

The Economic Impact of a University of the South-East

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Executive Summary

Introduction

The South-East region is falling behind other regions of the State in terms of its economic status. The latest data from the CSO indicate that per capita incomes in the region are 89.5 per cent of the national average (2001). Only the Border region has a lower per capita income. The position of the South-East region is the result of two factors. The income earning potential of workers is relatively low and there is a higher than average level of underused labour resources.

These key facts imply that corrective action is needed to get the South-East region back on track economically.

A number of areas requiring further state capital investment have been identified, particularly the need to improve access to and within the region, and are currently being addressed. One key area identified by the Waterford Chamber of Commerce and others is the need for a university level institution within the South-East region.

Waterford Chamber of Commerce therefore commissioned Goodbody Economic Consultants to undertake a study to:

- Establish the current economic performance of South-East region and identify where action is needed;
- Set out the role of third level institutions in enhancing national and regional economic performance;
- Review the international literature to illustrate the impact of universities on their regions, both direct and indirect;
- Estimate the current and potential future impact of a university on the region under a number of scenarios; and
- Illustrate the impact that a university could have on the region, both directly and indirectly.

Analysis of Current Economic Performance

An analysis of economic data on the South-East region indicates that the economic performance of the region has been poor. This is highlighted by the fact that, on a range of performance indicators, the region's economic position is worse than that of the BMW region which is currently the focus of Government regional policy.

The reason the region lags behind is that there are both under utilised labour resources and those in work have relatively low earnings levels. This in turn is due to both demand and supply-side problems in the region. On the demand side, the region is failing to attract sufficient firms in the modern industrial sector. The proportion of employment in IDA assisted firms is 29 per cent lower than the West region.

This is both reducing the demand for labour and contributing to a lack of high level and high paid jobs. Similarly, the region is failing to fully exploit its tourism potential, reducing the demand for service sector jobs. Because earnings are relatively low, discretionary incomes are low, and the demand for services is further restricted. The ratio of services to manufacturing jobs is 19.5 per cent lower in the South-East than in the West region.

On the supply side, the quality of the labour force is adversely affected by the relatively low proportion of the labour force with third level qualifications or greater. Currently the proportion of the population with degrees or higher is 25 per cent lower than the rate in the West region. This is an ongoing problem, as admission rates to university from among the population of the region are relatively low, again 25 per cent below rates for the West region. Another supply-side problem is the small scale of local labour markets within the region, due to the lack of a dominant urban centre. In the West region 17.4 per cent of the population live in the region's principal urban area compared to 11 per cent in the South-East.

Possible Remedies

The above analysis should not provoke despair. There is no reason why the region, given the introduction of appropriate economic policies, cannot recover its former economic position relatively quickly. The region has a number of natural advantages on which to base an economic recovery. However, both demand-side and supply-side actions are now needed.

On the demand side, there is a need for an injection of income into the region.

This can come from only three sources:

- Government spending;
- Inward investment by the private sector through the injection of new capital into existing or new industries in the region; and
- Increased spending from overseas tourists.

On the supply-side, there is a need to:

- Improve the quality of the labour force; and
- Increase the scale of local labour markets through concentrating investment in the major urban centre which can act as a counter pull to other regional centres.

A University of the South-East would be an effective vehicle for increased government spending into the region, for attracting increased inward private investment, and in time increasing tourism income. It would assist in improving the quality of the available labour supply and would assist in establishing a major urban centre within the region.

The Key Developmental Role of Universities in Irish Economic Development

Ireland, along with its EU partners, is striving to develop a knowledge economy.

To achieve this status significant resources must be invested in third and fourth level education, in enhancing research and development capability, as well as in attracting more international postgraduates and researchers to Ireland.

The Irish higher education sector is currently organised along the lines of a binary system made up of universities on the one hand and Institutes of Technologies (ITs) on the other.

Within this binary system, universities are expected to play the lead role in driving the knowledge economy. The OECD report calls for a focus on universities in terms of the development of research capacity and an expansion of the postgraduate student population, both national and international. They recommend that:

- Institutes of Technology should continue to concentrate on applied research and that underpinning research resources should be the subject of specific investment by Enterprise Ireland, and not by the new Tertiary Education Authority, in targeted areas against clear national or regional economic priorities;
- Steps should be taken to radically expand the numbers of doctoral students in universities with the intention to more than double them by 2010; and
- Degree awarding powers for doctoral awards should be concentrated in universities and that, except in the case of DIT, where such powers have been granted to Institutes of Technology by HETAC, they should be rescinded.

Universities are thus to be at the forefront of fundamental research and of links with industry that are aimed at stimulating applied research and innovation. Universities within Ireland are encouraged to expand the number and range of postgraduate students – both national and international – if Ireland is to be recognised as a centre of world class expertise in research and development.

Thus, within the binary system, universities are clearly identified as the key drivers of the knowledge economy and as being at the forefront of developments aimed at addressing current weaknesses identified by the OECD, e.g. lack of R&D, low levels of post graduates, etc.

Given current Irish education policy, which supports the particular role of universities in such a process, this analysis would indicate that the future development of the South-East region could be at a serious disadvantage if it does not have ready access to a university and to the resources and expertise which such an institution can bring.

Universities in Regional Development

The role of universities in regional development is evolving and expanding. Direct impacts through employment and local purchasing of services are increasingly seen as only the starting point. Indirect effects through impacts on the capability and attractiveness of an area in terms of both indigenous and foreign direct investment are also seen as vital.

The indirect effect of universities on the development of regions occurs through:

- Provision of locally available knowledge;
- Creating and developing flexible, adaptive workforces;
- Attracting and locally embedding global business through research capability and relevant education and training provision;
- Providing a gateway to the global knowledge base for SMEs;
- Providing strategic analysis and leadership;
- Providing access to resources for innovation which allow local companies to develop and maintain a leading edge position;
- Attracting a higher level of FDI which requires high levels of availability of knowledge workers who can maximise local value added;
- Developing/supporting the creation of clusters of economic activity around regional strengths; and
- Helping link local business and local human resources to the global economy.

In regions that are falling behind, there is growing recognition that universities not only have a role to play in their development but that they can play a leading catalytic role when other more traditional actors in the private sector are relatively weak.

In order to fulfil such a role universities must:

- Have autonomy over allocation of resources in order to remain flexible in meeting changing local/regional needs;
- Have access to funding which allows them to attract additional high quality staff;
- Have both the financial and human resources required to develop world class research capability in specialist areas;
- Have the kind of institution that attracts the highest quality students, postgraduates and researchers;
- Have both the human resources, leadership skills and appetite to develop strong linkages with other regional development actors; and
- Have the resources to stimulate local cluster development in identified specialist areas.

However, higher education institutions in lagging regions are often in a chicken and egg situation. Lacking the facilities to attract the high quality staff, students, business partners, researchers and post graduates in sufficient numbers that will allow them to fulfil their regional role, they are unable to attract the necessary resources to develop such a role, due to the weak business structure of their region and their relatively weak position within the higher education sector.

In the case of the South-East region this analysis clearly indicates that if the region is to prosper within the context of the knowledge economy and is to become a "learning region", it will require local access to a university. Furthermore, given its current lagging status, the research also indicates that the development of a university with strong regional ties and international level research capability will play a vital role in the re-energising of the region and in ensuring that the region is increasingly attractive to innovation led enterprises and related actives.

Measuring the Economic Impacts of a University in the South-East Region

An examination of the international literature demonstrates the type and level of local economic impacts that can be derived from the presence of a university within a region. They provide evidence of the direct impact in terms of jobs generated in the regional economy and of the indirect impact in terms of stimulating R&D, local innovation and regional prosperity.

In measuring the economic impact of a university in the South-East region we have taken the case of Waterford Institute of Technology (referred to as 'the Institute') and have measured its current economic impact as well as its potential impact if it was to achieve university status. We have selected WIT because it is the largest IT in the region and because it has already established itself as one of the leading Institutes of Technology within the country. It has already been granted the authority to award undergraduate degrees and postgraduate degrees, as well as Doctorates in Science.

The Current Impact of the Institute on Regional Gross Value Added (GVA)

Taking student, Institute and research expenditure together we estimate that the Institute generates €65.5 million of regional GVA. This is equivalent to 0.58 per cent of gross value added created in the region in 2002 and of 1.3 per cent of GVA generated by regional service sector activity¹.

The Current Employment Impact of the Institute

We estimate that in the year 2004, the Institute supported 1,479 full time jobs. These comprised 970 jobs directly on campus, plus an estimated 352 jobs created indirectly and a further 157 jobs induced in the economy as a result of expenditure related to Institute activities.

The figures indicate that for every job in the Institute another 0.52 of a job is created in the local economy. This is in line with the findings from the international literature. For example in a similar study on the University of Bristol a ratio of 1:0.5 was found and in California of 1:0.65.

Future Scenarios

In looking at the potential future impact of a university on the local economy we have drawn up two possible scenarios for WIT:

- One, where the Institute becomes a university within five years with knock on effects on student numbers, particularly postgraduates, levels of income, and access to research awards.
- Second, where the Institute remains within the IT sector for the next five years and where OECD recommendations are adopted as policy resulting in a slower growth in student numbers due to financial constraints on the sector, a loss of postgraduate opportunities, and a reduction in access to research awards which are increasingly targeted on universities.

¹ Expenditure is estimated as a proportion of 2002 regional GVA at basic prices. Total regional GVA in 2002 was €11,115m of which services GVA was €5,017m

Impact of Future Scenarios on Gross Value Added and Employment

The direct and indirect impact of the Institute in five years time under the university scenario we estimate would be as follows:

- The Institute would generate 2,215 jobs either directly or indirectly, equivalent to 2.4 per cent of existing regional services employment - an increase of 50 per cent on current levels.
- The Institute would generate €97.6m in the economy equivalent to 0.87 per cent of current total regional GVA and 1.9 per cent of current regional service sector GVA – an increase of just under 50 per cent on current figures.
- The Institute could raise GVA by a further 0.4 per cent through the impact of its R&D activities on the region.

However, the direct and indirect impact of the Institute in five years time under the continuing IT scenario we estimate would be as follows:

- Employment generated by the Institute would remain almost static at 1,545; and
- Contribution to regional GVA would rise only to €70m – only 7 per cent higher than existing levels.

This analysis indicates that the injection of resources that a university would create has the potential to increase employment directly or indirectly by 736, thus providing a significant number of additional high quality jobs in the South-East region.

Wider Impact of Future Scenarios on the Development of the Region

A university within the South-East would play a key role in stimulating local and regional economic development. This would occur through the resulting increased focus on R&D and through the attraction and retention of a higher number and wider range of third level students and graduates to and within the region.

A university would also reduce the extent to which the South-East is currently losing out in terms of graduate level employment, and loss of graduates to other regions. It would help to attract knowledge intensive foreign investment to the region and would help to raise the innovative and R&D capacity of indigenous firms.

In contrast, a continuation of the current situation is likely to result in reduced R&D activity and to the continued loss of undergraduates and graduates from the region with adverse spin off effects on the local and regional economy.

Key Economic Development Issues Emerging

Discussions with stakeholders within the region, and the analysis of available statistics, have emphasised the need to:

- a) Attract more high value foreign investment into the region;

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- b) Support the development of indigenous industry with identified growth potential across a range of sectors;
 - c) Improve access to and within the region; and
 - d) Exploit the high quality of life to be found in the region.

Underpinning this analysis is a growing recognition of the potential that a stronger higher education sector within the region can have. This view is reinforced by existing EU and national education policy and in worldwide research which highlights the growing role of universities in national and economic development.

Given the growth in demand for higher education and the increasing recognition of the importance of education in both transforming Ireland into a knowledge economy, and in stimulating regional development, the potential for the Institute to play a key role in the further development of the regional economy is substantial, but only if it is adequately and appropriately resourced.

A University of the South-East

The creation of a university of the South-East has the potential to play a key role in addressing the economic deficits identified above and in stimulating the growth of the region. A university within the South-East would:

- Raise the participation rate at university in the region;
- Improve the quality of the workforce thus supporting the development of indigenous industry;
- Help attract increased foreign investment;
- Ensure the availability within the region of top class graduates across a wide range of disciplines;
- Access the resources necessary to enhance the R&D capability of the region, in collaboration with local employers and business interests, leading to the enhancement of local innovation capability and new product and process development;
- Increase research output within the region and increase linkages with the modern industrial sector that the region needs to attract;
- Respond to regional skill and R&D needs;
- Facilitate the development of strategic alliances with other academic institutions and with leading industries;
- Create an economic spin-off that would enhance the scale and diversity of service sector activities available in the region;
- Increase the socio-economic position of Waterford City and the region and improve its social and cultural attractiveness;

- Raise the income of the region through the attraction of an increasing number of top class students, research staff and researchers, plus an increasing number of post graduates and fourth level activity, from within the region and within the wider economy, as well as from abroad; and
- Raise income and create significant numbers of additional jobs both directly and indirectly, estimated at over 700 jobs and €32 million of regional GVA under our growth scenario.

A university could thus kick start a positive cycle of growth for the region with significant long-term and sustainable benefits to the regional economy.

What a University will Bring

A University of the South-East will ensure that:

- Long term core funding for R&D and for related capital development is available;
- Funding levels per student are sufficiently high to attract a wide range and level of students to study within the region, including fourth level (i.e. doctorate and post doctorate and related research) and to ensure that leakage of undergraduates and post graduate students to other regions is reduced;
- Staff of the highest quality are attracted to the region who in turn are involved in the highest level of academic research, attracting a wide range of funding, as well as engaging in a range of R&D and innovative activities with local employers and industry leaders in their field;
- Sufficient resources are available to foster strong links with industry and to support the creation and development of clusters of economic activity within the region that have the potential to raise the value added of existing industry, and to entice other foreign investment into the region;
- The range and quality of provision and related support structures is such that a high number of international students are attracted to the area; and
- The university is seen as a centre of innovation within the region and as a key partner with industry and other stakeholders in the development of the region's economy.

The creation of a University of the South-East requires a strategic decision on behalf of government to:

- a) Adopt a concerted strategy to increase the prosperity of the region;
- b) Develop and implement a co-ordinated higher education strategy for the region that recognises the key role that a university can play in regional development and prosperity; and
- c) Back this up by the necessary financial and human resources.

