given in O'Malley and McCarthy (2006).
8 Comparable data on hours worked are not available for the years prior to 1998.
9 The indexes for the European Union relate to EU15, as the relevant data for some of the ten new Member States were not available for the full period under consideration.
10 The recent WTO trade negotiations which took place in Geneva are of particular relevance in this regard. The outcome may not have been satisfactory, but the movement towards freer trade is likely to continue.
11 The annual average GDP deflator was 3.7 per cent over the same period.
12 Many of these problems were highlighted in the Tourism Policy Review Group Report (2003).
13 See also, Enterprise Strategy Group Report (2004).
14 CSO (a) Balance of International Payments Q1 2006. (b) Service Exports and Imports 2003 and 2004. (c) Website database on Services Exports and Imports.
15 Further evidence of the growth in business services in Ireland is indicated by the rapid increase in employment in this sector between 1995 and 2005 (see Table 1.3). This data covers both domestic and external service activities.
16 For a further analysis of national productivity issues see Tansey (2005).

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