

BiGGAR Economics

Economic Impact of the University of St Andrews 2011-12

A final report to



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BiGGAR Economics

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1 INTRODUCTION

The University of St Andrews is Scotland's first university and the third oldest in the English-speaking world, founded in 1413. The turnover of the University in 2011/12 was £170.3 million. The University employed 2,355 staff and had 7,777 full-time students.

In 2010 the University of St Andrews commissioned BiGGAR Economics to undertake an economic impact study. It was completed in the spring of 2010 and based on the 2008/09 academic years, during which the University had a turnover of £147.1 million and 7,404 full-time students. The 2010 study found that the University's economic impact in Scotland in 2008/09 was £305.3 million in Gross Value Added (GVA) and 9,197 full-time equivalent jobs (ftes). The study also provided an estimate of exports, associated with international students in particular, of £54.14 million.

Between 2008/09 and 2011/12 "funding body grants" reduced by almost 3% in cash terms and more than 10% in real terms to £40.1 million so that they now account for less than a quarter of the University's turnover. However, despite these cutbacks in public sector funding and the recession, the University's turnover increased by an impressive 16% over three years. The University's income from international students accounts for a large proportion of that growth with an increase of almost £13 million in three years, which is an increase of 57%.

In this context, the University commissioned BiGGAR Economics to update the economic impact study previously undertaken for the University, with a particular emphasis on international students and exports supported by the University. This updated economic impact report is for the academic year 2011/12.

The remainder of this report is structured as follows:

- Chapter 2 describes the economic and strategic context;
- Chapter 3 introduces the economic impact methodology;
- Chapters 4 to 8 describe the assumptions and results of the quantitative economic impact assessment;
- Chapter 8 also discusses impacts that are difficult or cannot be captured qualitatively, as does Chapter 9;
- Chapter 10 discusses the graduate premium;
- Chapter 11 highlights the contribution to exports;
- Chapter 12 discusses the University's proactive approach to maximising impact; and
- Chapter 13 summarises the University's impacts.

2 CONTEXT

2.1 Geography

The economic impact analysis quantifies the University's impact in four geographic areas:

- St Andrews: the wards of St Andrews Central, St Andrews South, St Andrews South East and Strathkinnes and St Andrews West;
- Fife: the area covered by Fife Council (including St Andrews);
- Dundee City Region: covering the council areas of Dundee, Angus and Perth & Kinross and the Scottish Parliamentary Constituency of North East Fife (including St Andrews); and
- Scotland (including Fife and Dundee City Region).

2.2 Economic Context

2.2.1 Population and Employment

St Andrews is the fourth largest town in Fife, after Kirkcaldy, Dunfermline and Glenrothes. St Andrews has a population of 19,222 and 7,634 employees. It contributes more employees to North East Fife and Fife as a whole compared to its population. This can be seen in **Table 2.1**, which shows that a third of the employees in North East Fife are in St Andrews compared to just under a quarter of the population

Table 2.1: Population and employees of businesses located in the area

Area	St Andrews population as % area population	St Andrews employees as % area employees
North East Fife	24%	33%
Fife	5%	6%
Dundee City Region	4%	4%
Scotland	0.4%	0.3%

Source: *Scottish Neighbourhood Statistics 2011 and Mid 2011 Population Estimates Scotland* (General Register Office for Scotland)

2.2.2 Unemployment

The unemployment level, as defined as the proportion of the working age population who claim job seekers allowance¹, in St Andrews is significantly lower (0.9%) than the level in Scotland (4.0%). The level for Fife is marginally higher (4.3%) than the national average.

¹ The job seeker allowance claimant count is currently just under half of the broader

Table 2.2: Claimant count

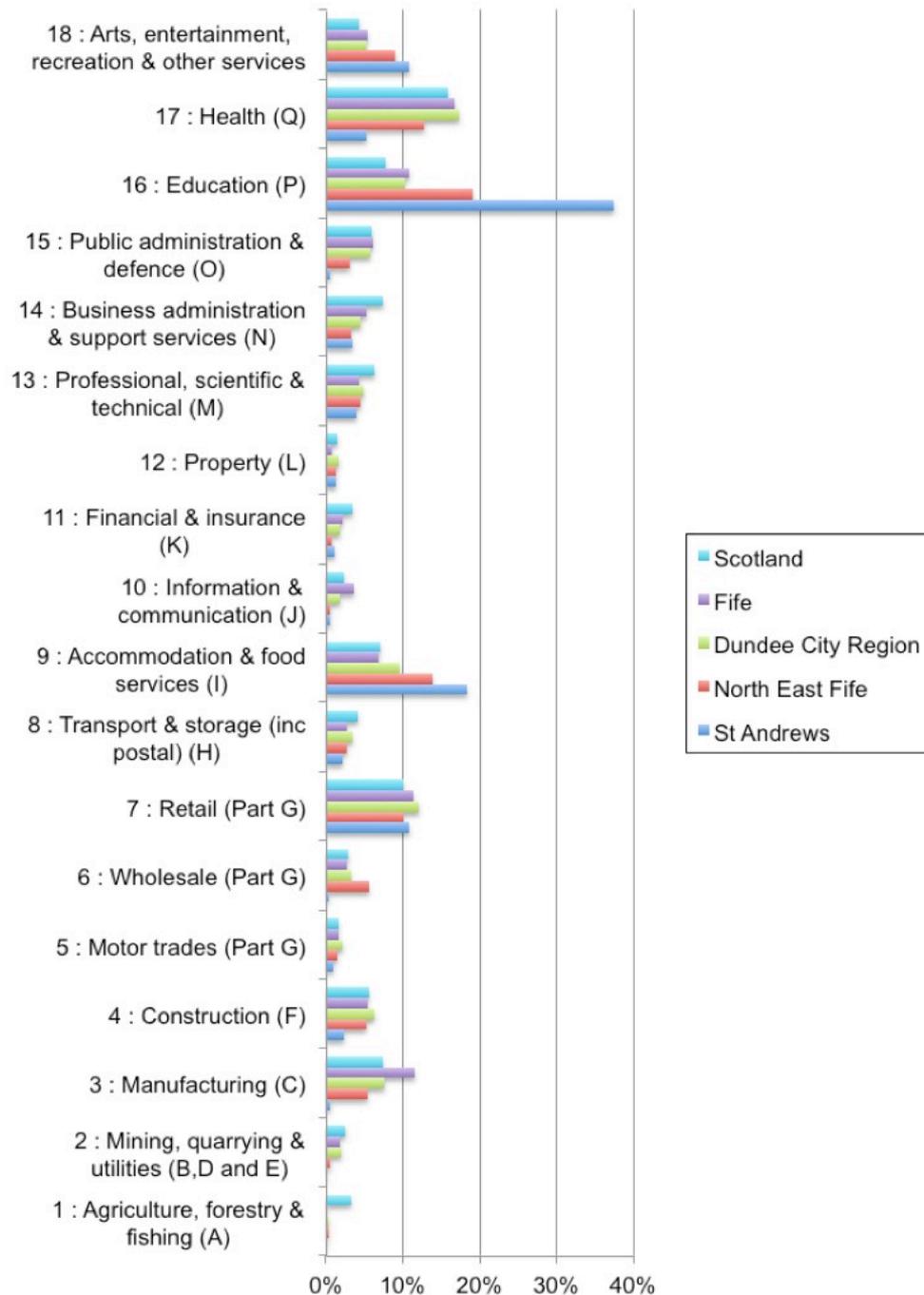
Area	Proportion of working age population (%)
St Andrews	0.9%
North East Fife	1.8%
Fife	4.3%
Dundee City Region	3.4%
Scotland	4.0%

Source: ONS Claimant Count JSA Claimants, September 2012

2.2.3 Key Sectors

The structure of the economy of St Andrews is different to the rest of Fife, the Dundee City Region and Scotland. Education plays a key role within St Andrews and provides employment for 37%, as would be expected with the presence of St Andrews University. The sectors aligned to tourism (accommodation and food services, arts, entertainment, recreation and other services) are also considerably more important in St Andrews than the national average and provide employment for 29% of the workforce.