Conclusions

Key conclusions emerging from the study are that:

- The South-East region has under performed relative to other regions over the 1990s, particularly the West, and significant additional investment in the region is required if the South-East is to participate fully in national economic growth.
- This under investment is reflected in comparatively low-income levels, low levels of employment in high tech sectors and in business services, as well as in relatively low educational qualifications among the population of the region.
- However, the region also possesses a range of resource advantages in terms of its location on the Eastern seaboard, and its quality of life. There are signs that investment levels have been increasing in the first years of this decade and that a number of structural weaknesses are being addressed.
- One of the key areas of remaining weakness relates to the low level of investment in higher education within the region.
- This weakness is particularly significant in the context of the knowledge economy, which Ireland is striving to become. The attainment of such a knowledge economy is now a key policy goal at EU, national and regional level.
- The presence of a university has been shown internationally to play a vital role in the development of regional economies - both directly and indirectly.
- The development of a university within the South-East region is a key policy objective for the region.
- Such a development should be a key government initiative aimed at enhancing the region's potential as a location for international investment, for the development of innovative indigenous industry and for the injection of much needed resources into the region.
- The role and resources that a university would bring to the region would lead to the creation of over 700 jobs within the region over the next five years and would generate an additional €32 million within the local and regional economy.
- The establishment of university within the South-East region should be undertaken in the context of developing a competitive city within the region that can effectively compete with other regional centres and can act as a counter balance to the national capital.

Recommendations

We recommend that Waterford should be the location for the proposed university for the following reasons:

- The Waterford Institute of Technology is one of the leading Institutes of Technology in the country;
- The Waterford Institute of Technology is the largest Institute of Technology within the region and has already achieved many of the characteristics of a university, but is constrained by lack of resources within an IT framework to reach its full potential;
- Waterford is the regional Gateway city under the National Spatial Strategy and is the largest gateway location without such an institution;
- Waterford is the largest city in the region; and
- Waterford has the potential to attract the level and type of resources that can make it a competitive city both nationally and internationally.

1. Introduction

The South-East region is falling behind other regions of the State in terms of economic status. The latest data from the CSO indicate that per capita incomes in the region are 89.5 per cent of the national average (2002). Only the Border region has a lower per capita income. The position of the South-East region is the result of two factors. Firstly, productivity growth has been relatively low in the region, as a result *inter alia* of its failure to attract inward investment on the scale of other regions. Secondly, central Government transfers to the region have been lower than those afforded other regions such as the Border region.

These key facts imply both that corrective action is needed to get the South-East to raise productivity levels and get back on track economically and that the region is deserving of more State support in making this transition.

A number of areas requiring further state capital investment have been identified, particularly the need to improve access to and within the region, and are currently being addressed. One key area identified by the Waterford Chamber of Commerce among others is the need for a university level institution within the South-East region.

Waterford Chamber of Commerce therefore commissioned Goodbody Economic Consultants to undertake a study to:

- Establish the current economic performance of South-East region and identify where action is needed;
- Set out the role of third level institutions in enhancing national and regional economic performance;
- Review the international literature to illustrate the impact of universities on their regions, both direct and indirect;
- Estimate the current and potential future impact of a university on the region under a number of scenarios; and
- Illustrate the impact that a university on the region, both directly and indirectly.

Section 2 of this study presents an overview of the economy of the South-East region, highlighting how the region has fallen behind relative to other regions of the country, particularly the West region. Sections 3 draws on the national and international literature to show how universities contribute to both national and regional economic development in the context of the knowledge economy. Section 4 presents international case studies which illustrate the type and level of economic impact that universities can have on their local economy, both directly and indirectly. Section 5 calculates the economic impact of a university on the region, The report concludes by calling for a university of the South-East as a key element of a new government strategy to significantly improve the economic performance of the region in the years to come.

2. Economic Status of the South-East Region

2.1 Introduction

There would be a widespread perception among the general public that the South-East region is one of the more prosperous regions in the State. This no doubt derives from a view that the region enjoys a number of natural advantages including:

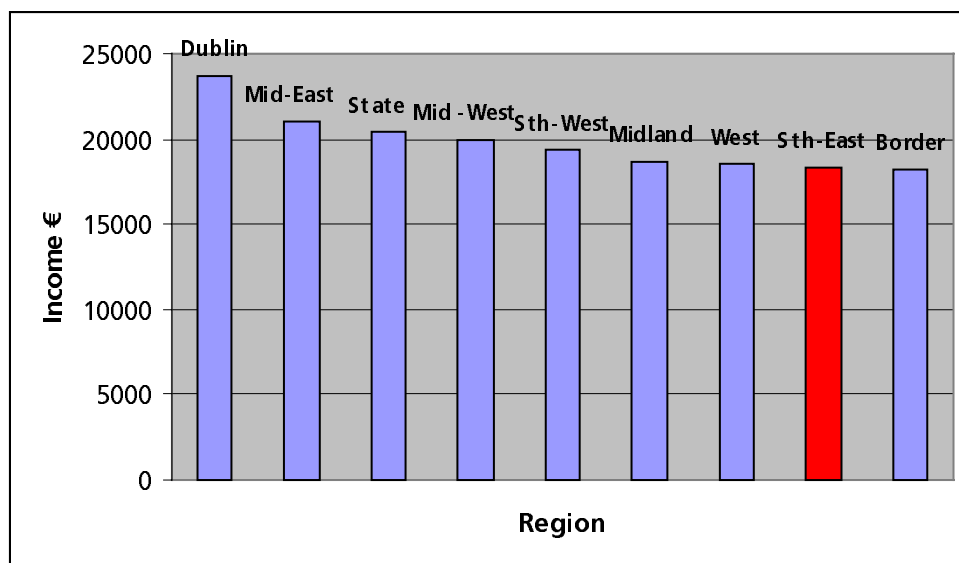
- Proximity to the major urban centres of Dublin and Cork;
- A good location close to British and Continental European markets;
- A well developed port infrastructure that facilitates exports to such markets;
- High quality agricultural land and a strong agricultural base; and
- A high quality physical environment.

The reality, however, is very different and this Section of the report analyses the true picture with regard to the current economic standing of the region.

2.2 The Relative Income of the Region is Low and in Decline

Income per capita is a good measure of the economic status of a region. Figure 2.1 depicts the position of the region relative to both the national average and other regions in terms of income per capita in 2002. This shows that per capita income in the region was €18,312 or more than 10 per cent below the State average of €20,467. In contrast, per capita income in Dublin at €23,725 is 16 per cent above the State average. Most worryingly of all, per capita income in the region is the second lowest in the State, with only the Border region having a lower level. Thus, the real economic performance of the region is very much different to the common perception.

Figure 2.1: Income per capita by Region, 2002

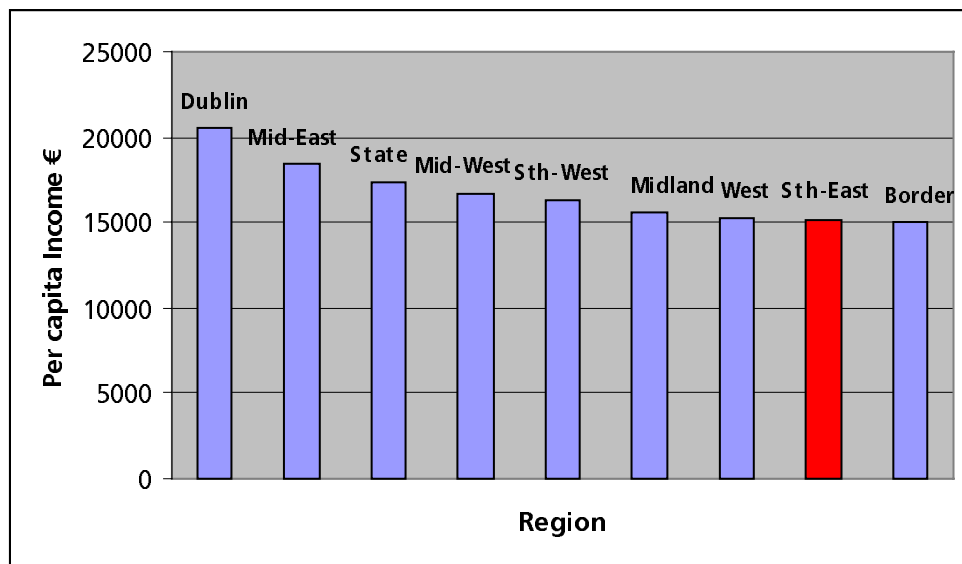


Source: CSO

2.3 Low Regional Income Reflects a Poor Underlying Economic Performance

Total income comprises the income earned by individuals together with income transfers received from Central Government. The region's income performance could thus be poor, if it received a relatively low level of current transfers from Central Government. If Central Government transfers are omitted from the analysis, the relative performance of the region can be examined in terms of earned or primary income. Figure 2.2 presents the results. Primary income per capita in the region is €15,167 or 13 per cent below the State average. Thus, viewed in terms of income exclusive of Central Government transfers the region performs even more poorly. This is not because the region benefits to a greater extent than others do from such transfers: at €3,349 per capita transfers to the region are similar to that for other regions. These results suggest that the poor income performance of the South-East reflects a poor underlying economic performance. The next sections explore the reasons for the low economic status of the region and for its continuing decline.

Figure 2.2: The Ratio of Primary Income per Capita in the South-East to that of the State, 2002



2.4 The Region has a High Level of Economic Inactivity

As income per capita is measured over the population as a whole, regions with a large proportion of children and older people tend to have a lower per capita income *ceteris paribus*. This is because the economically active proportion of the population is low and the income that they produce is divided by a much larger total population. However, this is not an explanation for the poor performance of the region: 69 per cent of the population of the region are in the age group 15 to 65, which is almost identical to that for the State as a whole (70 per cent).

However, the region *is* different in the extent to which the population of active age actually participates in paid employment. The key statistic here is the numbers unemployed and on home duties, as these represent the maximum extent of resources that could come into paid employment and thus contribute to regional income. Table 2.1 below indicates that the region has above average level of 'unused' resources, amounting to one in five persons over 15 years of age. This suggests that the region suffers from a lack of sufficient demand to entice elements of the labour force into paid employment. The reasons why there may be such a lack of demand are explored below. However, it is also clear that the difference between the region and the State average in this regard is not sufficiently large as to fully explain its poor performance.

2.5 Earnings are Low Among the Economically Active

The other possibility is that persons *in employment* in the region are earning less than their counterparts elsewhere in the State. Table 2.2 presents figures for earned income per person at work. This shows that average earnings in the region are 11 per cent below the State average, and are in fact the second lowest in the State. The overall conclusion is that average incomes per person in the region reflect both lower employment levels, and lower earnings for those at work.

Table 2.1: Persons Unemployed and on Home Duties, 2002

Region	Numbers Unemployed and on Home Duties	Proportion of Persons over 15 Years Unemployed or on Home duties (%)
Border	70,370	21.0
Midland	35,412	20.4
West	56,725	18.9
Dublin	151,846	16.7
Mid-East	58,335	18.4
Mid-West	49,439	18.5
South-West	87,971	19.1
South-East	67,087	20.3
State	577,185	18.7

Refers to person over 15 years of age.
Source: Based on CSO data

Table 2.2: Earned Income per Person at Work by Region, 2002

Region	Earned Income per Capita, 2002 €	Index Value (State = 100)
Border	34,462	96.5
Midland	33,299	93.2
West	31,365	87.8
Dublin	37,245	104.3
Mid-East	35,706	99.9
Mid-West	34,502	95.9
South-West	34,240	95.8
South-East	31,778	89.0
State	35,725	100.0

Source: CSO

2.6 There is an Excessive Reliance on Poorly Paid Self Employment

Persons in employment are either self-employed or employees. Table 2.3 presents data on the average earnings of these two groups. This shows that average earnings from self-employment in the region are the lowest of any region and are almost 16 per cent below the State average. This is not attributable to higher levels of engagement in agriculture in the region, as the proportions of persons employed in agriculture is similar to regions other than Dublin. The data also shows that the Region has one of the highest proportions of persons in self-employment. High levels of self-employment and poor earning of self-employed persons suggest structural weaknesses in the region's economy and raises question marks about the educational and skills profile of the self-employed workforce.

The next Section of this paper examines in turn both the structure of the regional economy and the educational profile of its workforce.

Table 2.3: Earned Income of Self-employed Person and Employees, 2002

Region	Earned Income per Self-Employed Person	Index Value	Earned Income per Employee	Index Value
	€	(State = 100)	€	(State = 100)
Border	34,274	92.8	34,842	100.5
Midland	30,305	82.0	35,013	101.0
West	29,419	79.6	32,403	93.4
Dublin	51,339	138.9	35,592	102.6
Mid-East	37,104	100.4	35,777	103.2
Mid-West	32,877	89.0	35,262	101.7
South-West	36,768	99.5	34,002	98.1
South-East	31,199	84.4	32,469	93.6
State	36,952	100.0	34,675	100.0

Source: CSO

2.7 The Region has a Relatively Archaic Economic Structure

One of the features of advanced economies is a high level of employment in the services sector. Over time as economies grow, the proportion of employment (and output) arising in the services sector grows relative to that in manufacturing. There are a number of reasons for this phenomenon: more complex manufacturing processes require less labour but greater service supports; there is greater outsourcing of services that were previously provided in-house; and growth in incomes gives rise to increased demand for personal services. Table 2.4 presents data on the ratio of service sector employment to manufacturing employment in each region. Once again, the South-East region fares poorly having a service sector employment only 3.1 times that of manufacturing. This may be contrasted with a ratio of 6.9 for Dublin and 4.0 for the Mid-East.

This is a relatively archaic economic structure reflecting the failure of the region to attract modern high tech manufacturing and generate sufficient income levels to support demand for personal services.

Table 2.4: Ratio of Employment in Services to Manufacturing by Region, 2002

Region	Employment in Services No.	Employment in Manufacturing No.	Ratio of Services to Manufacturing
Border	94,208	28,485	3.3
Midland	50,025	14,552	3.4
West	87,250	23,176	3.8
Dublin	374,086	54,412	6.9
Mid-East	111,591	28,073	4.0
Mid-West	80,621	26,490	3.0
South-West	139,995	38,611	3.6
South-East	93,489	30,404	3.1
State	1,031,283	244,204	4.2

Source: CSO

The failure of the region to attract high growth and high-tech industries is difficult to illustrate statistically. The high tech or 'modern' sector includes the following manufacturing sub sectors:²

- Reproduction of recorded media;
- Chemicals (incl. man-made fibres);
- Computers and instrument engineering; and
- Electrical machinery and equipment.

However, statistics on manufacturing rarely identify these sectors separately. Rather they are embedded in other categories: for example, recorded media is often included with paper production and publishing.

² As defined by the CSO

There are some data, which, while not precise, do suggest that the region performs poorly in attracting these industries. Table 2.5 shows employment numbers among exporting firms in three sectors that would tend to broadly correspond with the modern sector. In the South-East these three sectors account for 30.4 per cent of total manufacturing employment – significantly below the national average of 38.4 per cent.

Table 2.5: Regional and National Employment in Modern Export and non-Modern Sectors, 2002

Indicator	South-East	Proportion (%)	State	Proportion (%)
Employment in: Chemicals, chemical products and man-made fibres	2,246	7.4	23,563	9.6
Machinery and equipment	2,810	9.2	12,275	5.0
Electrical and optical equipment	4,193	13.8	55,614	22.8
Total in modern export sector	9,249	30.4	93,808	38.4
Total in non-modern sectors	21,155	69.5	150,396	61.6
Total Manufacturing Employment	30,404	100.0	244,204	100.0

Source: CSO

2.8 The Region is Failing to Attract Sufficient Inward Investment and Tourism

The analysis presented above suggests that the region is suffering both from a deficiency of demand and a poor underlying economic structure, in terms both of inadequate service sector activity and lack of a modern industrial base.

Inward investment is a means of both injecting additional demand in the region and changing its industrial structure. Tourism growth also adds to regional demand levels and promotes the growth of service sector activities.

Table 2.6: Employment in IDA Assisted Firms by Region, 2002

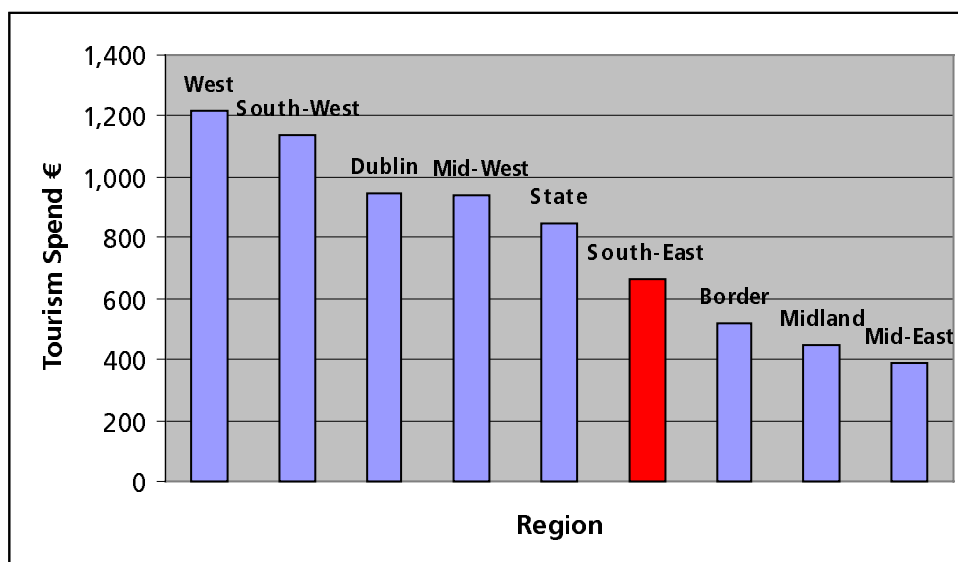
Region	Employment in IDA Assisted Firms	Total Employment	Proportion of Total (%)
Border	10,045	32,974	30.5
Midland	5,666	16,760	33.8
West	11,798	26,833	44.0
Dublin and Mid-East	62,170	128,282	48.5
Mid-West	11,880	30,159	39.4
South-West	19,565	45,292	43.2
South-East	10,880	34,731	31.3
State	132,004	315,041	41.9

Note: Data refer to employment in manufacturing and financial services

Table 2.6 presents data on employment in IDA assisted firms by region. The figures refer to employment in manufacturing and financial services in 2002. The South-East region is seen to have the lowest level of inward investment, measured as a proportion of total employment.

Turning to tourism, Figure 2.3 presents information on spending by overseas tourists by region. The South-East region ranks fifth out of the eight regions in terms of spend per capita. However, at €644 per head of the population, tourism spend in the region is only half that of spending in the West region. This must be regarded as a poor performance, given the natural attractions of the region.

Figure 2.3: Overseas Tourism Revenue per head of the Population by Region, 2003



2.9 The Quality and Location of the Labour Force are Key to the Region's Poor Performance

The above analysis suggests that the region has suffered from both a lack of demand and a failure to adapt its manufacturing base to modern needs. This has led to under-utilised labour resources, high levels of self-employment and low levels of pay. Because income levels are relatively low, demand for personal services is correspondingly weak, which has exacerbated the problems. The South-East is unique in that its economic position relative to other regions has weakened considerably in the last decade. If other regions have reaped the benefits of the Celtic Tiger period, it is important to understand why the South-East has not.

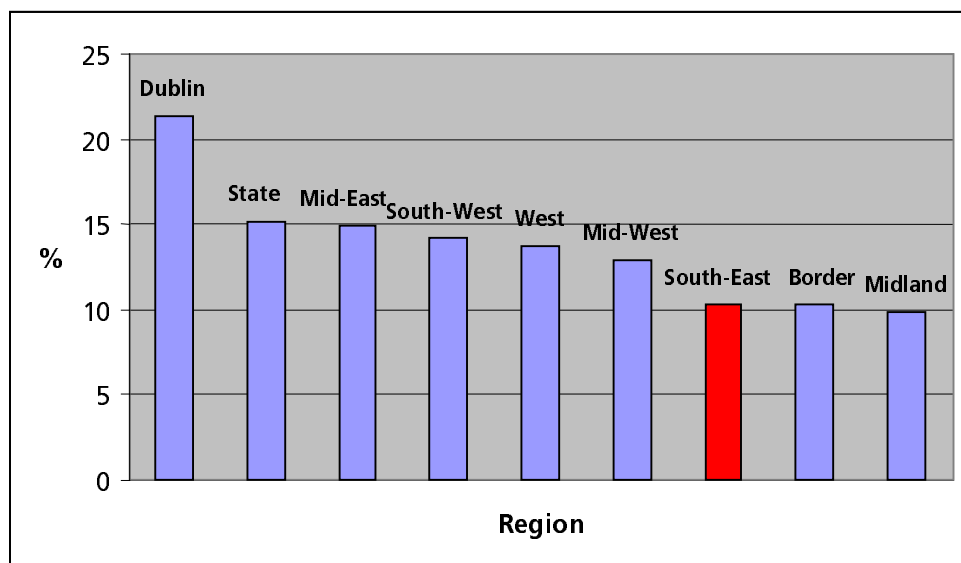
A full explanation of the lack of regional success is outside the scope of this study. However, as one of the main drivers of the Celtic Tiger success has been inward investment, a key question must be: why has the region not been more successful in attracting sufficient inward investment to change its industrial structure and improve average pay levels?

Given that the region is not peripheral and transport and communications infrastructures, while far from ideal, are not particularly inferior to other regions, the labour force in the region deserves particular scrutiny.

It is clear from the above that it is not a lack of labour supply that is hindering development: there are under-utilised resources. However, modern industry demands the availability of a highly educated and skilled workforce. Moreover, scale of individual inward investment projects has tended to increase in recent years, so that the size of the available labour force pool is also important.

With regard to educational attainment, Figure 2.4 shows the performance of the regions in terms of the proportion of the population whose full time education has ceased that have a third level degree. The South-East is again a poor performer with only 10.3 per cent achieving third level degree or higher. This is the second lowest level after the Midlands region (9.9 per cent) and well below the average for the State (15.1 per cent).

Figure 2.4: Proportion of the Population with Degree or Higher Qualification, 2002



Source: CSO

There is always the possibility that the above figures are influenced by migration of graduates between regions. Accordingly, a more telling statistic is the proportion of school leavers that progress to university. Table 2.7 presents data on the rates of admission to universities by region. This is measured by the number of persons entering university per person in the appropriate age cohort.

The table indicates that the South-East has a low rate of admissions to university that is below the national average. As the data refer to entry to universities in the Republic of Ireland, the admission rates for the Border region are biased downwards. As a result, it is safe to conclude that only the Midlands region has as lower rate than the South-East.

The study on which the admission rates are based identified the factors determining admission rates by county. The study concluded that “there is a strong negative correlation between distance from a university and the rate of admission for both males and females to the university sector.” Interestingly, the same study indicated that distance from an Institute of Technology was not a factor influencing rates of admission to those institutions. The conclusion is that the poor educational status of the South-East is due to lower levels of entry to university, and that the absence of a university in the South-East is a major factor in bringing this about. At the same time, the existence of a number of Institutes of Technology does not increase the proportion of persons attending such institutes, as local availability has been found not to influence admission rates to these institutions.

Table 2.7: Admission Rates to University, 1998

Region	Rate of Admission
Border	0.133
Midland	0.156
West	0.227
Dublin	0.185
Mid-East	0.180
Mid-West	0.243
South-West	0.249
South-East	0.169
State	0.195

Source: Derived from College Entry in focus: A Fourth National Survey of Access to higher Education. P.Clancy. HEA,2001.

As well as low admission rates, the region suffers because those taking up university courses must take up residence outside the region. This has an impact on the economic life of the region, as many of these graduates may not return to live in the region.

Table 2.8 shows that only 5.6 per cent of year 2002 graduates from higher education were employed in the South-East, compared to 8.6 per cent in the West. Of those with a post graduate degree, only 3.2 per cent of PhD graduates are employed in the South-East compared to 8.14 per cent in the West, again in the year 2002.

Table 2.8: Graduates in Employment in Ireland by Region, 2002

Region	Bachelor %	Masters Taught %	Masters Research %	Doctorate %
North West & Donegal	2.45	2.28	0.00	0.90
West	8.58	6.75	15.71	8.14
Mid West	7.34	4.78	5.71	11.31
South West	11.49	10.77	13.57	11.76
South-East	5.55	3.34	9.29	3.17
East	55.52	65.10	44.29	60.63
North East	2.04	1.75	1.43	0.45
Midlands	3.38	2.05	5.71	0.90
Northern Ireland	0.90	0.76	0.00	0.00
Unknown Ireland	2.75	2.43	4.29	2.71
Totals	100	100	100	100

Source HEA, 2000

Looking at the location of employment of graduates in 2000 by region of origin (Table 2.9) shows that 56 per cent of graduates from the South-East were in employment in the South-East region, compared to 74 per cent of graduates from the West region. Comparative figures for the South-West are 81 per cent.

Table 2.9: Location of Employment, 2000

Region of Employment	Origin of Graduates %
North West & Donegal	61.7
West	74.0
Mid West	58.4
South West	80.5
South-East	55.8
East	90.5
North East	40.9
Midlands	37.5

Source HEA, 2000

These figures show the “brain drain” which arises from a combination of poor local access to universities plus the lack of suitable employment locally for graduates.

A further indication of the scale of this impact may be gleaned from Table 2.10, which follows the numbers of people in the 15-19 years age group in 1991 over the period 1991-2002. This shows that for the State as a whole, there was a 6.7 per cent net loss from this cohort by 2002. For the South-East, however, the equivalent figure was a 17.6 per cent loss. This may be contrasted with the West region, which performed better than the State as a whole, with a 6.4 per cent loss.

These data show a tendency for the region to suffer a loss of population among post Leaving Certificate age group, which is not made good in later years. This has serious implications for the future population level and age structure of the region. The CSO has made projections of regional populations over the long term. Table 2.11 encapsulates the CSO projections. These show a long-term population decline and a significant increase in the dependency ratio (ratio of young and old dependants to the total population). As the dependency ratio increases, per capita income in the region will decline *ceteris paribus*.

Table 2.10: Retention of the 1991 15-19 Years Age Cohort

Cohort	South-East Region		West Region		State	
	Numbers	Index	Numbers	Index	Numbers	Index
15-19 years in 1991	35,966	100.0	27,812	100.0	335,026	100.0
20-24 years in 1996	27,990	77.8	25,979	93.4	293,354	87.6
25-29 years in 2002	29,646	82.4	26,244	94.4	259,045	93.3

Source: Derived from CSO statistics

Note: the figures refer to the population in each age category in each year. They thus include the impacts of net migration and deaths as well as the retention rate of the initial 1991 population.

Table 2.11: Long Term Population Projections

Year	South-East Region		West Region	
	Population (000's)	Depend-ency Ratio (%)	Population (000's)	Depend-ency Ratio(%)
2001	402.4	52.3	368.9	52.5
2021	410.3	54.5	419.5	54.7
2031	394.3	62.1	428.7	56.5

Source: CSO

2.10 The Lack of a Dominant Urban Centre is a Disadvantage

The scale of the available labour pool is also important. The South-East region is notable in that while there is a significant level of urbanisation, it is dispersed among a number of urban centres. This is of relevance as there is a broad correlation between large urban areas and regional economic growth.

Table 2.12: Proportion of Population in the Principal Urban Area

Region	Proportion (%)	Primary Income per Capita (€)
Border	7.5	14,984
Midland	7.1	15,618
West	17.4	15,255
Dublin	89.5	20,510
Mid-East	7.5	18,482
Mid-West	25.6	16,629
South-West	32.1	16,269
South-East	11.0	15,167
National		17,357

Source: CSO

Table 2.10 sets out the proportion of the population in each region that resides in the principal urban area together with the primary income per capita in the region. This indicates a close correlation between urban concentration and economic success. The exception is the mid east region; however, that the economic performance of that region is undoubtedly due to the attraction of the Dublin region as a venue for economic activity. This places renewed emphasis on the Gateway status of Waterford and the need for initiatives to enhance both the perception of the city as a locus for economic activity and the scale and quality of the labour force in the city and its environs.

2.11 South-East Regional Performance and Prospects Compare Poorly with the West Region

The analysis presented above is remarkable particularly in respect of the performance of the South-East region relative to the West region. Table 2.11 summarises a number of comparative indicators. It may be seen that despite the fact that the West region is situated within the BMW region, the economic performance of the South-East is very much inferior across a range of indicators.

Table 2.13: The South-East and West Regions Compared

Indicator	South-East	West	Relative Disadvantage of the South-East (%)
Ratio of Services to Manufacturing Employment (2002)	3.1	3.8	-19.5
Proportion of Employment in IDA Firms (2002) %	31.3	44.0	-28.9
Overseas Tourism Revenue per Head of Population (2003) €	664	1,214	-45.3
Proportion of the Population with Degree (2002) %	10.3	13.7	-24.8
Per Capita Admission Rates to University	0.169	0.227	-25.6

Source: CSO

2.12 The Overall Diagnosis is Clear

The above analysis suggests the following:

- The economic performance of the South-East region has been poor relative to other regions;
- The region has been in relative decline over the past decade;
- It has not benefited from the economic growth of the Celtic Tiger years to the same extent as other regions;
- On a range of performance indicators, the region's economic position is worse than those of the BMW regions that are currently the focus of Government regional policy;
- The reason the region lags behind is that there are both under utilised labour resources and those in work have relatively low earnings levels.
- This is due to both demand and supply-side problems in the region;
- On the demand side, the region is failing to attract sufficient firms in the modern industrial sector;
- This is both reducing the demand for labour and contributing to a lack of high level and high paid jobs;

- Similarly, the region is failing to fully exploit its tourism potential, reducing the demand for service sector jobs;
- Because earnings are relatively low, discretionary incomes are low, and the demand for services is further restricted.
- On the supply side, the quality of the labour force is poor with a relatively small proportion of the labour force having third level qualifications or greater;
- This is an ongoing problem, as admission rates to university from among the population of the region are low, as are rates of graduate employment; and
- Another supply-side problem is the small scale of labour markets within the region, due to the lack of a dominant urban centre.