Figure 2-1: Key Sectors of Employment by Study Area



Source: Business Register and Employment Survey 2011(ONS)

2.2.4 Tourism

As shown above, the tourism sector is important to the town of St Andrews, accounting for 29% of employment, or 2,234 jobs. This is a higher proportion than each of the study areas.

The size of tourism related activity (as defined by the Scottish Government) in St Andrews is estimated using the level of employment as a proxy for the proportion of tourism activity in each of the areas.

Table 2.3: Contribution of Tourism sector

Area	Sector GVA (£m)	Tourism Employment	
		Number	% of employment total
St Andrews	39.9	2,234	29%
Fife	284	15,913	12%
Dundee City Region	512	28,662	15%
Scotland	5,044	282,436	12%

Source: Business Register and Employment Survey 2011(ONS)

Using these figures it is estimated that 14% of the tourism related activity in Fife occurs in St Andrews compared to 5.9% of employment overall.

Table 2.4: St Andrews Employment as % of Employment of other study areas

Area	All employment	Tourism Related Employment
Fife	5.9%	14.0%
Dundee City Region	3.9%	7.8%
Scotland	0.3%	0.8%

Source: Business Register and Employment Survey 2011(ONS)

2.3 Summary

The University of St Andrews is unique amongst Scottish universities in that it is located within a small coastal town rather than a city where most Universities are based.

Unemployment is very low in St Andrews, in contrast to the whole of Fife, which has a slightly higher claimant count than the Scottish level. Tourism related activity is an important sector for all study areas, particularly in St Andrews itself, where it contributes 29% of the employment.

Education is another important sector to St Andrews and provides 37% of the town's employment.

3 METHODOLOGY

3.1 Sources of Impact

The economic impact of the University of St Andrews derives from many sources. The following impacts have been included in the quantitative impact assessment:

- core University (Chapter 4):
 - direct impacts (University income and employment);
 - supplier impacts (spending on supplies and services and jobs supported by this spend);
 - income impacts (impact of the spending of employees); and
 - capital impacts (impact of capital project investment).
- student (Chapter 5):
 - student spending; and
 - part time work.
- tourism (Chapter 6):
 - visits from friends and family;
 - conferences; and
 - accommodation services;
- valorisation to businesses (Chapter 7):
 - impacts on businesses associated with consulting;
 - impacts on businesses associated with knowledge transfer partnerships;
 - spin-out companies;
 - licensing; and
 - impacts on companies associated with continued professional development.
- valorisation to community (Chapter 8):
 - policy and practice;
 - public engagement; and
 - returns to medical research.

The total economic activity associated with each type of impact has been estimated by using the economic impact methodology described below.

The quantitative analysis is continued Chapter 10 which discusses the impacts on the economy associated with the University's core teaching activity through using

the graduate premium. The University's contribution to the value of exports is highlighted in Chapter 11.

In addition, the wider impact of valorisation to the wider public is discussed in Chapter 8. The discussion of impact on the wider public is carried on in Chapter 9, which discusses how the University engages with the Community.

Chapter 12 highlights how the University seeks to maximise its economic impact through renewable energy projects.

3.2 Economic Impact Methodology

Each source of economic impact creates economic impact in three ways:

- Direct effects – economic activity directly supported by the organisation or individual, including economic output (i.e. the turnover of the University or the spend of the tourist) and employment (i.e. staff employed by University or employment supported by the direct spend of the tourist such as hotel, restaurants and tourist attraction staff);
- Supplier (or indirect) multiplier effects – the purchases of supplies and services made by the organisation or individual and all the resulting purchases of supplies and services down the supply chain that has occurred because of the original purchase; and
- Income (or induced) multiplier effects – the expenditure of employees created by the direct effect and supplier effect.

The total of these effects is the gross impact. This needs to be converted to net impact by considering the following factors:

- Leakage – this considers how much of the economic activity occurs in the study area. This study considers the economic impact for St Andrews local economy, Fife, Dundee City Region and Scotland as a whole. Leakage is taken account of by considering the geographical source of the impact, the location of the impact and adjusting Scottish multipliers to the study area; and
- Displacement – this takes into account whether the activity of the University has resulted in the reduction of activity elsewhere in the study area (i.e. would visitors renting University accommodation have stayed elsewhere in St Andrews if the University did not exist, thus reducing the economic impact of other accommodation providers). The unique nature of the University of St Andrews activity means that displacement is not an issue in most of the sources of impact; the main exception is for conferences and accommodation activities.

Economic impact is reported in two ways:

- Gross Value Added (GVA) measures the monetary contribution of the organisation and individual to the economy; and
- Employment, measured in full time equivalent (fte) jobs supported.

Each area of impact requires the use of three types of economic assumptions:

- Turnover to GVA ratio – this is used to estimate the GVA impact of the spend in an area. This is obtained from the Scottish Annual Business Statistics 2010, published in 2012;

- turnover per employee – this is used to estimate the employment impact of the spend in area. This is obtained from the Scottish Annual Business Statistics 2010, published in 2012;
- GVA and employment multipliers – this is used to estimate supplier and income impact created by businesses that directly benefit from additional spend in area. For the Scottish economy, this is obtained from Scottish Input Output Tables 2007. Adjustments for the other study areas have been based on assumptions made by BiGGAR Economics based on previous work.

4 CORE UNIVERSITY IMPACT

This section covers the impact of the University associated with its core activities:

- direct impact – based on the University’s income;
- supplier impact – the impact on businesses supported by the University’s spend on supplies;
- income impact – this derives from the impact on businesses supported by the spend of employees’ wages in the economy; and
- capital impact – the impact from the University’s spending on capital projects.

4.1 Direct Impact

The University’s income in 2011/12 was £170.3 million. GVA is estimated by subtracting spend on goods and services from this figure, which gives a GVA of £114.3 million. The full time equivalent (fte) number of jobs supported is 2,093.

Table 4.1: Direct Impact – Assumptions & Impact

	Source	Value
Income of University of St Andrews 2011/12 (£m)	UofStA Finance Office	170.3
Goods and services spend UofStA 2011/12 (£m)	UofStA Finance Office	56.0
GVA (£m)	BE Economic Impact Model	114.3
Employees (ftes)	UofStA Human Resources	2,093

4.2 Supplier Impact

The amount the University spends on supplies in businesses in each study area is shown in the table below.

Table 4.2: Amount spent on supplies purchased from businesses in study areas (2011/12)

Study Areas	Value (£m)
St Andrews	2.1
Fife	5.3
Dundee City Region	7.3
Scotland	21.6

Source: University of St Andrews

The impact of this spend in each study area was estimated by applying economic assumptions. To estimate the GVA impact a turnover to GVA ratio and an appropriate GVA multiplier for the area was applied. To estimate the employment impact a turnover per employee figure and an appropriate employment multiplier to the area was applied.

The University's spending on supplies supported in 2011/12 £0.8 million GVA and 26 jobs in St Andrews and in Scotland the total impact is £13.8 million and 343 jobs.

Table 4.3: Total impact due to the University purchasing goods and services (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£)	0.8	2.0	2.8	13.8
Employment (ftes)	26	57	72	343

Source: BiGGAR Economics

4.3 Income Impact

The impact of wages spent in the study is estimated by obtaining information regarding the amount of wages paid to University employees in each study area. Then an estimation of how much of these wages is spent in each study area is applied (Table 4.4).

Table 4.4: Amount spent on supplies purchased from businesses in study areas

		Area where wages are spent			
		St Andrews	Fife	Dundee CR	Scotland
Area where employees are resident	St Andrews	40%	55%	55%	70%
	Fife	20%	55%	55%	70%
	Dundee City Region	15%	35%	35%	70%
	Scotland	40%	55%	55%	70%

Source: BiGGAR Economics

This results in an estimate of how much is spent in each study area by residents of each of the four study areas. The spend in each study area is totalled. The economic impact of this spend is then estimated by applying economic assumptions to the spend in each of the four study areas.

The total impact of the University's employees spending of wages in St Andrews was £29.7 million GVA and 666 jobs and in Scotland the total impact was £157.2 million GVA and 3,903 jobs.

Table 4.5: Total impact due to the spending of wages (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	29.3	73.3	73.3	157.2
Employment (ftes)	666	1,677	1,677	3,903

Source: University of St Andrews

4.4 Capital Spend Impact

The ten year average of capital spending by the University of St Andrews is £23.6 million² (Table 4.6). The ten year average is used as capital spending varies

² Updated information to be provided by University.

significantly from year to year. All of this income is spent in St Andrews. The impact of this spend is estimated in the following stages:

- direct impact of this spend is estimated by applying turnover to GVA and turnover per employees to the capital spend;
- supplier impact of this spend is estimated by applying an estimate of how much of the purchase of goods and services is from businesses in each study area (Table 4.6). The impact of the spend on goods and services for construction in each study area is then estimated by applying turnover to GVA and turnover per employee figures to this spend; and
- employment impact of this spend is estimated by applying economic assumptions relating to the employment impact.

Table 4.6: Capital Impact Assumptions

	Value
Amount spent on capital projects by UoStA – ten year average (£m)	23.6
% of construction supplies sourced from St Andrews	0.3%
% of construction supplies sourced from Fife	0.8%
% of construction supplies sourced from Dundee City Region	12.2%
% of construction supplies sourced from Scotland	16.7%

Source: University of St Andrews Human Resources

The University through construction contributes to St Andrews £9.5 million GVA and 179 jobs and in Scotland the contribution was £15.0 million GVA and 290 jobs.

Table 4.7: Total impact due to the University spending on capital projects (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	9.5	9.8	11.2	15.0
Employment (ftes)	179	187	212	290

Source: University of St Andrews

4.5 Summary Core Impact

The total core impact of the University of St Andrews in 2011/12 was £154.2 million GVA and 2,964 jobs in St Andrews and in Scotland the total impact was £300.2 million GVA and 6,629 jobs.

Table 4.8: Summary of Core GVA Impact, £m (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Direct	114.3	114.3	114.3	114.3
Supplier	0.8	2.0	2.8	13.8
Income	29.7	73.3	73.3	157.2
Capital	9.5	9.8	11.2	15.0
Total Core Impact	154.2	199.3	201.5	300.2

Source: BIGGAR Economics – Figures may not total due to rounding

Table 4.9: Summary of Core Employment Impact (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Direct	2,093	2,093	2,093	2,093
Supplier	26	57	72	343
Income	666	1,677	1,677	3,903
Capital	179	187	212	290
Total Core Impact	2,964	4,014	4,054	6,629

Source: BiGGAR Economics – Figures may not total due to rounding

5 STUDENT IMPACT

Students of the University of St Andrews have a quantifiable impact on the economy in two ways:

- spending in local businesses; and
- benefiting local businesses by providing additional labour through part time work.

5.1 Student Spending

Students have an impact on the economy through their spend on accommodation, socialising and food. In 2011/12 there were 7,777 full time students enrolled within the University of St Andrews. This expenditure represents an increase in turnover in the businesses where it is spent and this generates GVA and supports employment in these businesses. To be able to calculate the economic impact that the student spending has it is necessary to know:

- how much students spend;
- what they spend it on; and
- where they stay.

The spending per student in each of the accommodation types is based on spending data from St Andrews University Student Experience Office. This gives an estimate for how much the students in each of the different study areas spend in the different areas of expenditure (accommodation, food etc.). The monthly totals for each category of spend are given in Table 5.1.

Table 5.1: Monthly spend of students by category

	St Andrews (£)
Accommodation	400
Food	160
Social Spend	100
Other	205
Total	865

Source: University of St Andrews Student Experience Office 2010

The assumption regarding student expenditure varies on where the student stays and in what kind of accommodation. For example to avoid double counting, the income received from the student accommodation is not included in this analysis because it is included in the Core Impact.

The breakdown of the location and accommodation type of students was given by the University of St Andrews and is displayed in Table 5.2.

Table 5.2: Location of full time students by accommodation type (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Self-catered accommodation	1,815	0	0	0
Catered accommodation	1,731	0	0	0
Private rent	3,862	81	81	41
Living with parents	27	61	57	22
Total Students	7,435	142	138	63

Source: University of St Andrews

These amounts are multiplied by the number of students living in each area by accommodation type and the proportion of the spend that occurs in each area to find the increase in revenues for businesses in those areas each month. The length of time that the students stay there is then taken into account using the weighted weeks in Table 5.3. This weighting reflects difference in the number of weeks that a student will stay in the accommodation depending on the accommodation type and whether the student is a postgraduate or an undergraduate.

Table 5.3: Weighted weeks spent in term time accommodation

Type of Accommodation	Weighted Weeks
Self Catering	41.58
Catering	35.00
Private rent	39.52
Living with parents	52.00

Source: BiGGAR Economics analysis based on information provided by University of St Andrews Registry

The amount spent in each study area varies depending on where the student lives, the type of the expenditure and the estimated proportion of each type of expenditure that occurs in St Andrews is given in Table 5.4. The remainder of the expenditure is expected to occur in Scotland, apart from 'Other', which accounts for the fact that some of this spending such as utilities may be not be local. For example a student living in St Andrews will spend all of their food spend in St Andrews while a student living in elsewhere in Fife will spend 50% of their food spending in St. Andrews and the rest in Scotland.

Table 5.4: Total proportion of various spend in St Andrews by spend category and by area of residence

	Location of student			
	St Andrews	Elsewhere Fife	Elsewhere Dundee CR	Elsewhere Scotland
Accommodation	100%	0%	0%	0%
Food	100%	50%	50%	50%
Social	100%	30%	30%	30%
Other	50%	43%	20%	20%

Source: BiGGAR Economics Assumption

The economic impact of the spend of students is estimated by applying economic assumptions. The University in 2011/12 supported in £29.2 million GVA and 757 jobs in Scotland. The impact in the town of St Andrews was £16.9 million GVA and 517 jobs. The breakdown of this impact for each study area is given in Table 5.5.

Table 5.5: Total impact due to the student spend (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	16.9	18.1	18.2	29.2
Employment (ftes)	517	542	546	757

Source: University of St Andrews

5.2 Student Part Time Work

The students of the University of St Andrews are an important factor in the local labour market because many of these students work part-time along with their studies. This part time work has an impact on the local economy.