2.13 The Situation Can Be Remedied

The above analysis should not provoke despair. There are signs that the performance of the region is improving to some degree. For example, employment in IDA assisted firms rose significantly in 2003, at a time when it was declining in much of the rest of the country. There is evidence, too, that the region is benefiting from a migration of industry from the Dublin region.

There is, thus, no reason why the region, given the introduction of appropriate economic policies, cannot recover its former economic position relatively quickly, especially as wages are currently relatively low in the region. As was stated at the outset, the region has a number of natural advantages on which to base an economic recovery. Both demand-side and supply-side actions are needed. On the demand side, there is a need for an injection of income into the region. This can come from only three sources:

- Government spending;
- Inward investment by the private sector; and
- Increased spending from overseas tourists.

On the supply side, there is a need to:

- Improve the quality of the labour force; and
- Increase the scale of local labour markets.

There are a number of initiatives that would contribute to both demand and supply side needs:

- The Government should recognise that the region should receive the same priority that is accorded to the BMW regions, and allocate additional resources to the development of economic and social infrastructure in the region.
- The focus of additional Government investment should be on the economic and social infrastructure that would make the region attractive to inward investment and would assist the region in becoming a key player in the development of the knowledge economy and the 'learning region'.

- There should be a particular focus on economic and social investment in Waterford City and environs to help create a large scale and sophisticated labour market
- The quality of the labour force needs to be improved through increased education to third level degree and above. This will require an enhancement of the role of Waterford Institute of Technology.

In particular the Government should facilitate the development of a university within the South-East region as a means of kick starting the resurgence of the economy of the region.

In the following chapters of the report we examine the role of universities in the modern economy, both at national and regional level, and highlight the direct and indirect benefits of universities in stimulating the development of knowledge economies and in enhancing the economic potential of individual regions. We then demonstrate the type of impact that could arise from the creation of a university within the South-East region.

3. The Role of Higher Education in Economic Development- Implications for the South-East Region

3.1 Introduction

In this chapter of the report we draw on the international literature to address the following issues:

- Why higher education is so important for economic development;
- The specific role of higher education in economic development;
- The current position in Ireland;
- Why the regional dimension is so important;
- The role of the university in stimulating regional innovation;
- The role of the university in regional indigenous development;
- The role of the competitive city in the development of the region;
- How to optimise the regional development role of higher education; and
- Implications for the South-East region.

3.2 Why Higher Education is so Important for Economic Development

The creation of a knowledge society and economy is a key objective of the European Union. This reflects the growing realisation that the key to continuing economic growth and international competitiveness in Europe is the development and application of knowledge.

The role of universities³ in the knowledge economy (CEC 2003) is

- The production of knowledge, mainly through scientific research;
- Its transmission through education and training;
- Its dissemination through the information and communication technologies; and
- Its use in technological innovation.

As part of the wider EU objective of becoming the world's most competitive and dynamic knowledge-based economy and society, a key strategic objective of Irish economic policy is to place the country's higher education system in the top rank of the OECD in terms of both quality and levels of participation, and to create a world class research, development and innovation capacity and infrastructure in Ireland as agreed in Lisbon (2000).

The Department of Education and Science in its submission to the OECD review reinforces this commitment stating that:

³ The term "universities" is taken to mean all higher education establishments.

“Education, skills, research and innovation are the by-words for success in the new economic era. This demands a deepened connectedness between higher education policy and national development needs. The challenges of continuing competitiveness in the knowledge economy, the provision of a balance of higher education learning opportunities and the need to support regional spatial development objectives are key factors in the future development of the overall sector.”

These views are reinforced in the Bologna Declaration by the European Ministers of Education (June 1999) which stated that the mission of EU universities is to:

- Educate ever-larger numbers of young, and not so young, people across Europe for active citizenship and employment;
- Build links with all types of stakeholders: economic, social and cultural, thus ensuring their willingness to listen and respond to the various needs of society;
- Transmit knowledge, and take responsibility for the creation of a major part of new knowledge, so important for the well-being of citizens, and for fostering economic growth and regional development; and
- Ensure the training of researchers, and preserve the commitment to teaching and research across Europe, providing a guarantee of geographically balanced economic, cultural and social development.

Thus, universities as centres of higher education are increasingly expected not only to provide education services and to link in with the wider economy and society, but also to create new knowledge and to train the researchers of the future.

Table 3.1 spells out the breath of connectedness between higher education institutions and business.

Table 3.1: Taxonomy of Kinds of Relationships between Tertiary Education and Business

Innovation	
Education	Business
Knowledge production and transfer of knowledge	<ul style="list-style-type: none"> • Formal research collaboration • Links to global technological and scientific networks • Take up of patents & licences • Published papers – joint academic industry articles • Contract research • Specialisation in new technologies and leadership of new industries
Technological applications of research, expertise and in-house facilities	<ul style="list-style-type: none"> • Testing services, e.g. carbon dating, equipment testing • Prospects of application e.g. X-rays, lasers • Engineering design tools and techniques – including modelling, simulation and theoretical prediction • Production and process development • Instrumentation • Prototype development • Consultancy services • Testing • Contract research
SME support	
Entrepreneurial Culture, Entrepreneurship and Cluster Development	
Education	Business
Entrepreneurship Buildings	<ul style="list-style-type: none"> • Spin-offs • Incubators • Cluster focused technical assistance • Network facilitators, developing academic and non-academic networks • Mentoring services • Place marketing and development, promoting brand image, organisation of showcase events
	• Science parks
Human Capital	
Education	Business
Recruitment Training Vocational Public access to knowledge	<ul style="list-style-type: none"> • Recruitment of graduated undergraduate and post graduate students • Vocational courses – technical and teaching e.g. technicians training • Placement schemes • Continuing professional development and extension programmes • Public lectures and public access to libraries, museums, galleries and sporting facilities
Direct Multiplier Effects	
Education	Business
	<ul style="list-style-type: none"> • Staff, student and visitor spending • Purchase of goods and services • Contribution to tourism • Support for inward investment
Governance	
Education	Business
Engagement in decision-making processes	<ul style="list-style-type: none"> • Economic • Sustainability • Contribution to the quality of the built environment • Contribution to property-led urban regeneration • Provision of student accommodation • Effects on parking and traffic problems • Other land use issues
Contribution to sustainable development	<ul style="list-style-type: none"> • Cultural • Transport

Source: Patel 2002, Glasson 2003

To achieve this role it is necessary to:

- Ensure that universities have sufficient and sustainable resources and use them efficiently;
- Consolidate and expand their excellence in research and in teaching, particularly through networking; and
- Open up universities to a greater extent to the outside world and increase their international attractiveness (CEC 2003).

3.3 The Specific Role of Higher Education in Economic Development

Centres of higher education are expected to play an increasingly complex role in modern economies. They are expected to:

- Increase participation levels, particularly among groups currently underrepresented in the sector, socio-economic groups, mature students;
- Increase the quality of such provision as part of a European drive to develop Europe as the world's most competitive and dynamic knowledge based economy;
- Create a world class research, development and innovation capacity and infrastructure, in co operation with other stakeholders;
- Compete on an increasingly international environment for students, staff and other resources;
- Interface with business on a local, regional and national basis; and
- Provide an environment conducive to life long learning.

As the OECD stated, institutions in the higher education sector must now play a role as *"centres of education, knowledge and research in respect of their public, social and economic responsibilities"*. (OECD, 2004)

The recent Forfas Enterprise Strategy Group Report – Ahead of the Curve, Ireland's Place in Global Economy (2004) has also highlighted the importance of the education sector in supporting the knowledge economy. They stated that:

"An adaptive and responsive higher education sector is necessary to create and exploit knowledge and to produce the number and quality of graduates necessary to support the knowledge economy. Investment in higher education and research is essential to generate the intellectual capital required to fuel an innovation-driven economy. The numbers entering higher education should be maximised".

This they go on to say requires all higher education institutions to:

- Respond to changes in the global market, demands for skills and advances in knowledge;
- Be flexible and adaptive to the needs of students and enterprise;
- Be creative and innovative in delivery methods;
- Support high levels of participation in lifelong learning;
- Be innovative in exploiting the commercialisation of research; and
- Facilitate the mobility of staff in both directions between academia and enterprise.

3.4 The Current Position in Ireland

The OECD report (2004) identifies a number of weaknesses in the Irish Higher Education sector at present. These include:

- The overall research environment not being adequate to support the achievement of research of international quality in the range of fields necessary to promote the economic development that Ireland is looking for;
- The relatively low level of post graduates students required to drive the knowledge based economy;
- The relatively low level of international post graduates students studying in Ireland;
- The low level of autonomy accorded to Institutes of Technology; and
- The relatively low level of investment in the Higher Education sector and the uncertainty of future funding.

The HEA submission to the OECD review spells out these weaknesses further. They state that:

- Performance in Irish higher education in certain critical areas, including graduation rates at both degree and post-graduate level is some way below best international performance;
- The funding of Irish higher education is below that in many OECD countries;
- Ireland has traditionally under-invested in research, and despite the recent welcome investment provided for under the National Development Plan, at a rate of 1.17 per cent (2001 figures) of GDP we still lag well behind leading OECD performers, and are far short of the EU target of spending 3 per cent of GDP on research and development by 2010;
- We have a relatively large number of institutions for a small country; although there is growing evidence of a collaborative approach in research and development, there are concerns that there is inadequate collaboration among institutions in key areas of teaching and learning, student transfer and progression;
- There are concerns that the institutions have not adequately put in place structures to fully realise their contribution to society (e.g. in terms of technology transfer, development of life-long learning); and
- There are perceptions that the higher education sector is not sufficiently accountable or responsive to the needs of Irish society.

Within the Irish higher education sector questions thus remain about the quality and responsiveness of the sector and about the extent to which it is playing its full role in the knowledge economy, internationally, nationally and regionally.

The Irish tertiary education is thus seen to be at a crossroads. There is now an increasingly urgent requirement for Irish tertiary education and research, in partnership with innovative enterprises and other stakeholders, to become the new drivers of economic development and of the country's international competitiveness.

3.5 Why the Regional Dimension is so Important

Modern development theory increasingly recognises the role of the region in creating the knowledge economy. For instance, the European Commission report on the regional dimension of the European research agenda emphasises the importance of the spatial element in the innovation process, particularly in the development of clusters of economic activity which are key elements of economic competitiveness. They state that:

“Geographical proximity remains one of the most powerful factors in favour of intellectual, commercial and financial exchanges, heavily influencing the innovation process. In this sense regions are important because they form the spatial basis of groupings of research and innovation operators which have come to be known as “clusters”, often considered as the main drivers of regional development”. (CEC 2001)

Such clusters are formed by groups of innovative enterprises, academic and research institutions, local development agencies and other supporting organisations. Their interaction flow patterns vary, representing knowledge transfer, financial transactions or simply, increased personal contacts. In such a case, knowledge “spillovers” become ultimately the most important cluster “by-products”. Research and technological development lie at the heart of such knowledge spillovers and form part of the key components of successful regional clusters. (CEC 2001)

Higher Education institutions are increasingly seen as having a crucial role in the development of such clusters, particularly in areas with a dependence on SMEs and where regional development depends to a significant extent on the attraction of foreign direct investment into the area.

The OECD in an earlier report “The Response of Higher Education Institutions (HEI) to Regional Needs” (OECD, 1999) looks at how trends in higher education require a larger regional and local dimension. These trends include the move from a system of elite to mass higher education, the need to meet the demands of a larger and more diverse client population; lifelong learning needs created by changing patterns of skills demands in the labour market; declining public support for students which in some countries leads to more attending their local university; increased competition from providers of education on a global scale; new ways of delivering education and training made possible by information and communication technologies (ICTs) and last but not least the changing nature of knowledge production and distribution which is challenging the monopolistic position of universities.

They conclude that:

“For many universities regional engagement is therefore becoming the crucible within which an appropriate response to many of the challenges raised by these overall trends within higher education policy is being forged”. (OECD, 1999)

They go on to say that the changing role of higher education institutions in regional development must be seen within a broader context of globalisation and the changing nature of regional development and governance, notably the shift in emphasis from material to non-material assets (knowledge, skills, culture, institutions) and the resurgence of the region as an important arena for political and economic activity. (OECD, 1999)

In this context they state that local and regional policy has to become innovative and entrepreneurial itself.

3.6 The Role of the University in Stimulating Regional Innovation

Universities are thus increasingly seen as playing a key role in developing regional innovation capacity. In so called “learning regions”, universities can promote entrepreneurship; support commercialisation; form important bridging mechanisms between regional institutions and businesses whilst undertaking a co-operative approach to R&D.

The role of universities is no longer therefore primarily about increasing the general education level of the population and the overall volume of scientific research. There is now a desire to harness university education and research to meet specific economic and social objectives, particularly in the field of regional development. As The OECD report (OECD, 1999) states:

“While universities are located in regions, they are also being required to make a contribution to the development of those regions. The concern is therefore not only to identify the passive impact of HEIs in terms of direct and indirect employment but also to create mechanisms through which the resources of universities can be mobilised to contribute to the development process”.

The Higher Education Funding Council for England (HEFCE) 2004 in its report on “The Regional Contribution of Higher Education” highlights how higher education has increasingly shifted from a more idealistic position to an instrumentalist position focused on the creation of knowledge. (HEFCE 2004).

They indicate the key reasons for these changes as:

- The emergence of a mass system of higher education and of rapidly increasing demand for graduates in turn leading to a greater focus on “home based provision” with higher education now more widely distributed throughout the country.
- The shift away from traditional disciplinary lines to new problem – focused themes, resulting in research collaboration and new combinations of expertise (HEFCE 2004).

They go on to state that:

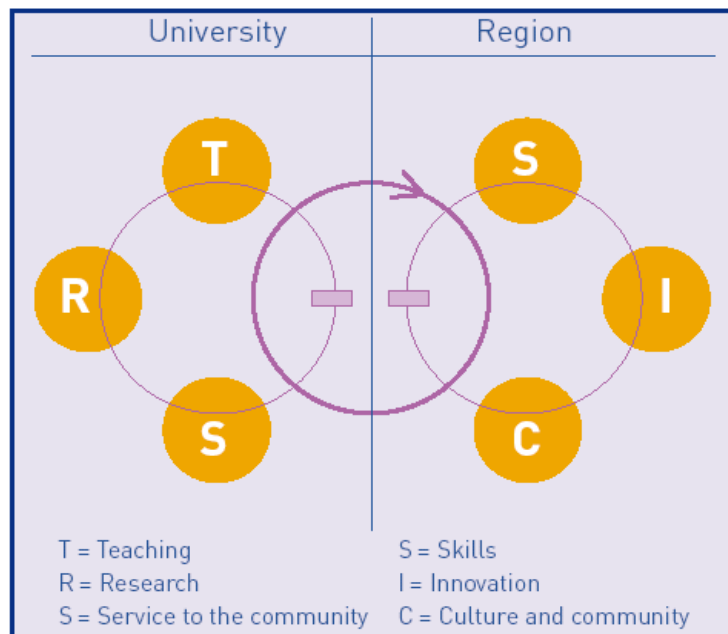
“This movement depends upon a reconceptualisation of regional development and has the prospect of emphasising the university as a local source of research, expertise and innovation and as providing a knowledge base for local industries to thrive in the global economy. Perhaps more importantly it holds the promise of re-articulating the links between the university and the community it serves to enhance” (Peters & May 2004).