The analysis of the impact of part-time work is based on the number of full-time students living in each area. To this number assumptions have been applied for:

- % of students that have a part-time job (based on the University of St Andrews Student Survey which suggests that 45% of students have a part-time job);
- subtracting the number known to work for the University;
- % of labour supply that is additional (90%); and
- ratio of annual term time student working hours to annual fte working hours which is based on how long students stay in the area during term time and number of hours worked in these part time jobs. Surveys by NUS Scotland³ and RBS⁴ estimate that average number of hours worked per week by a student is fourteen hours.

The GVA associated with this employment is estimated by applying an appropriate GVA per employee. The economic impact of this contribution to businesses' productivity through additional labour provided by students working part time is estimated by applying supplier multipliers as the income impact has been estimated in the section regarding student spend.

The University in 2011/12 through students working part-time during term time contributed £24.7 million GVA and 1,033 full-time jobs to Scotland. The impact is broken down for each of the study areas in Table 5.6.

Table 5.6: Total impact due to the part time work of students (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	19.5	20.5	20.7	24.7
Employment (ftes)	884	916	926	1,033

Source: University of St Andrews

³ NUS Scotland, *Still in the Red*, 2012

⁴ RBS, *Student Living Index*, 2009

5.3 Summary

The University of St Andrews through their students contributed £36.4 million GVA and 1,401 jobs to St Andrews and £53.9 million GVA and 1,791 jobs to Scotland.

Table 5.7: Summary of Student GVA Impact, £m (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Student Spending	16.9	18.1	18.2	29.2
Student Part Time work	19.5	20.5	20.7	24.7
Total Student Impact	36.4	38.5	38.9	53.7

Source: BiGGAR Economics – Figures may not total due to rounding

Table 5.8: Summary of Student Employment Impact (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Student Spending	517	542	546	757
Student Part Time work	884	916	926	1,033
Total Student Impact	1,401	1,458	1,472	1,791

Source: BiGGAR Economics – Figures may not total due to rounding

6 TOURISM

The University contributes to the economy through attracting additional visitors through:

- visits from friends and family of staff and students of the University;
- conferences, events and courses hosted by the University; and
- provision of accommodation for leisure visitors.

6.1 Visits from Friends and Family

The University attracts additional visitors to the study areas through visits to staff and students from friends and family (VFR). The number of domestic and overseas visits each staff and student receives is estimated by dividing the annual number of domestic and overseas VFR trips by the population of Scotland. These assumptions along with the spend assumptions per trip is shown in Table 6.1. These are applied to the headcount of staff and students at the University to give additional visitor spend.

Table 6.1: Visit Friends and Family Assumptions (2011/12)

	Total	Source
Annual number of VFR trips in Scotland from UK (£m)	2.34	VisitScotland: Scotland Key Facts in Tourism 2011
Annual number of VFR trips in Scotland from overseas (£m)	0.61	VisitScotland: Scotland Key Facts in Tourism 2011
Population Scotland (million)	5.25	Mid Year Population Estimates 2011
Spend per UK VFR trip (£m)	150	VisitScotland: Scotland Key Facts in Tourism 2011
Spend per overseas VFR trip (£m)	503	VisitScotland: Scotland Key Facts in Tourism 2011

Source: University of St Andrews

Applied to the additional visitor spend is an assumption of the percentage of each trip spend in each study area which is shown in Table 6.2.

Table 6.2: Location of spend of visitors (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Percentage of trip spent in each area	60%	70%	70%	100%

The economic impact of the additional visitor spend in each area is estimated by applying economic assumptions. This results in an estimated impact of £0.9 million GVA to the Scottish economy and 42 jobs, of which £0.4 million GVA and 20 jobs are in St Andrews.

Table 6.3: Total impact due to visits from friends and family (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	0.4	0.5	0.5	0.9
Employment (ftes)	20	24	24	42

Source: University of St Andrews

6.2 Conferences, Events and Courses

There are a variety of different conferences, events and courses. These are categorised into five types and are shown in Table 6.4 along with the number of delegates hosted in 2011/12.

The first step in estimating the economic impact of these events was to estimate how many additional visitors result from these events. Some of these events will be additional to the economy as without the University the event would never happened (for example weddings by alumni, conferences attracted to the area due to the University's research strength or the unique facilities and location of the University). An assumption of the additionality of each type of event is shown in Table 6.4. This table also shows an assumption of how many delegates bring partners.

Applying the additionality assumption and the bringing partners assumption to the delegate numbers results in an estimate of additional visitors to the area.

Table 6.4: Conferences, events & courses - additional visitors assumptions (2011/12)

	Delegate Numbers	% Additional	% Bring partners
Weddings	4,827	50%	0%
Day Conferences	2,026	85%	0%
Residential Conferences	3,352	85%	8%
Residential Courses	1,276	100%	8%
Groups	3,404	25%	8%

Source: University of St Andrews

The second step is to estimate how many days were spent in St Andrews by the visitors and how many of these days were spent in University accommodation (to avoid double counting since the amount spent on University accommodation is accounted for in the direct impact). These assumptions are shown in Table 6.5 and applied to the estimate of additional visitors to the area.

Table 6.5: Conferences, events & courses - accommodation & duration assumptions (2011/12)

	% stay University accommodation	Duration (Nights)
Weddings	30%	1
Day Conferences	0%	2
Residential Conferences	30%	4
Residential Courses	100%	24
Groups	50%	5

Source: University of St Andrews

The next step was to apply a daily spend estimate to the five visitor types. This daily spend will vary depending on whether the visitor stays in University accommodation. These assumptions are shown in Table 6.6. These assumptions were applied to the nights stayed by visitors who stay in University and non-University accommodation. This produced an estimate of the total spend by additional visitors.

Table 6.6: Conferences, events and courses – spend assumptions (2011/12)

	Daily Spend (£)		Source
	Total	Exc. Accom.	
Weddings	68.24	47.08	VisitScotland: Scotland Key Facts in Tourism 2011
Day Conferences	110.54	76.27	
Residential Conferences	115.07	79.40	
Residential Courses	n/a	25.00	BiGGAR Economics based on tourism and student spend
Groups	68.24	47.08	VisitScotland: Scotland Key Facts in Tourism 2011

Source: University of St Andrews

The last step was to estimate the impact of the total spend by applying economic assumptions. This resulted an impact of £2.1 million GVA in Scotland and 105 jobs, of which £1.5 million was in St Andrews, supporting 83 jobs.

Table 6.7: Total impact due to hosting conferences, events and courses (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	1.5	1.6	1.6	2.1
Employment (ftes)	83	86	86	105

Source: University of St Andrews

6.3 Provision of Accommodation for Leisure Visitors

The University provides accommodation for leisure visitors. In 2011/12 there were 14,855 bednights occupied. The economic impact of these visitors was estimated using the following assumptions:

- additional visitors – most of the visitors staying in University accommodation are assumed to be additional. The analysis assumes that only 15% of the bednights would have happened anyway in St Andrews and 17% in Fife, Dundee City Region and Scotland. This assumption is based on:
 - visitors to St Andrews usually specifically wish to go to St Andrews and if they could not visit St Andrews they are not likely to visit anywhere else in Fife, Dundee City Region or Scotland; and
 - University accommodation is available during time periods when the rest of the town is at peak capacity. As the rest of town is full when visitors stay at University accommodation, the University is not taking visitors away from any other businesses in the area.
- type of visitor – the bednight figure was apportioned between UK visitors and overseas visitors based on the proportion of bednights in Scotland that were attributable to each type of visitor (sourced from VisitScotland: Scotland Key Facts in Tourism 2011); and
- non accommodation spend per bednight by type of visitor – the impact associated with visitors staying in University owned accommodation is already included in the core direct impact of the University calculated above. Therefore the spend per type of visitor per trip excludes accommodation (sourced from VisitScotland: Scotland Key Facts in Tourism 2011).

These assumptions result in an estimate of the spending of the additional visitors that the University attracts to the area due to the provision of accommodation. The economic impact of this spend is estimated by applying economic assumptions. This results in a total economic impact of £0.4 million GVA in Scotland, supporting 22 jobs. Of this, £0.3 million GVA and 18 of the jobs were in St Andrews. A summary of this impact for each of the study areas is given in Table 6.8.

Table 6.8: Total impact due to the provision of bednights for leisure visitors (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	0.3	0.3	0.3	0.4
Employment (ftes)	18	18	18	22

Source: University of St Andrews

6.4 Summary

The total tourism impact of the University of St Andrews in 2011/12 was £2.2 million GVA and 121 jobs in St Andrews and in Scotland the total impact was £3.4 million GVA and 168 jobs.

Table 6.9: Summary of Tourism GVA Impact, £m (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
VFR	0.4	0.5	0.5	0.9
Events	1.5	1.6	1.6	2.1
Leisure Accommodation	0.3	0.3	0.3	0.4
Total Tourism Impact	2.2	2.4	2.4	3.4

Source: BiGGAR Economics – Figures may not total due to rounding

Table 6.10: Summary of Tourism Employment Impact (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
VFR	20	24	24	42
Events	83	86	86	105
Leisure Accommodation	18	18	18	22
Total Tourism Impact	121	127	127	168

Source: BiGGAR Economics – Figures may not total due to rounding

7 VALORISATION TO BUSINESSES

The University contributes to the economy by creating impacts in businesses through the utilisation of knowledge in practice, known as valorisation. The University puts this into practice through businesses in at least five ways:

- providing consulting services to businesses;
- knowledge transfer partnerships;
- licensing of intellectual property;
- formation of new companies; and
- continued professional development.

7.1 Consulting

Universities contribute to businesses by providing consultancy services. In 2011/12 the University provided services that generated £2.4 million of income.

The impact of this on businesses has been estimated based on the assumption that businesses would not pay for the service unless businesses received a benefit at least equal to the cost. Therefore it is assumed that the benefit to companies equals the cost of the income to the University from consultancy services.

The benefit to each study area is based on the proportion of businesses that receive consultancy services. This is based on analysis carried out in the previous economic study. This is shown in Table 7.1.

Table 7.1: Location of consulting business by contract value

St Andrews	Fife	Dundee CR	Scotland
46%	48%	51%	57%

Source: University of St Andrews consultancy data 2010

The direct jobs impact of this increased turnover was calculated by dividing the GVA by the GVA per employee ratio for the appropriate sectors. The total impact was then calculated by applying appropriate multipliers.

The University through providing consultancy services in 2011/12 supported an additional £2.5 million GVA in Scotland and supported 52 jobs. This included £1.3 million GVA and 24 jobs in St Andrews.

Table 7.2: Total GVA impact due to consulting (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£)	1.3	1.4	1.5	2.5
Employment (ftes)	24	27	29	52

Source: BiGGAR Economics calculations

7.2 Knowledge Transfer Partnerships

Knowledge Transfer Partnerships (KTPs) are another way the University has of increasing the turnover and employees in businesses.

The University of St Andrews has completed two KTPs in the last three years and there is one KTP that started in 2012 and is currently on-going. All three of these projects were based in Scotland, although none were in Fife or the Dundee city region.

Previous research has shown that KTPs contribute an average of £713,000 GVA in the six-year period after their completion and 10% of this while the KTP was being undertaken. There were three jobs created per KTP⁵. The total impact was then calculated by applying the appropriate multipliers.

In this way it can be shown that the KTPs undertaken by the University of St Andrews contributed £0.5 million GVA and 20 jobs to Scotland in 2011/12.

Table 7.3: Total impact due to the KTPs (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£)	0	0	0	0.5
Employment (ftes)	0	0	0	20

Source: University of St Andrews

7.3 Licensing

Licensing is method by which the University valorises its knowledge because companies that purchase the licenses are putting the knowledge into practice.

The amount by which the license is increases the turnover of companies is estimated by the royalty income the University receives which is set as a percentage of sales.

The licenses have been analysed to remove the licenses given to spin-out and spin-in companies as the turnover of these companies has been accounted in the next section. The licenses have also been analysed on the basis of the location of the company and also the sector of the company. The University of St Andrews received £414,000 income from licences in 2011/12 (in the Life Sciences sector and Scientific Equipment sector). The majority of this income came from licences to companies in the UK and Germany, but outside Scotland. It is estimated that Scottish companies created an additional £9,831 in income from licence granted by the University of St Andrews. This is 1.3% of the estimated income associated with all licences granted by the University of St Andrews that year throughout the EU. The additional income for businesses in each study area and shown by sector in Table 7.4.

Table 7.4: Income to companies from UofStA license by location and sector (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Life Sciences	0	0	0	9,831
Scientific Equipment	0	0	0	0

Source: University of St Andrews

The economic impact of the increase in turnover in Scottish companies due to the licensing of the University's knowledge is estimated by applying a turnover to GVA ratio, turnover per employee and multipliers that match as close as possible the sector of the company. In this way it can be shown that licences generated an

⁵ Regeneris Consulting: Knowledge Transfer Partnerships, Strategic Review

additional £7,766 GVA in Scotland. The licences generated a significantly more impact outside Scotland but this is not included in this study.

Table 7.5: Total impact due to the licences (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£)	0	0	0	7,766
Employment (ftes)	0	0	0	0

Source: University of St Andrews

7.4 Spin-in, Spin-out and Start-up Companies

The University's knowledge is also put into practice through spin-in, spin-out and start-up companies. These 19 companies had a combined turnover of £6.4 million and employ 100 people. Some this turnover and employment is not included in the economic impact assessment as:

- some of these companies are wholly owned subsidiaries of the University, therefore their impact has already been accounted for in the direct impact; and
- some of these companies are part owned by the University therefore not all of their turnover will be included in the analysis as some of it will be accounted for in the direct impact.

The remaining employees in these companies have been broken down into the location of the company and by the sector of the company. This is shown in Table 7.6.

Table 7.6: Employment in spin-out and spin-in companies by location and sector (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Safety Lighting	1	1	1	1
Consultancy	6	6	6	6
Medical Devices	8	8	9	9
Chemicals	30	30	37	52
Life Sciences	0	0	0	10
Design	0	5	0	5
Scientific Research	14	14	14	14

Source: University of St Andrews

The economic impact of spin-outs and spin-ins was estimated by applying the turnover per employee, turnover to GVA ratio, and multipliers that match as close as possible the sector of the company. In this way it can be shown that the spin-out and start up companies associated to the University of St Andrews contributed £15.7 million GVA to the Scottish economy and 252 jobs. Of this £5.9 million GVA and 77 jobs were in St Andrews. The breakdown of this impact by study area is given in Table 7.7.

Table 7.7: Total impact due to the spin-outs and start-ups (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	5.9	6.3	7.5	15.7
Employment (ftes)	77	86	99	252

Source: University of St Andrews

7.5 Continued Professional Development

The University of St Andrews also contributes to the local economy and its businesses by offering continued professional development courses (CPD). These courses will have a positive impact on the businesses that undertake them through the improved skills and knowledge of their employees.