The EU Report on the “Role of Universities in the Europe of Knowledge”, (2003) concludes that the regional dimension of university activity is going to become even stronger in the future, given its essential role in achieving the Europe of knowledge.

Thus universities can and increasingly must play a key role as innovation accelerators within their local and regional economy, if such economies are to be able to compete effectively. Universities can be sources of competitive advantage within their region in their own right.

Increasingly it is now recognised that universities should be clearly linked in with the development needs of their regions at a strategic level. This process is shown in the diagram below.

Figure 3.1 Elements of an Integrated Approach for Universities and their Regions



Source: HEFCE, 2004

3.7 The Role of the University in Regional Indigenous Development

There is a growing recognition of the need to move away from a concentration on mobile industry towards a new emphasis on knowledge based growth of indigenous enterprises. However, many regional economies continue to depend to a large extent on footloose global inward investment.

The HEFCE point out how the limits of traditional regional policy have been illustrated by the cyclical nature of such inward investment and the weakness of many such plants to subsequent rationalisation and closure. Meanwhile, successful regions have been associated with the growth of knowledge-based clusters rooted in communities of knowledge, featuring high birth and growth rates of small firms and high levels of public and private research and development.

The general view is that, if regional economies are not to be left behind, there is a need to ensure that such economies have the capacity to develop knowledge based clusters in areas of identified specialisms, and thus are able to increasingly rely on indigenous growth. It is also recognised that universities can play a vital role in supporting this process, particularly in regions with weak economic structures.

The increasing recognition of the importance of geographical clustering in stimulating innovation has meant that the role of universities in regional development has gone beyond the study of technology transfer, direct employment effects of spin-off companies and the establishment of science parks. It now embraces a wider role involving the enhancement of human and social capital within a region, including an increasing emphasis on student

recruitment and regional placement policies, university-based professional development programmes for local managers based on local research, the development of research networks that serve as a basis for embedding local businesses in the global economy, and a more research and information sensitive negotiation of the local/global interface. (Peters & May 2004)

Taking the Porter model of competitive advantage – The ‘Diamond’ model – the HEFCE report identifies the relevant higher education inputs required to support the development of regional clusters of economic activity within the United Kingdom.

Higher Education and Clusters

Firm strategy – higher education institutions are working with firms in a number of clusters to enhance their managerial capabilities. In addition higher education contributes significantly to some regional clusters such as biosciences in Cambridge, Manchester and Newcastle among others through the formation of new firms.

Factor conditions – higher education is a central input to knowledge-based clusters through the provision of a trained workforce and underlying technologies. In Sheffield the universities are key players in the development of a materials cluster with research and training dedicated to the needs of existing and new materials companies.

Related and supporting industries – central to many cluster initiatives within higher education is the notion of supply chain development.

Demand conditions – higher education can have an input on the demand side, and as significant research businesses they can draw through innovations in instrumentation for example. Again within cluster-oriented projects there is frequently a market development element.

Chance – many clusters develop initially by chance, and one potential input to that process is the presence of a research concentration and significant new scientific discoveries. The best example of this in England is perhaps Cambridge where developments in biosciences can be traced back to scientific developments in the university.

Government – government has a strong role to play in the development and support for clusters, through its effect on other factors and through regulation and direct support. Higher education institutions interact with government primarily through their inputs into the policy development process, informing governments of the need for cluster policies and participating in Foresight and other consensus-building exercises. Across the nine regions, higher education institutions are working with their local regional development agencies to direct existing and new research and training activities towards the needs of regional clusters. This is particularly emerging through the new university innovation centres, the first five of which were announced in February 2001:

- nanotechnology and microsystems based in Newcastle;
- organic chemicals based in Manchester;
- information and communications technology based in Bristol;
- business-to-business e-commerce, based in the West Midlands; and
- aerospace manufacturing based in Sheffield.

Source: HEFCE 2004

Higher education institutions can thus play a vital role in:

- a) Supporting existing clusters; and
- b) Stimulating the development of new clusters through targeted research and exploitation of new forms of technology in co-operation with local industry.

3.8 How to Optimise the Regional Development Role of Higher Education

The OECD found that the key drivers in the adoption of a greater regional role for universities are:

- Historical roots within the area;
- The need to attract inward investment with potential to collaborate with academia;
- The need to increase uptake of graduates into employment in the region; The need to increase post graduate professional development and part time teaching in order to attract more revenue;
- The involvement of senior university managers on boards of regional agencies;
- Engagement in revenue earning regional incentives;
- The need to increase the number of undergraduate home students;
- The need to create new ladders of opportunity;
- Increased demand from non-traditional students who are rooted in the region; and
- The momentum created by significant level of local gradual placement and student involvement in the local economy. (OECD 1999)

On the other hand key barriers identified included:

- Lack of congruence between courses and course content seen as required to meet national and local needs;
- Weakly developed regional economic development strategies and related stakeholder funding;
- Promotion and reward systems which work against innovation in new courses that are particularly responsive to local needs and which do not support academic/industry linkages;
- Funding systems which work against the development of relevant post graduate opportunities and prestige systems which place higher values on original research of national and international significance;
- Difficulties matching graduates with local skill needs, particularly in SME's;
- Research agendas driven by national priorities, with little identification with regional needs; and
- Basic funding for research which is selective and likely to get more so, to the advantage of institutions in the "super league" that tend not to have regional concerns at the heart of their mission.

These findings clearly indicate that if centres of higher education are to play an optimal role in the economic development of their regions they must be geared up to address regional needs in order that their teaching and research priorities are strategically aligned with the economic development needs of the region.

In order to ensure that universities are contributing to ‘territorial’ or ‘place’ competitiveness it is necessary to address two main issues: first, increasing regional awareness of national research and innovation policies and tuning them to the socio-economic needs of the region; and second, directing these policies to build research and innovation capacity in the regions enhancing their ability to act as drivers of economic and technological development. (HEFCE, 2004)

This, the HEFCE state, may be achieved through:

- Establishing research and innovation strategies to develop material and human resources such as supplying research infrastructure and equipment, local university training facilities, support structures to foster creation and growth of innovative enterprises, efficient interfaces within the innovation system linking, for example, researchers, innovators and sources of finance, science and technology parks, research programmes, initiatives to attract researchers locally or promote staff exchanges;
- Fostering partnerships between the public and the private sector in order to contribute to the European knowledge-based economy and stimulate knowledge creation and diffusion;
- Promoting an environment conducive to research and innovation, through the introduction of accompanying legal, financial and fiscal conditions that would prove necessary;
- Stimulating experience exchange with other successful regions in specific fields; and
- Contributing actively to an integrated strategy for sustainable development. (HEFCE, 2004)

In the new environment of increasingly territorially-based competitiveness there is therefore a need for each region to have in place an explicit and clearly articulated strategy aimed at maximise its economic competitiveness through the development of relevant research and innovation policies. This can best be done through the co-operation of business, education and other public and private stakeholders.

3.9 The Role of the Competitive City in the Development of the Region

Emerging thinking on regional development is also looking at the city/region dynamic. Successful cities are increasingly seen as being at the core of successful regions⁴. Capital cities are attracting an increasing proportion of value added knowledge activities and the type of people that work in them. Medium sized cities must therefore develop strategies to counteract the attractiveness of the capital and to become recognised as competitive cities in their own right.

Within this environment city competitiveness policies must have regional coherence in order to minimise unhelpful intra-regional competition and to avoid “displacement” (where the impact of policies is merely to move an activity, job or firm from one part of the region to another with no net benefits).

⁴ See OECD Conference proceedings “City Competitiveness”, March 2005.

The competitive city is one that has:

- A diverse economy;
- Innovative firms and organisations;
- Internal and external connectivity;
- Skilled workforce;
- Strategic leadership capacity; and
- Good quality of life.

Universities are again seen as a central ingredient of the competitive city, particularly in assisting cities to become centres of new forms of business activity – focused around clusters, especially high tech clusters.

To promote city competitiveness the following characteristics are required:

- A city boundary that is wide enough to approximate a functional economy;
- “Regional reach” that enables cohesive economic activities between the city, its suburbs and outlying areas;
- Direct control of key players to plan land use and infrastructure, raise investment, housing and education, police and transport and the authority to make them work together;
- Influence over other important public sector bodies in health, higher education and culture;
- Ability to reshape the contact between the city and its business community through shaping and focusing the local tax system;
- Ability to bring forward necessary investment;
- Capability to create new executive agencies; and
- Ability to create long term progress that can be stewarded by civic partners.

To create competitive regional cities there is a need therefore to ensure that the type of features outlined above can be developed through a strong partnership of state institutions, development agencies, local government, higher education institutions and key private sector leaders.

3.10 Summary

The role of universities in national and regional development is evolving and expanding. Direct impacts through employment and local purchasing of services are increasingly seen as only the starting point. Indirect effects through impacts on the capability and attractiveness of an area in terms of both indigenous and FDI led development are increasingly seen as important. Increasingly universities are seen as operating at the “fourth level”, that of producing students with doctorates and supporting post doctorate research activities.

In summary, the indirect effect of universities on the development of regions occurs through:

- Provision of locally available knowledge;
- Creation and developing flexible adaptive workforces;
- Attraction and local embedding of global business through research capability and relevant education and training provision;
- Provision of gateways to the global knowledge base for SMEs;
- Provision of strategic analysis and leadership;
- Access to resources for innovation which allow local companies to develop and maintain a leading edge position;

- Attraction of a higher level of FDI which requires high levels of availability of knowledge workers who can maximise local value added;
- Support for the development of clusters of economic activity around regional strengths; and
- Linking of local business and local human resources to the global economy.

In regions that are falling behind there is growing recognition that universities not only have a role in supporting economic development but that they can play a leading, catalytic role when other more traditional actors in the private sector are relatively weak.

In order to fulfil such a role universities must:

- Have autonomy over allocation of resources in order to remain flexible in meeting changing local/regional needs;
- Have access to funding which allows them to attract high quality staff and students;
- Have both the financial and human resources required to develop world class research capability in specialist areas;
- Have both the human resources, leadership skills and appetite to develop strong linkages with other regional development actors; and
- Have the resources to stimulate local cluster development in identified specialist areas.

However, higher education institutions in lagging regions are often in a chicken and egg situation. Lacking the facilities to attract the high quality staff, students, business partners, researchers and post graduates in sufficient numbers that will allow them to fulfil their regional role, they are unable to attract the necessary resources to develop such a role, due to the weak business structure of their region and their relatively weak position within the higher education sector.

In the case of the South-East region this analysis clearly indicates that the likelihood of the South-East region prospering within the context of the knowledge economy could be greatly enhanced if there was a university within the region. Furthermore given its current lagging status, the research indicates that the development of a university with strong regional ties and international level research capability would play a vital role in re-energising the region and in ensuring that the region is increasingly attractive to innovation led enterprises and related activities.

In relation to the role of the competitive city, in the context of the South-East region the important lesson from the analysis presented above is the need to develop a city that has the capacity to compete with other cities and which in turn will bring spin off benefits to the region as a whole. Such a city will attract the type of knowledge based functions that prefer to live and work in such areas and will thus act as a counter balance to the growth of the capital city.

3.11 Implications for the South-East Region

The Irish Higher Education sector is currently organised along the lines of a binary system made up of universities on the one hand and Institutes of Technologies (ITs) on the other.

Within this binary system universities are expected to play the lead role in driving the knowledge economy. The recent OECD report (2004) calls for a greater focus on universities in terms of the development of research capacity and the expansion of the post graduate student population, both national and international. They recommend that:

- Institutes of Technology should continue to concentrate on applied research and that underpinning research resources should be the subject of specific investment by Enterprise Ireland, and not by the new Tertiary Education Authority, in targeted areas against clear national or regional economic priorities;
- Steps be taken radically to expand the numbers of doctoral students in universities with the intention to more than double them by 2010; and
- Degree awarding powers for doctoral awards are concentrated in universities and that, except in the case of DIT, where such powers have been granted to institutes of technology by HETAC, they should be rescinded.

Universities are thus seen to be at the forefront of fundamental research and of links with industry aimed at stimulating applied research and innovation.

Within the binary system universities are clearly identified as the key drivers of the knowledge economy and as being at the forefront of developments aimed at addressing the current weaknesses identified above, e.g. lack of R&D, low levels of post graduates.

Given current Irish education policy, which supports the particular role of universities in the development of the knowledge economy, this analysis would indicate that the future development of the South-East region could be at a serious disadvantage if it does not have ready access to a university and to the resources and expertise which such an institution can bring to a region.

Given the key role of the competitive city in regional development, an important lesson from our analysis is the need to develop a city within the South-East region that has the capacity to compete with other cities and which in turn will bring spin off benefits to the region as a whole. Such a city will attract the type of knowledge based functions that prefer to live and work in such areas and will thus act as a counter balance to the growth of the capital city. Central to the development of such a city is the presence of a university.

In the next chapter of the report we present empirical evidence from the international literature to demonstrate the impact which a university can have on regional development before going on to apply a similar analysis to the South-East region.

4. Economic Impact of Universities-Empirical Evidence

4.1 Introduction

As shown in Chapter 3, there is a growing recognition of the impact that universities can play in regional economies. Direct impacts relate to the employment created within universities and to the spin off effect of staff and student purchases of goods and services within the local economy. Increasingly with the growth of foreign students, or indeed staff and students from other regions, a further significant impact arises through visitor income generated by family and friends of students and staff. This income is having a growing impact on export earnings in areas like Scotland.

Further indirect effects of universities on the competitiveness and attractiveness of a region have been documented in earlier chapters. These include the impact of university-based R&D on the productivity and competitiveness of firms within the region, availability of graduate and post graduate labour within the region which again boosts innovation and productivity as well as the impact of leadership by university managers on the development of the region. Universities can also have strong impacts on the cultural, sporting and political life of a region.