In 2010/11⁶ the University of St Andrews received £3.9 million for CPD courses undertaken by a wide range of companies and individuals. No breakdown of the location of these companies is known but it has been assumed that they are all based in Scotland. As with consultancy, it is assumed that these businesses will not undertake the CPD courses unless the benefit is at least equal to the cost. Therefore the GVA increase associated with the courses run by St Andrews is also £3.9 million within Scottish companies.

The total impact is then calculated by applying the appropriate multipliers to the direct impacts. In this way it can be shown that CPD courses run in St Andrews contributed £7.4 million GVA to the Scottish economy.

Table 7.8: Total impact from CPD (2010/11)

	St Andrews	Fife	Dundee CR	Scotland
GVA (£m)	0	0	0	7.4

Source: University of St Andrews

7.6 Examples of Valorisation

An illustration of the process the University transfers knowledge into practice through commercialising its ideas is shown through the activities of the Scottish Oceans Institute (SOI) and Sea Mammal Research Unit (SMRU), which transfers knowledge in a variety of ways ranging from consultancy services to products. They both have commercial operations, which both spinout companies that are wholly owned by the University.

SOI is an interdisciplinary research institute studying oceanic systems science, ranging from the people who use and interact with the sea, to the biological and physical processes that make the seas function. SOI Ltd offers a range of services that provide clients with the best information available for the management of marine and coastal resources by industry, government and non-governmental organisations.

SMRU carries out interdisciplinary research into the biology of marine mammals, training marine mammal scientists through providing undergraduate and postgraduate courses and advising governments, non-governmental organisations and industry on conservation issues. SMRU Ltd provides services to those managing marine mammals such as Scottish Natural Heritage and

⁶ To be updated for 2011/12 data.

Natural England and to those who wish to exploit marine resources such as defence, oil and gas and marine renewables sectors. The services range from marine mammal monitoring programmes to advice on how to mitigate impact on marine mammals and surveying.

SMRU Ltd has also developed technology to assist the monitoring of sea mammals, PAMBuoy™, which detects the vocalisations of marine mammals and delivers this information to the client in real time. This technology has secured a £100,000 innovation grant from Scottish Enterprise. The technology solves a long term problem of how to detect marine mammals, particularly at night time, which used to rely on human observations. Along with the technology comes a support service in data analysis and interpretation from the marine mammal specialists at the University. This ownership of this technology has been transferred to Marine instrumentation Ltd, which is also owned by the University. This company is involved in developing emerging and leading technologies in the marine sector and ensuring they become the standard technology used by the sector.

7.7 Summary

The total business valorisation impact of the University of St Andrews in 2011/12 was £7.2 million GVA and 101 jobs in St Andrews and in Scotland the total impact was £26.1 million GVA and 324 jobs.

Table 7.9: Summary of Valorisation to businesses GVA Impact (£m) (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Consulting	1.3	1.4	1.5	2.5
KTPs	0	0	0	0.5
Licensing	0	0	0	<0.1
Spin-outs and spin-ins	5.9	6.3	7.5	15.7
CPD	0	0	0	7.4
Total Valorisation to businesses Impact	7.2	7.8	9.0	26.1

Source: BIGGAR Economics – Figures many not total due to rounding

Table 7.10: Summary of Valorisation to businesses Employment Impact (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Consulting	24	27	29	52
KTPs	0	0	0	20
Licensing	0	0	0	0
Spin-outs and spin-ins	77	86	99	252
CPD	-	-	-	-
Total Valorisation to businesses Impact	101	113	128	324

Source: BIGGAR Economics – Figures many not total due to rounding

8 VALORISATION TO WIDER PUBLIC

The knowledge the University develops through its teaching and research is put into practice for use by not just businesses as discussed in the previous section but also by society as a whole. This is also done through:

- informing policy and practice;
- public engagement; and
- returns to medical research.

Examples of some of these activities are described in this chapter. This chapter also captures some of the value of these activities but also discusses how the impact of these activities are much wider and therefore difficult to put a value on.

8.1 Policy and Practice

Knowledge is put into practice through informing better policy and practice. A key part of this activity is through teaching and contributing to the development of better policy makers and practioners.

There are a wide range of ways to inform better policy and practice. For example, this can be shown by looking at the work of SOI/SMRU, which as well as putting knowledge into practice through providing services and technology to companies (as discussed in the previous section) also put knowledge into practice through informing policymakers and practioners in a wide variety of ways including:

- evidence – SMRU and SMRU Ltd carried out research on the utilisation of space by grey and harbour seals in the Pentland Firth and Orkney waters;
- policy – SMRU provides advice to policy makers on matters relating to the management of seal populations;
- guidance – SMRU Ltd provided recommendations to the Crown Estate on marine mammal monitoring for offshore wind farms. It has provided guidance on survey and monitoring in relation to marine renewables deployments in Scotland;
- practice – SMRU Ltd helped practioners meet guidance and legislation, for example with offshore wind farms it helped clients at all stages of obtaining consent from scoping out sites to surveys for Environmental Impact Assessments and advice on mitigation of impact to the design of assessment of impacts; and
- legislation obligations – governments also have to meet guidance and legislation and the SMRU helps the Scottish Government and UK Government through its membership of various UK committees, within the context of the UK Marine Monitoring and Assessment Strategy and representation on the Scottish Government's Sustainable Seas Task Force.

This example shows how the valorisation of the University's knowledge has impacts of greater value than the GVA and jobs estimated in the previous section. This valorisation of the University's knowledge by SOI/SMRU will improve the management of marine ecosystems and contribute to sustainable development. There are also non-quantifiable impacts due to the improvement of marine mammal welfare and mortality.

Another example of how the valorisation of knowledge impacts on wider society is through the work of the Centre of Housing Research (CHR). CHR provides services to policy makers and practitioners such as housing groups and informs policy and practice through:

- knowledge exchange – this can occur from writing papers to presenting and organising conferences; for example, CHR's Dr Kim McKee (along with Queen's University Belfast) convened in 2011 the annual Housing Studies conference which attracted nearly 100 delegates from academia, policy and practice;
- working with practitioners – this includes carrying out research, organising workshops and contributing to consultations; for example, CHR was commissioned by the Glasgow and West of Scotland Forum of Housing Associations to lead its response to the Scottish Government's discussion document: 'Building a Sustainable Future'; and
- evidence – this is provided in a variety of ways from research informing the debate over policy to collecting and analysing data. For example CHR's research regarding the right to buy policy informed the debate over this policy's future. CHR's Supporting People Research Services support providers and commissioners of housing-related support services through collecting monitoring information about housing related support for vulnerable people in England and has contracts with two thirds of councils in England.

8.2 Public Engagement

The putting of knowledge into practice can provide a way of engaging with the public. This can inform policy through engaging people with issues and topics and creating more awareness of them and therefore increasing the relevance of topics for the wider public.

Many engagement activities take place through interacting with schools; for example, the School of Classics has given talks to teachers and school pupils regarding Greek Drama and has developed a series of online resources and student worksheets, which will make recent research on the topic accessible to and usable by teachers and their pupils across the UK. The School of Modern Languages is involved with a number of projects with local schools with the aim to integrating Modern Languages teaching from primary via secondary level to University and involves the implementation of CPD programmes for teachers. Teachers can also email the School to use the School's resources to obtain and support from their Language Development Officer on language related issues such as grammar, spelling and usage.