Universities are thus increasingly seen as “businesses” within their local economy employing significant numbers and creating spin off employment and income for local businesses. They are also seen as “partners” with local industry and other agencies in developing regions, particularly in regions where growth is relatively weak, and in ensuring the ongoing and increasing competitiveness of a region’s business activities. This is achieved through stimulating research and innovation, attracting foreign direct investment and encouraging investment generally within the area. In Canada, for instance, high levels of R&D in universities are seen to compensate for the relatively low level of R&D in industry. (Martin & Trudeau, 1998)

There are various ways therefore through which universities boost regional R&D and the creation of high tech jobs more generally within a region. Betts & Lee (2004) describe the university as a:

A Trainer	Provider of skilled young university graduates.
An Innovator	Direct generator and communicator of knowledge.
A Partner	Provider of technical know how to local or national firms through fees from service arrangements, consultancy or more formal research.
A Regional Talent Manager	Through increasing the attractiveness of a region as a whole to talented innovative entrepreneurs, scientists and engineers.
A Facilitator	Facilitating networking among those involved in the high tech community from the private and public sector.

The available literature indicates that universities can play an important role in each of these ways. Much of the research however, points to the difficulties involved in establishing cause and effect and concludes that universities on their own cannot create innovative regional economies. However, in working proactively with the private sector they can help to ensure both “knowledge creation” and “technology commercialisation”.

In this chapter we present a range of international findings on the direct economic impact of universities – primarily from the UK and North America, and on their indirect regional generator effect – primarily in relation to Australia and Scotland.

4.2 The Economic Impact of Universities – Case Studies in the UK

There is a considerable body of literature available on the economic impact of universities in the UK. This relates at first level to the actual employment created within universities, then to the impact of that employment on the region through local purchases of goods and services.

The UK research indicates that in particular student purchases have high local employment impacts. For instance in the case of Bristol, the University of Bristol is one of the most significant employers in the city – ranked at 8. (Chatterton, 1997)

Universities are also having an increasing impact on their local and regional economies. Employment levels are increasing as is the income generated from such institutions. Again in relation to Bristol the income generated by the university was found to have grown by 66 per cent between 1987 and 1996.

A further study on Middlesex University found that spending by its 15,000 students supported 790 jobs within a 5-mile radius – 1 job is generated by every 20 students. (North, 1994)

The University of Bristol study also found that the total income impact on the South West region from the existence of the university was £121.5m. The employment multiplier was estimated at 1.7 – 0.7 additional jobs for every job in the university. For every £1 spent by the university a further £0.23 – 0.30 is generated in the region. The author of the Bristol study concluded that:

“Overall, however, this modelling exercise has allowed us to see the extremely important economic impact that the University of Bristol has on the local and regional economy. In particular, the income and employment impacts of spending by the University, its staff and students is a significant contributor to local and regional economic prosperity and there are strong reasons to suggest that the effect the University has is much higher and more localised than that of other types of economic activity.”

A study on the impact of the University of Strathclyde (University of Strathclyde, 2004) on the Scottish economy found that £63 was generated in a range of sectors of the Scottish economy for every £100 spend by the university. Again the university was found to be one of the largest businesses in the city. The university has managed to attract 3,600 students from outside Scotland into Glasgow. These students spend an estimated £20m off campus. The university’s overseas revenue, together with the estimated off campus expenditure of overseas students and visitors, generates, it is estimated, the equivalent of 1.5 per cent of all Scottish service sector export earnings.

The Principal of Strathclyde stated that:

“The most fundamental contribution of any university is to transfer knowledge to the surrounding economy through graduates, research and innovation, however, we have shown that higher education as an industry in itself is also key to the economy, and is playing a pivotal role in achieving a successful Scotland. The 2003 Lambert Report highlighted that the economic importance of universities within their cities and regions has grown substantially, particularly as more traditional industries have declined, yet there is still the perception of universities being bottomless pits of public money. This report shows the University of Strathclyde as a large business in its own right and a significant player in the Scottish economy. Other industries seek Government support based on the importance of jobs created and export earnings and policy makers are now starting to pay attention to the economic impact of universities”.

Beyond the financial and related employment impact of universities in their region is the roles that universities can play in the planning and governance of a region. In the UK, the Department of Trade & Industry stated in 2001,

“The role of our universities in the economy is crucial. They are powerful drivers of innovation and change in science and technology, the arts, humanities, design and other creative disciplines. They produce people with knowledge and skills; they generate new knowledge and import it from diverse sources; and they apply knowledge in a range of environments. They are also the seedbed for new industries, products and services and are at the hub of business networks and industrial clusters of the knowledge economy”.

Charles (2003) found that the ability of the UK Higher Education institutions to engage regionally is determined by a number of factors. These are:

- The independence of the institution and thus its ability to respond to emerging needs;
- The will and organisational capacity of the institution to engage with its region reflected in the appointment of dedicated staff to this area and the development of appropriate mechanisms;
- The openness of local institutional networks to inputs from educational institutions and local attitudes to learning;
- Ability to link graduates to local and regional labour market needs; and
- The role played by the higher education institution in the cultural and political life of the region.

Charles’s survey of how university leaders relate to their region found that the proportion identifying with the government defined region (e.g. East Midlands) increased from 25 per cent in 1997 to 43 per cent in 2001. In 1997, 62 per cent, rising to 65 per cent in 2001, identified the economic development of their region as a high priority within their institutional mission. This prioritisation was found to be higher among post 1992 universities – 86 per cent compared to 50 per cent for older universities.

Furthermore over 85 per cent of post 1992 universities in the UK saw their institution as seeking to contribute to the local area and also to develop international strengths, compared to 16 per cent of pre 1992 universities.

In the UK this local connection is found to be further reinforced through the appointment of regional development offices with specialist staff.

4.3 The Economic Impact of University Research – Case Studies of North America

A study carried out by Martin & Trudeau (1998) found that university research contributed the equivalent of almost 1 per cent of Canada's GDP in 1994/95 and 0.5 per cent of all jobs. Such research was also found to have profound effects on the underlying productivity of the economy, and on the quality of life of residents in the country.

They also found that Canadian firms are more reliant on university research than other countries – firms in Canada finance around 17 per cent of all research spending at universities. This they say helps to compensate for Canadian firms relatively low in house R&D and gives firms access to leading edge knowledge and skills.

They conclude that the issue for society is not whether we can afford to invest in university research but whether we can hope to prosper without it.

In Florida researchers at the Council for Education, Policy, Research and Improvement (CEPRI 2003) found that investment in Florida's research centres generated:

- Increases in Gross Regional Product of \$2.17 for every dollar of state support;
- Disposable income increases of \$1.96 for every dollar of state support;
- \$18m in tax revenues; and
- Return on investment of 217 per cent.

Similarly in California researchers found that ten years of research in the University of California resulted in 1.3 per cent of all California's GNP growth over that period and that UC researchers brought in \$3.89 for each dollar of state funded R&D in 2001/2002. (ICF Consulting, 2003)

An assessment of the more qualitative impact of university research activities in North America concluded that:

1. In the area of universities as technological and innovation incubators and industrial partners, university research:
 - Serves as a technological innovator and incubator and industrial partner;
 - Increases diffusion of new knowledge and new technologies; and
 - Creates a wide range of new products and new companies.
2. In the areas of non-quantitative economic externalities, university research:
 - Helps build a better quality of life with significant gains in health care, environmental quality, gains in the arts and culture and physical fitness and recreation across the nation.
3. In the areas of impact on the development of student human capital, university research:
 - Creates a better-trained workforce through educating students and faculty across all areas of research and more educated citizens. (Lynch and Ayden, 2004)

4.4 The Impact of Regional Universities – Case Study of Australia

Australia has been at the forefront of the idea of regional universities. In New South Wales alone 20,550 jobs and \$600m is estimated to be generated by the NSW Regional universities. Debates in Australia have focused on ensuring that regional universities are not the poor cousins of “city” universities – not good enough to do what real universities do. Funding strategies for such universities are based largely on regional participation rates and institutional profiles rather than on pure demographic indicators. Recent plans for the growth of funding in regional universities have raised some concerns particularly if such growth enables the enrolment of new students but is not backed up by adequate infrastructure or staff that can provide a quality education.

In a recent policy paper on “Universities-Backing Australia’s Future”, strong emphasis is placed on the role of the higher education sector in regional economic growth. The sector “provides jobs for Australians, educates the future workforce, creates future leaders, drives much of our economic and regional success, facilitates important cultural and trade links with other centres and enriches our social and environmental landscape”. (Department of Education, Science and Training, 2004).

They go on to say that many such institutions particularly those in regional areas, play a significant role in the economic and social life of their communities which go far beyond their traditional educational activities.

The new vision for the Australian higher education sector is built around four principles:

Sustainability	Freeing universities to respond to the needs of their constituencies, giving them maximum opportunities to develop innovative responses to a rapidly changing environment, not only in teaching but in the direction and commercialisation of research and engagement with industry, research institutions and other education providers.
Quality	Renewed emphases on teaching and learning outcomes, relevant to the skill needs in the economy.
Equality	Targeted interventions to increase participation by disadvantaged groups.
Diversity	A range of institutions servicing different communities, each forging their own mission.

In terms of future direction Australian policy is aiming to ensure a greater recognition of regional campuses and institutions.

A study on the economic impact of the Swinburne University of Technology, (Langworthy, 2001) (an institute in a municipality of the wider Melbourne Metropolitan areas, characterised by low population density and socio economic disadvantage) highlighted how universities contribute to regions:

- Universities earn income, spend that income and attract students who also spend. This has direct and multiplier or flow-on effects;
- Universities undertake research and development that could be focused on regional issues and/or have commercial application;

- Universities educate the labour force. This in turn can assist in attracting industry to a region and assist in the cultural and social development of the region;
- Universities can contribute to the social and cultural life of the region. They provide infrastructure, fulfil community service obligations and provide community volunteers.

A similar study on the impact of a regional campus at Warrnambool found that the establishment of the Deakin University campus had created 324 jobs, contributed to increased rental value and had increased property values by between 10-20 per cent. Annual expenditure on sporting events was also found to have increased. (Drydin, 18996)

The University of Southern Cross was also found to have had a positive impact on the regional economy through the significant number of volunteer hours contributed by staff and students. (Centre of International Economics, 1997)

Research in Australia has highlighted the even greater potential impact of universities on relatively weak regional and rural economies - on their potential to create significant direct and indirect impacts on their regions, and on the strong effects that can arise from both an expansion in such facilities, or indeed, from any contraction in their scope and scale of delivery. (BHERT 2001) Indeed the BHERT report calls for the strong regional role of such universities to be recognised through adequate funding mechanisms.

4.5 The Economic Impact of University – Case Study on the Montana Economy

In a study on the impact of Montana State University – Bozeman on the economy of Montana (1995), the researchers found that in 1994 the state economy gained \$75.5m in direct expenditures related to MSU-Bozeman which was more than the total annual payroll for all coal mining in Montana. They also found that every \$1million the university spends in the Montana economy generates 60 non-university jobs.

A surprising finding was the contribution of out of state visitors attracted to Montana by university employees and students. A survey of faculty and staff found an average of eight visitors per respondent in a year each staying an average of five days.

4.6 Conclusions

An examination of the international literature demonstrates the type and level of regional economic impacts that can be derived from the presence of a university within a region. They provide evidence of the direct impact in terms of jobs generated in the regional economy and the indirect impact in terms of stimulating R&D, local innovation and regional prosperity.

In the next chapter we apply the same type of analysis to the South-East region to calculate the current and potential future impact of a university on the local and regional economy.

5. The Potential Economic and Regional Development Impact of a University on the South-East Region

5.1 Introduction

In this chapter, we demonstrate the potential direct and indirect impacts of a university on the economy of the South-East region - both in terms of expenditure and employment impacts - and in terms of the potential wider impact on R&D investment and innovation in the region. In quantifying these impacts we have used the Waterford Institute of Technology as an example. We have chosen WIT because it is one of the leading ITs in the country and is the largest IT within the South-East region.

5.2 Background Information on WIT

Waterford Institute of Technology was established in 1970 with an initial intake of 200 students. Since then the Institute has been given an extended brief to provide for an increasing number of degree and postgraduate students. In 2003, the Institute obtained delegated powers to award primary and master degrees. Student numbers are now at 6,000 with over 200 postgraduates. The Institute has successfully applied as lead institute for both PRTL1 and SF1 funding.

The Institute has significantly expanded in terms of both the number and range of students attending the Institute over the last 10 years. As table 5.1 shows the total number of students has increased by over 50 per cent over the period, while the number of post graduates has risen from 0 in 1994/95 to 209 2004/05. The number of higher degree level enrolments has grown by 69 per cent over the period while degree and certificate level enrolments have increased by 54 per cent and 13 per cent respectively. Over 300 international students are now attending the Institute

The figures show that higher degree and post graduate students now account for almost 50 per cent of all enrolments. Such students have the potential to provide high level manpower resources to firms in the region, to work with local industry in carrying out R&D and to encourage new foreign direct investment to come into the region.

The Institute is currently (2004) producing 2870 graduates of whom 1045 (36%) have bachelor degrees and 130 (5%) have post graduate degrees (including Doctorates). In terms of location 73 per cent of graduates come from the South-East region, the remainder from other regions throughout the country.

Table 5.1: Enrolments in the Institute by Type 1994/95 – 2004/05

Enrolments	94/95	99/00	02/03	03/04	04/05	% change 94/95-04/05
Full time 3rd Level						
Enrolments	3658	5292	5833	5960	5610	53
Postgraduate	0	112	209	157	209	-
Higher Degree Level	1493	2248	2207	2448	2525	69
Degree (Ordinary Level)	1055	1422	1789	1863	1627	54
Certificate Level	1110	1510	1628	1492	1249	13
Other 3rd Level						
Enrolments						
Failte Ireland (FTE)	79	144	144	123	136	72
Trade Apprentices (FTE)	112	185	244	250	229	104
Total FTE Equivalent	3849	5621	6221	6333	5975	55

Source: Waterford Institute of Technology

FTE= Full Time Equivalent

The Institute has developed a critical mass of research activity across a range of disciplines over the past 10 years. The development of the Institute's research strategy, embedded within the *Strategic Plan (2002-2005)* recognises the synergy between research and teaching, and is committed to developing an environment in which research informs the learning and teaching culture of the Institute. Central to the evolution of the institute's research strategy is the importance of creating strategic alliances with academic and industry partners at a regional, national and international level. In 2003, with the establishment of the School of Research & Innovation, the institute assigned a dedicated Executive Management post, the Head of Research and Innovation, responsibility for directing the strategic development of research and innovation at the Institute. See Appendix 1 for further information on WITs research and innovation activities.