A further example is the Living Links project, a research facility of the University of St Andrews built through collaboration between the Royal Zoological Society of Scotland (RZSS) and four Scottish Universities (St Andrews, Stirling, Edinburgh and Abertay). Its primary function is to provide world-class research facilities for the Scottish Primate Research Group (SPRG) that spans these institutions. It is located in Edinburgh Zoo and most of the research takes place in front of the viewing public. Edinburgh Zoo receives approximately 600,000 visitors per annum and an evaluation of how zoo visitors engaged with Living Links found that

two thirds engaged with Living Links, such as reading information boards of using the viewing windows, leaving an engagement level of 400,000 visitors⁷.

New activities are being designed to encourage visitors to think about human biology and medical science such as highlighting what primates share with humans in terms of basic biology and psychology, giving an evolutionary perspective illness and medicine using examples of humans and non human primates and showing the evolutionary roots of HIV and AIDS in monkeys and apes.

8.3 Quantitative Impact

A small proportion of the impact discussed in this section can be captured qualitatively. This can be done using the Higher Education Business and Community Interaction (HEBCI) survey which asks University's to supply the number of staff hours spent on social, cultural and community events that can be accessed by the public. In 2010/11⁸ University staff provided 1,575 days for these types of activities. The HEBCI survey has provided estimates the value of this by assuming a consultancy rate of £500 for each day of staff input. This results in an estimation of the value of these activities of £787,500.

Table 8.1 – Valorisation to Wider Public – Quantitative Value

	Value
Academic staff days (2010/11)	1,575
Value per academic staff day (£)	500
Total value of academic staff day	787,500

Source: University of St Andrews and HEBCI

8.4 Returns to Medical Research

The medical research that is carried out by the University of St Andrews has an impact on the wider public through the improved health of the population. The Health Economics Research group at Brunel University considered the economic benefits of medical research in the UK⁹. This study estimated that the internal rate of return (IRR) from medical research on health and GDP was 39%. The University of St Andrews was awarded £5.5 million of research grants and contracts relating to medical research and the research that this funded is what is assumed to generate the health benefits. BiGGAR Economics assumed that these benefits would continue over 25 years with a discount rate of 3.5%.

The 39% IRR was derived for the population of the United Kingdom as a whole. Therefore the benefits to each of the study areas have been calculated based on the proportion of the UK that lives in that area. In this way it can be calculated that the medical research undertaken by the University of St Andrews in 2011/12 has a value of £3.0 million to Scotland over 25 years.

⁷ Bowler MT, Buchanan-Smith HM, Whiten A (2012) Assessing Public Engagement with Science in a University Primate Research Centre in a National Zoo. PLoS ONE 7(4): e34505. doi:10.1371/journal.pone.0034505

⁸ To be updated for 2011/12 data.

⁹ Health Economics Research Group, *Medical Research: What's it worth?*, Brunel University 2008

Table 8.2 – Medical Research Impacts & Assumptions

	St Andrews	Fife	Dundee CR	UK
Total GVA (£m)	>0.01	0.05	0.3	3.0

Source: BiGGAR Economics

8.5 Wider Impacts

The quantitative analysis does not fully capture the wide range of ways knowledge is transferred into practice such as and preserving and providing access to our cultural heritage. An example of this is the launch of a new online catalogue of books published between the invention of print and the end of the 16th century. This will bring details of approximately 350,000 rare books, which are currently distributed across 5,000 separate archives and libraries. This will impact on researchers who now have easy access to these works; many of these works had not been available before as there were unknown titles and found in lost libraries. This will also help libraries identify their rarest works as they can cross-refer their items with those held in other collections. Around 30% of the books have been found to be the only surviving copy of their title.

9 COMMUNITY ENGAGEMENT

The University also engages with the community through:

- museum collections;
- supporting festivals;
- student volunteering; and
- community education.

9.1 Museum Collections Unit

University's museum collections have over 112,000 items. Engagement with these collections is through four public museums sites:

- Museum of the University of St Andrews (MUSA) – this tells the story of the University through displaying some of the University's collection of 112,000 artefacts. The museum is open daily from April to September and from Thursday to Sunday during October to March. In the academic year 2011/12 there were 36,045 visitors;
- Bell Pettigrew Museum – this is the University's museum of zoology. It is open to the public two afternoons a week during summer vacation and to school groups by prior appointments. In 2011 there were 1,500 visitors;
- Gateway Galleries – this site hosts temporary exhibitions and include a wide variety of community and schools events in the year 2011 there were 10,283 visitors; and
- MUSA Collections Centre – provides access and study facilities for researchers to highlights of the University and has monthly tours.

To put this in some context, key visitor attractions in St Andrews are¹⁰:

- St Andrews Museum – visitor numbers for April 2010/11 are 68,066 and it is the third most popular visitor attraction in Fife¹¹;
- British Golf Museum – visitor numbers for 2011 are 62,431 and it is the fifth most popular visitor attraction in Fife¹²;
- St Andrews Castle – visitor numbers for June 2010/11 are 52,220; and
- St Andrews Cathedral – visitor numbers for June 2010/11 35,258.

This shows that the University's museums are important visitor attractions. If visitors to the University through open days are added to the museum visitor numbers it the University would likely be one of the most visited attractions in Fife.

As well as visitors, the Museum Collections Unit engages with the community through:

¹⁰ Visitor numbers are provided by the University of St Andrews with the exception of the British Golf Museum. The number of visitors to the British Golf Museum was given by the organization.

¹¹ VisitScotland "Tourism in Eastern Scotland 2011"

¹² VisitScotland "Tourism in Eastern Scotland 2011"

- public engagement activities include schools workshops, family sessions, community sessions, curator's talks and tours. In 2011/12 there were 5,478 visits;
- school visits – of the above visits there were 1,341 visits across the three museums and represents 1,133 students and 208 accompanying adults
- MUSA Young Artist Award is an annual art competition for schools in Fife. It aims to recognise and support creativity in schools, and to promote learning, using the University's museum collections as a starting point. The 2012 Young Artist Award had 865 children attending and resulted in 683 entries.

9.2 Festivals

The University is a supporter of the StAnza festival, which is Scotland's only regular poetry festival that is devoted solely to poetry. The five day festival brings to audiences the best of Scotland's poetry. Through its wide range of events from meeting artists to masterclasses it seeks to engage people not just in poetry but also in a creative activity. It also has activities just for children.

The University is also a supporter of the Fife Science Festival and provided 17 events and programmes in 13 venues across Fife, in which 2,544 people participated. This led to a range of outcomes from people being more interested in science to gaining the perception that science could be fun.

9.3 Student Volunteering

Students' volunteering has a wide range of impacts from volunteering at events such as the StAnza festival to fundraising activities. There are over 180 student societies affiliated to the Students Association and most partake in fundraising events or activities throughout the academic year. In 2011/12 student groups raised over £150,000 for charities. In addition the Students Association has a Charities Campaign, which in 2011/12 raised £80,000.

9.4 Community Education

The University provides a range of courses for the public. This includes a wide range of language courses, from Arabic and Chinese to Gaelic from beginners to advanced. In 2011/12 there were 1,073 enrolments in these evening language courses. The University also provides a range of courses and day schools covering a wide range of subjects, such as Geology and British Sign Language. There were 1,057 enrolments from 497 individuals in these courses in 2011/12. The University in 2011/12 also had 182 students enrolled on an evening degree programme. This programme is designed for mature learners who wish towards a degree but due to reasons ranging from caring responsibilities or health reasons cannot undertake a full-time degree. In some cases this provides a route back towards employment. The majority come from Fife and/or the Dundee City region although there are some who travel from Glasgow and Perthshire.