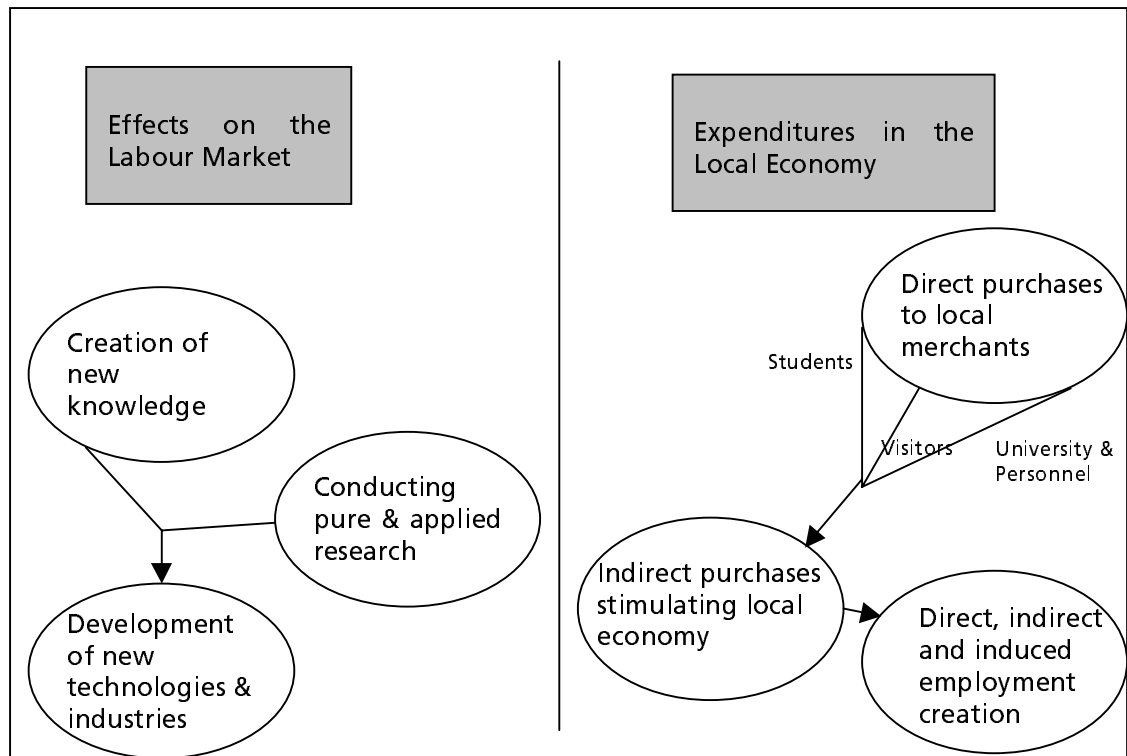
Like other ITs, the Institute faces particular difficulties in accessing core funding for research and innovation activities and for an expansion of its graduate and post graduate programmes. Proposals in the OECD report on research funding in the higher education sector in Ireland, if implemented, would mean that the Institute like other ITs would only be eligible for funding through Enterprise Ireland. It would therefore not be able to access funding for R&D in the business and humanities and would effectively be limited to carrying out applied research rather than a combination of basic and applied.

Information from the HEA report on Higher Education Financial Management shows that In 2000/2001 Waterford Institute of Technology received €3,045 per student compared to €4,140 on average for ITs, excluding DIT, and €4,810 for universities. Looking at research activities specifically the figures show that research activities accounted for 7 per cent of the Institute's recurrent expenditure in 2000, compared to 4 per cent for ITs on average and 20 per cent for universities on average. Again this shows the high level of research expenditure engaged in by universities. While the Institute is doing relatively well compared to other ITs, it falls very far behind the University of Limerick at 21 per cent and DCU at 33 per cent.

5.3 Assessing Impacts

A third level institution impacts on the economy both through its direct spending, and that of its students and staff, and through the spin-off benefits of the services that it provides. In this chapter we calculate the expenditure impacts of the Institute on the local and regional economy. This is shown diagrammatically in Figure 5.1.

Figure 5.1: Economic Impact of a Third Level Institution



Adapted from: The Economic Impact of a University on its Community and State, Allison M. Ohme

5.4 Analysis of Spending Impacts

Through its own expenditures and that of its students, the Institute of Technology:

- Generates employment;
- Contributes to value added in the economy; and
- Increases demand for local goods and services.

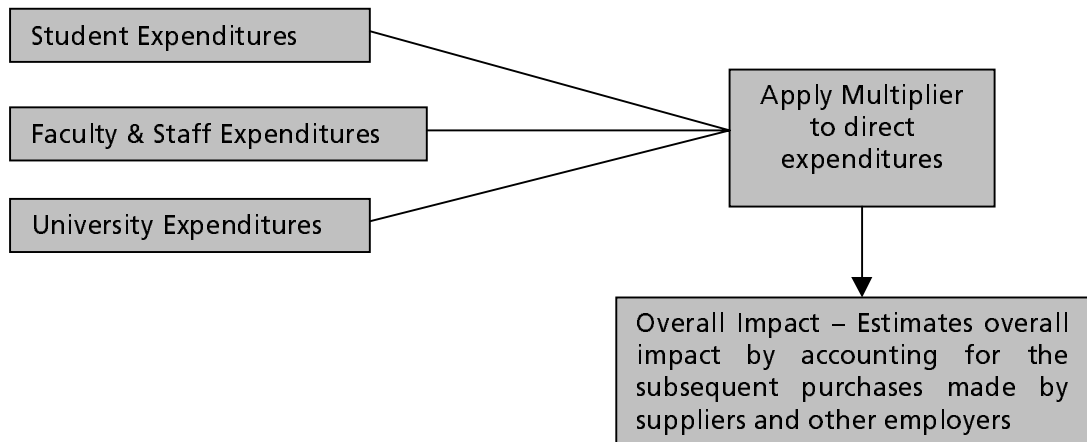
Spin-off Impacts

Through use of its services, the economy benefits in terms of increased output and consumer welfare, particularly through:

- Raising the output of existing industries and services;
- Stimulating inward investment; and

- Increasing inbound foreign tourism.

The methodology for measuring the quantifiable impacts is as follows:



There are in fact three types of impact usually estimated. These are:

Direct Impacts

Employment and value added that arise directly from the operation of the Institute.

Indirect Impacts

Employment and value added generated both regionally and nationally arising from the purchase of goods and services from suppliers.

Induced Impacts

Employment and value generated both regionally and nationally by the spending of the incomes arising from direct and indirect employment.

Spin-off impacts may arise both in terms of benefits for the immediate purchasers of the Institute's services and for the wider economy as these benefits spillover to other sectors.

In the next sections of the report, spending impacts and spin-off employment impacts are considered in turn.

5.5 Calculating the Contribution of Waterford Institute of Technology to Regional Gross Value Added

5.5.1 Institute Expenditure

The wage bill for the year 2004 inclusive of employers' PRSI was €39.9m, reflecting the highly labour intensive nature of educational services.

The Institute spent an additional €10.1m on the purchase of goods and services and €5m on research expenditure.

5.5.2 Student Expenditure

A survey was undertaken of 501 students of Waterford IT. The survey covered key areas such as student income, expenditure, spending habits and living arrangements.

The survey found that students have on average €87.1 to spend a week during term time, post-graduates €106.3. In addition, students spend on average €68.8 on rent per week of term time. Postgraduates spend significantly less of their weekly budget on entertainment and leisure and also spend more on food and meals.

Given the size of the student population we estimate that the Institute students, (excluding part-time evening students) spend €15.8m per annum during term time in the regional economy. Added to this they spend a further €8.5m per annum on rents.

5.5.3 Calculating the Impact of Overseas Students on the Regional Economy

Again drawing on the international literature we find evidence that, in the US, out of state students attracted an average of eight visits to the state with an average duration of five days. Given that many of the overseas students attending the Institute are expected to be from much further afield than "out of state" we estimate here that each overseas student attracts only four visitors but that they stay an average of 7.9 days (the average length of stay for visitors visiting friends and relatives in Ireland (CSO)). Based on 300 foreign students currently in the Institute we estimate that they generate an additional €1m income for the local economy.

5.5.4 Overall Impact on Gross Value Added (GVA)

Taking student, Institute and research expenditure together we estimate that the Institute generates €65.5 million of regional GVA. This is equivalent to 0.58 per cent of gross value added created in the region in 2002 and of 1.3 per cent of GVA generated by regional service sector activity⁵. Table 5.2 summarises the contribution of the Institute to Gross Value Added.

Table 5.2: The Contribution of the Institute to Regional Gross Value Added, 2004

Expenditure	€m
Institute Salaries	39.9
Wages and Profits arising from College expenditure	13.6
Wages and Profits arising from Student Expenditure	11.5
Wages and Profits arising from Overseas Tourism	0.5
Total	65.5

Source: Goodbody Economic Consultants

This expenditure generates employment directly, indirectly and induced. In the next section we estimate the overall employment impact of the Institute's expenditure.

⁵ Expenditure is estimated as a proportion of 2002 regional GVA at basic prices. Total regional GVA in 2002 was €11,115m of which services GVA was €5,017m

5.6 Calculating the Employment Impacts of Waterford Institute of Technology

This section of the report examines the employment impacts of the Institute through estimating the employment that it supports, directly, indirectly and induced.

5.6.1 Direct Employment

In 2004, direct employment at the Institute was 725 (Full-time equivalents (FTEs)). A further 60 staff were employed as contract research staff. Added to this, 185 people were employed on campus providing services to students and staff. This gives a total of 970 direct employees.

The distribution of employment at the Institute is set out in Table 5.3. As can be seen, academic staff make up the highest proportion of staff followed by technical support and library/admin. The Institute therefore employs a large number of highly skilled and qualified staff.

Table 5.3: Direct Full-time Employment at the Institute by Type, 2004

Employment Type	Number	Proportion (%)
Management	12	1.7
Academic (Full Time Equivalent)	470	64.8
Library/ Admin	128	17.7
Technical Support (Full Time Equivalent)	115	15.8
Total	725	100
Contract Research staff	60	
Ancillary staff	185	
Total	970	

Source: Waterford Institute of Technology

5.6.2 Indirect Employment

Employment is generated indirectly by the Institute when it purchases goods and services. Purchases of goods and services include major items such as, materials for the retail shop and catering, as well as a range of goods and services associated with both education and research. Student expenditure is also a key source of local employment, as students tend to spend most of their income on purchasing local services and products.

Such purchases within the local area give rise to significant employment locally. This is particularly the case for goods for retailing and catering, as well as local rental income. We found in our student survey that 69 per cent of students were renting accommodation within the surrounding area.

However, indirect employment effects are diverse in that they occur nationally as well as locally. They also occur not only in direct suppliers, but also in producers who supply goods and services to the Institute's direct suppliers. Thus, there are employment effects in the supply chain as a whole. Tracing these indirect employment effects throughout the economy in a detailed manner is a daunting task, not least because the chain of suppliers expands rapidly. The accepted and practical way of doing this is through the use of input-output tables that summarise the relationship between the different sectors of the economy. Once the composition of the Institute's and students purchases of goods and services by broad economic sector is known, the input-output tables may be used to derive wage income and employment generated throughout the economy. Thus, the method adopted to estimate indirect employment was to:

- Calculate the Institute's purchases;
- Calculate the students purchases;
- Calculate the research expenditure;
- Assign these purchases to the sectors identified in the input - output tables;
- Establish wage multipliers for each of these sectors;
- Obtain wage income generated in each sector by multiplying the level of purchases by the wage multiplier; and
- Dividing the estimated wage income by average earnings to obtain employment levels.

The analysis undertaken indicated that through the purchase of materials and services, by the Institute and by its students, the Institute gives rise to 352 full-time equivalent jobs indirectly.⁶

5.6.3 Induced Employment

Both direct and indirect employment gives rise to wage income that is partly spent on other goods and services. Gross wages are subject to income tax and employee's PRSI, and these reduce the monies available for consumption. Furthermore, wage earners may choose to save a portion of their net incomes.

Induced employment was gauged by adding the wage income derived from indirect employment to the Institute's direct wage bill to arrive at the aggregate of direct and indirect income generated by the Institute's activities. The aggregate consumption arising from these incomes was then estimated.⁷ Again input-output tables were used to derive the wage income and thus the induced

⁶ This calculation was based on wage multipliers derived from the 1998 Input – Output Tables which are the most up-to-date available. The wage income generated throughout the economy was thus estimated at 2004 values. Average earned income per person for 2002 was established from an analysis of the National Income and Expenditure Tables, and adjusted by wage inflation to reflect 2004 values.

⁷ After allowing for personal tax payments, the propensity to save, and product taxes and subsidies.

employment arising from the Institute’s activities. Using this methodology we estimate induced employment at 157 full-time equivalent persons.⁸

5.6.4 Summary of Employment Impacts

In the year 2004, the Institute supported 1,479 full time equivalent jobs. These comprise 970 jobs directly, and an estimated 352 jobs indirectly and 157 jobs induced.

Table 5.4: Summary of Employment Impacts, 2004

Employment Type	Number of Full-time Equivalents
Direct	970
Indirect	352
Induced	157
Total	1479

Source: Goodbody Economic Consultants

Of these jobs, a significant proportion are generated in the South-East region. Differentiating between regional and national impacts is difficult given the long chain of employment impacts emanating from the Institutes activities. However, international research indicates that expenditure by students in particular tends to be highly local. The high proportion of Institute expenditure accounted for by staff wages also means that such expenditure is likely to have strong local impacts.

Overall, the figures indicate that for every job in the Institute another 0.52 of a job is created in the wider economy. This is in line with the findings from the international literature. (For example in a similar study on the University of Bristol they found a ratio of 1:0.5 and in California of 1:0.65).

5.7 Future Scenarios

5.7.1 Assumptions

In looking at the potential future impact of the Institute on the local economy we have drawn up two possible scenarios:

- One, where the Institute becomes a university with knock on effects on student numbers, particularly postgraduates and fourth level activity, on levels of income, and on access to research grants, over a five year period.
- Second, where the Institute remains within the IT sector and operating in a context where OECD recommendations are adopted as policy, resulting in slow growth in student numbers due to financial constraints on the sector, a loss of Doctorate and research staff, and a reduction in access to research awards that are increasingly targeted on universities, again over a five year period.

⁸ By applying wage multiples to the distribution of personal expenditure by sector of the economy, and dividing aggregate wage income by average earnings as before.

The two scenarios can be summarised as follows:

Table 5.5: Future Scenarios: Assumptions

	Scenario 1 2009 % Change	Scenario 2 2009 % Change
Undergraduate numbers	+40%	+10%
Postgraduate numbers	+300%	+10%
Overseas students	+166%	-0%
Research expenditure	+150%	-40%
Purchases of services	+40%	+10%
Wage bill	+40%	+10%
Institute Staff	+40%	+10%
Ancillary Staff	+40%	
Contract Research staff	+100%	-10%

Source: Goodbody Economic Consultants

5.7.2 Calculating the Impact of each Scenario on Regional GVA

We estimate that the contribution of the Institute under Scenario 1, i.e. access to university level resources and a related role and remit, will create the following GVA in the region:

Table 5.6: The Impact of each Scenario on Regional GVA, 2009

	Scenario 1 m	Scenario 2 m
Institute salaries	55.86	43.89
Wages and Profits arising from Institute Expenditure	23.3	13.1
Wages and Profits arising from Student Expenditure	17.2	12.6
Wages and Profits arising from Overseas Tourism	1.2	0.5
Total	97.6	70.1

We estimate that the expansion of the Institute that would occur under a university scenario would create regional GVA of €97.6m, equivalent to 0.87 per cent of total regional GVA and 1.9 per cent of regional service sector GVA, based on 2002 GVA values. Scenario 2 would reduce this figure to 0.63 per cent and 1.4 per cent respectively.

5.7.3 Calculating the Employment Impacts of each Scenario

Under Scenario 1 we estimate that direct employment will rise to 1,394 by 2009, indirect to 589 and induced to 232, giving a total employment impact of 2,215. Under Scenario 2 direct employment will rise to just 1,037 by 2009, indirect will remain fairly constant at 351 and 169 respectively, giving a total employment impact of 1,557, very slightly higher than today's figures.

Table 5.7 summarises these employment impacts and compares them to current levels.

Table 5.7: Summary of Employment Impacts, 2004 – 2009 under Scenario 1 and 2

Employment Type	Current Estimated Numbers	Scenario 1	Scenario 2
Direct	970	1394	1037
Indirect	352	589	351
Induced	157	232	169
Total	1479	2215	1557

Source: Goodbody Economic Consultants

This table shows that the injection of additional resources and the expanding role and remit that a university would create has the potential to increase the employment impact of the Institute, directly and indirectly by 736 jobs, thus providing a significant number of additional high quality jobs in the region. This type of investment would also enhance the potential of the Institute to stimulate local and regional economic development through the increased focus on R&D that would arise, and through the retention of a higher number and wider range of third level students and graduates within the region.

In contrast a continuation of the current situation and related resources is likely to result in very limited job growth, reduced R&D activity and to the continued loss of a undergraduates and graduates from the region with adverse spin off effects on the local and regional economy.

5.7.4 Calculating the Indirect Impact of a University on the Regional Economy

It is very difficult to quantify the indirect impact that a university has on the wider regional economy and on industry and services operating in that economy. The available evidence does indicate that proximity to a university increases attendance rates at university by the region's population and also to increase the employment of graduates within the region. It is however, impossible to quantify this effect on the performance of the region. We do know however, that with the growing emphasis on the knowledge economy, access to graduates, postgraduates and fourth level activity is likely to be increasingly important in ensuring that the South-East region can compete in the knowledge economy and can attract and retain higher value added industries.

We also know that regions with higher GDP per capita such as the Mid-West and the South-West currently support higher levels of graduate employment than the South-East. For instance, as shown in Chapter 2, 8.6 per cent of graduates with primary degrees find their first employment in the West region compared with 5.5 per cent in the South-East, even though the total number employed in the South-East in manufacturing and services is higher than in the West.

International evidence, presented in Chapter 3, also provides a basis for estimating the impact of university generated research on regional GDP. Such evidence suggests that research carried out by universities can, over time, account for 1.3 per cent of increases in GDP. Other studies indicate that for every \$1 of state funded research a further \$3.89 is brought in from the private sector.

If we apply these figures to the South-East region we can estimate that over 10 years university generated research could account for 1.3 per cent of the growth in gross value added within the region.

Alternatively we can estimate, based on US figures that for every \$1 of state funded research a further \$3.89 is brought in from the private sector economy. Based on our forecasts for future research expenditure by the Institute of €12.5m under the university scenario in 2009, we can estimate that this would result in a further €48.6m being brought in from the private sector, which we estimate would result in €42.7m in regional GVA, which turn is equivalent to 0.4 per cent of total regional GVA in the region in 2002.

5.8 Summary - Impact on the Regional Economy, Now and Future Potential

The direct and indirect impact of the Institute currently can be summarised as follows:

- The Institute is responsible directly and indirectly for 1,479 jobs – 970 in the Institute and a further 509 indirectly or induced, generated by Institute expenditure on wages, goods and services. This is equivalent to 1.6 per cent of service employment in the South-East region. (CSO 2002)
- The Institute contributes €65.5m to the economy through direct, indirect and induced wages and profits. This is equivalent to 0.58 per cent of regional GVA and 1.3 per cent of regional services GVA. (At 2002 GVA values).

The direct and indirect impact of the Institute in five years time under the university scenario we estimate would be as follows:

- The Institute would generate 2,215 jobs either directly or indirectly, equivalent to 2.4 per cent of existing regional services employment - an increase of 50 per cent on current levels.
- The Institute would generate €97.6m in the economy equivalent to 0.87 per cent of current total regional GVA and 1.9 per cent of current regional service sector GVA – an increase of just under 50 per cent on current figures.
- The Institute could raise GVA by a further 0.4 per cent through the impact of its R&D activities on the region.

However, the direct and indirect impact of the Institute in five years time under the continuing IT scenario we estimate would be as follows:

- Employment generated by the Institute would remain almost static at 1,545; and
- Contribution to regional GVA would rise only to €70m – only 7 per cent higher than existing levels.

5.9 Conclusions

The figures presented above demonstrate in the case of the South-East what the international literature has already shown, i.e. regional universities create direct and indirect employment in significant numbers-similar to a reasonably sized industry. They also contribute to the dynamic growth of the region through the impact of their graduates on the local labour market, and of their research on local industry and services.

The analysis shows how a university has the potential to enhance the economic performance of the South-East region, to expand higher level student numbers with benefits throughout the economy, and to assist Ireland in its drive to become a knowledge economy.

6. Economic Development Strategy for the Region

6.1 Introduction

Previous chapters have highlighted the current economic situation within the South-East region and the need for concerted action to be taken to boost the performance of the region. The analysis has also shown the type of role that higher education can play in both national and regional development and the increasing significance placed on higher education in stimulating the development and growth of the knowledge economy, both in a national and regional context.

Overall, this analysis indicates that future economic development within a knowledge-based economy will be increasingly dependent on the quality of the workforce and on their potential to innovate and exploit knowledge within commercial contexts. This in turn points to the need for centres of excellence in higher education, within a regional environment, that can work with business and other interests to ensure that such development occurs.

6.2 Key Economic Development Issues Emerging

In relation to the South-East we can summarise that:

- 1) The South-East region requires an injection of income into the region to stimulate its ongoing development and to ensure that its economy becomes one characterised more by high earnings and employment in high growth sectors with the potential for self sustaining growth.
- 2) To achieve this the quality of the regional labour force must be enhanced and the opportunities presented by such a labour force widely promoted.
- 3) Discussions with stakeholders within the region have emphasised the need to concentrate on:
 - a) Attracting more high value foreign investment into the region both from overseas and from the Dublin region.
 - b) Supporting the development of indigenous industry with identified growth potential across a range of sectors.
 - c) Improving access to and within the region.
 - d) Exploiting the high quality of life to be found in the region while at the same time ensuring that deficits in areas like the health service are adequately addressed.
 - e) Ensuring that the region speaks in a coherent and co-ordinated manner in pursuit of these objectives.

Underpinning these findings is a growing recognition of the potential that a stronger higher education sector within the region can have. This view is reinforced in existing EU and national education policy and in world-wide research which highlights the growing role of universities in national and regional economic development.

6.3 A University of the South-East

The creation of a university of the South-East has the potential to play a key role in addressing the economic deficits identified above and in stimulating the growth of the region. A university within the South-East would:

- Raise the participation rate at university in the Region;
- Improve the quality of the workforce thus supporting the development of indigenous industry;
- Help attract increased foreign investment;
- Ensure the availability within the region of top class graduates across a wide range of disciplines;
- Access the resources necessary to enhance the R&D capability of the region in collaboration with local employers and business interests leading to the enhancement of local innovation capability and new product and process development;
- Increase research output within the region and increase linkages with the modern industrial sector that the region needs to attract;
- Respond to regional skill and R&D needs;
- Facilitate the development of strategic alliances with other academic institutions and with leading industries;
- Create an economic spin-off that would enhance the scale and diversity of service sector activities available in the region;
- Increase the socio-economic position of Waterford City and the region and improve its social and cultural attractiveness.
- Raise the income of the region through the attraction of an increasing number of top class students, research staff and researchers, plus an increasing number of post graduate students and fourth level activity from within the region and within the wider economy, as well as from abroad; and
- Raise income and create significant numbers of additional jobs both directly and indirectly, estimated at over 700 new jobs and an extra €32 million in regional GVA under our growth scenario by 2009.

A university of the South-East would thus kick start a positive cycle of growth for the region with significant long-term and sustainable benefits to the regional economy.

A University in the South-East will ensure that:

- Long term core funding for R&D and for related capital development is available;
- Funding levels for students are sufficiently balanced to attract a wide range and level of students to study within the region and that leakage of undergraduates and post graduate students to other regions are reduced;

- Staff of the highest quality are attracted to the Institute and to the region who in turn are involved in the highest level of academic research, attracting a wide range of funding, as well as engaging in a range of R&D and innovative activities with local employers and industry leaders in their field;
- Sufficient resources are available to foster strong links with local industry and to support the creation and development of clusters of economic activity within the region that have the potential to raise the value added of existing industry, and to entice other foreign investment into the region;
- The range and quality of provision and related support structures is such that a high number of international students are attracted to the area; and
- The university is seen as a centre of innovation with the region and as a key partner with industry and other stakeholders in the development of the region's economy.

This requires a strategic decision on behalf of the government to:

- a) Make a concerted attempt to increase the prosperity of the region;
- b) Develop and implement a co-ordinated higher education strategy for the region that recognises the key role that a university can play in regional development and prosperity; and
- c) Back this up by the necessary financial and human resources.

7. Conclusions and Recommendations

7.1 Introduction

In this Chapter we present the key conclusions and recommendations arising from the study.

7.2 Conclusions

Key conclusions emerging from the study are that:

- The South-East region has under performed relative to other regions over the 1990s, particularly the West, and significant additional investment in the region is required if the South-East is to participate fully in national economic growth.
- This under investment is reflected in comparatively low-income levels, low levels of employment in high tech sectors and in business services, as well as in relatively low educational qualifications among the population of the region.
- However, the region also possesses a range of resource advantages in terms of its location on the Eastern seaboard, and its quality of life. There are signs that investment levels in the region have been increasing in the first years of this decade and that a number of structural weaknesses are being addressed.
- One of the key areas of remaining weakness is to the level of investment in higher education within the region.
- This weakness is particularly significant in the context of the knowledge economy, which Ireland is striving to become. The attainment of such a knowledge economy is now a key policy goal at EU, national and regional level.
- The presence of a university has been shown internationally to play a vital role in the development of regional economies - both directly and indirectly.
- The development of a university within the South-East region is a key policy objective for the region.
- Such a development should be a key government initiative aimed at enhancing the region's potential as a location for international investment, for the development of innovative indigenous industry and for the injection of much needed resources into the region.
- The role and resources that a university would bring to the region would lead to the creation of over 700 jobs within the region over the next five years and would generate an additional €32 million within the local and regional economy.
- The establishment of university within the South-East region should be undertaken in the context of developing a competitive city within the region that can effectively compete with other regional centres and can act as a counter balance to the national capital.

7.3 Recommendations

We recommend that Waterford should be the location for the proposed university for the following reasons:

- The Waterford Institute of Technology is one of the leading Institutes of Technology in the country;
- The Waterford Institute of Technology is the largest Institute of Technology within the region and has already achieved many of the characteristics of a university, but is constrained by lack of resources within an IT framework to reach its full potential;
- Waterford is the regional Gateway city under the National Spatial Strategy and is the largest gateway location without such an institution;
- Waterford is the largest city in the region; and
- Waterford has the potential to attract the level and type of resources that can make it a competitive city both nationally and internationally.

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Appendix 1

Research and Innovation at the Waterford Institute of Technology

The Institute has a cohort of highly qualified and research active staff. It has more than 140 students registered as postgraduate research students and has a number of internationally recognised centres of excellence in areas such as telecommunication software, separation science, optics, health behaviour, materials characterisation, marketing studies, management and social care. In January 2005 acknowledging the depth of research expertise within the Institute, the Higher Education Training and Awards Council (HETAC) delegated authority to the Institute to award research masters in the Schools of Science, Engineering, Business and Humanities in addition to PhD level awards in the School of Science.

In the academic year 2004 the Institute secured more than €7.5m in research funding. The Institute is one of the leading institutes in Ireland in the area of research funding. The Institute has received funding from a range of major national funding agencies including SFI (Clusters Grant), SFI Research Frontiers programme, HEA PRTL programme, Enterprise Ireland ATRP and Proof of Concepts programmes, IRCSET Embark programme and IRCHSS Research Scholars Fellowship programme. In addition the institute's largest research group the Telecommunications Software and Systems Group (TSSG) is the leading Irish (academic or industry) player in the European IST Sixth Framework programme securing approximately €4m in research funding annually from this programme.

In order to strengthen its international standing the Institute has formal strategic relationships with over 40 of the leading international research centres in Europe and the States. A notable example is its research links with the Chinese National Academy of Science, Institute of Chemistry, Beijing, which is been funded by SFI under the joint China-Ireland research programme. The TSSG has also established a joint research programme in the area of Autonomics Communications with the Motorola research laboratories Chicago. The Macular Pigment group has established a strategic partnership with Bausch & Lomb Germany which funds ground breaking research into CARMA-Age Related Macular Degeneration.

In addition to research partnerships on an international level the Institute is actively engaged with both the public and private sector at a regional and national level on joint research programmes. Examples of some of the organisations with which the Institute is currently involved in research collaborations include Waterford Crystal, O2, Ericsson, Merck Sharpe Dohme, Frentech, the Health Services Executive and South East Regional Tourism Authority.

The Institute is also a leading Institute in supporting the establishment of high potential start up enterprise in the South-East region through its development and management of the South East Enterprise Platform Programme. Since 1997 the Institute in partnership with the Department of Education & Science and Enterprise Ireland has successfully provided education, mentoring and financial support in addition to serviced office facilities to more than 100 graduate entrepreneurs. The success of this programme is evident through the emergence of companies such as Waterford Technologies, NutriScience, Technology Sales Leads, Fastform Research, Rodairm and Sharbyte all knowledge based companies providing significant employment opportunities within the South East region.

In September 2005 the Institute is commissioning a dedicated Research and Innovation Centre on its new campus at Carriganore. This is a €5m state of the art building which is part funded by HEA PRTL, Enterprise Ireland and private industry. This centre will accommodate the Institute's largest research group the TSSG and will also serve to provide incubator and commercial R& D space for emerging knowledge based enterprise, primarily within the software services and internationally traded services sectors.

Co-location of the TSSG and incubating companies in the Incubation & Research Centre will create a critical mass of researchers and entrepreneurs, ideas and resources forming the nucleus of the Institute's and the region's research, innovation and enterprise development activities. The Centre will act as a focal point in the drive to attract inward investment and to stimulate the creation of indigenous knowledge based industry within the region.