10 GRADUATE PREMIUM

The graduates of the University of St Andrews also contribute to the economy and the education that they receive at the University allows them to be more productive and earn higher salaries over their lifetime. This increased productivity benefits the economy and its impact is estimated through using the Graduate Premium.

To quantify the impact of the Graduate Premium the method used considers the earnings premium that graduates receive over their working life. The Department of Business, Innovation and Skills published a report that quantifies the income premium that graduates with different degrees could expect. This income premium is the comparison between the earnings of graduates and people who did not go to University but left school with 2 or more A levels or equivalent. This report found that the average net graduate premium for an undergraduate degree is £108,000.

To quantify the Graduate Premium impact of the University of St Andrews the premium for each subject area is multiplied by the number of graduates in who gained degrees in that subject. This estimated the graduate premium for undergraduate students.

Table 10.1: Graduate Premium Assumptions by degree subject

	Undergraduate Graduates	Undergraduate Premium
Medicine	193	£380,604
Physical/Env. Sciences	187	£94,021
Math/Comp. Sciences	144	£136,309
Business & Finance	131	£117,853
Social Sciences	603	£103,470
Subjects Allied to Medicine	25	£186,392
BioSciences	132	£66,443
European Languages	206	£66,859
Other Languages	28	£29,675
Linguistics	60	£67,286
Historical and Philosophical studies	418	£23,226
Mass Comm. And documentation	8	£33,015
Total	2,135	£230m

Source: Department of Business, Innovation & Skills and University St Andrews

The postgraduate premium different to the undergraduate premium and is measured against those who have undergraduate degrees only. The premium associated with postgraduates is £70,000. To find the postgraduate premium impact of St Andrews University this figure is multiplied by the total number of postgraduate students.

Table 10.2: Summary of Postgraduate Premium Assumptions

Assumption	Value
Number of Postgraduates	1,271
Postgraduate Premium	£70,000

Source: BiGGAR Economics Assumption

The graduate premium in each study is estimated based on where graduates work after they graduate. The analysis assumes 30% of the graduates work in Scotland based on a survey by the University, and of those 5% stay in St Andrews. The breakdown of graduates by their destination is given in Table 10.3.

Table 10.3: Destination of Graduates

Destination	Percentage
St Andrews	5%
Dundee	2%
Other Fife	1%
All of Scotland	30%
All of UK	79%

Source: University of St Andrews

It is then possible to calculate the total graduate premium that accrues in each of the study areas. The summary for the graduate premium for each of the study areas is given in Table 10.4

Table 10.4: Summary of Graduate Premium Impact (2011/12)

	St Andrews	Fife	Dundee CR	Scotland
Graduate Premium (£m)	15.0	16.9	23.5	95.9

Source: BiGGAR Economics

11 CONTRIBUTION TO VALUE OF EXPORTS

11.1 Direct Contribution to Exports

A significant part of the University's activities are exports. The value of exports considers the inflow of money into the UK from overseas and therefore considers the increase in spend/turnover rather than GVA. This value has been estimated by looking at:

- tuition fees:
 - from EU students – the University's financial statement gives the income from tuition fees from EU students combined with the tuition fees for home students. The fees paid person for international students were calculated as £14,990. This figure was then applied to the number of EU postgraduate students, to give a figure of £5.9 million. EU undergraduates were excluded because their fees are covered by Scottish based SAAS;
 - from international students – the University's financial statement gives the income from tuition fees from full time and part time international students;
- research grants and contracts from EU and overseas – this is obtained from the University's financial statement;
- spend by EU and international students – this is calculated using the same methodology as in section 5.1. The proportion of full time students that are from overseas is 44%. This proportion is applied to the total spend of the students rather than the turnover because exports are measured in turnover; and
- spend by overseas visitors – this is calculated using the same methodology as in chapter 7. The methodology for visits from friends and family and bednights calculates visits and bednights from both UK and overseas as its first step. Therefore this analysis only considers overseas visitors. It has been assumed that half of the visitors from conferences and events are from overseas. The total spend of these visitors is used to calculate value of exports.
- In this way it can be shown that the value of exports associated with the University of St Andrews in 2011/12 was £73.5 million. The breakdown of this figure is given in Table 11.1.

Table 11.1: Estimate of value of University of St Andrews contribution to exports

	Value (£m)
Tuition fees EU students	5.9
Tuition fees International Students	36.5
Research Grants and Contracts from EU and overseas	8.6
Spend by EU and International students	21.0
Spend by overseas visitors (including EU)	1.4
Total	73.5

Source: BiGGAR Economics Analysis

11.2 Wider Contribution to Exports

The University contributes to the value of exports through increasing trust with people overseas. The British Council has carried out research to understand the role of international cultural relationships in building trust for the UK and underpinning the success of the UK economy¹³. This report found that increased levels of trust in people in the UK are associated with a significantly increased level of interest in opportunities for business and trade with the UK. This report also found that increased trust supports other sources of economic impact such as studying in the UK and visiting as a tourist. Therefore the activities of University forms a positive cycle of trust. The survey lists 18 types of cultural relationship activities of which four are delivered by the University:

- been involved in some other kind of study at a school in the UK;
- studied at a college or university in the UK;
- while at college/university, been involved in links or joint projects with a college/university in the UK; and
- been on a college/university visit or college/university exchange programme involving a visit to the UK.

The provision of opportunities for cultural relations is not the whole story. The report states that if trust is described from a commercial perspective trust follows as a consequence of consistent delivery of high quality product. The University's delivers a high quality product as shown by external reports. For example Quality Assurance Agency for Higher Education found that "the University has excellent arrangements for meeting their pastoral and academic support needs." This is reflected in HEFCE's National Student Survey for 2012, which gave the University a satisfaction score of 90%.

¹³ British Council "*Trust Pays: How international cultural relationships build trust in the UK and underpin the success of the UK economy*" (2012)

12 MAXIMISING IMPACT

The University is engaged in activities to secure and maximise its impact on the economy, society and environment in order to contribute to sustainable growth, both its own and globally. This chapter highlights how the University does this through its renewable energy projects.

12.1 Renewable Energy Projects

The University is planning six 2MW turbines at Kenly. This development would have a range of economic impacts from the following sources:

- construction of the wind farm: this could result in £10.8 million GVA and support 96 jobs over the construction period of which £7.0 million GVA and 67 jobs could be supported in Fife;
- operation and maintenance of the wind farm: this could result in £16.8 million GVA and 5 jobs over 25 years of which £13.2 million and 4 jobs;
- savings in energy costs: the impact of these energy costs would be significant since the University generates significant value added and employment, relative to its turnover compared with the electricity sector. Turnover per employee in the electricity supply sector is more than £1 million, while turnover per employee for the University of St Andrews is approximately £77,000 (i.e. the University employs 13 people for each £1 million in turnover). So £1 million in energy costs saved by the University would mean that there would be one job fewer in the electricity supply sector but 13 jobs more in the University, a net gain to the economy of 12 jobs. Given that the energy bill of the University is rising by approximately £1 million a year, if this increase continues for the next ten years the energy bill, the mitigation of this increase could result in a net gain of 120 jobs; and
- economic impact community benefit fund: the community benefit fund is worth £1.2 million over its lifetime. There could be a direct impact from jobs supported to administer the fund. There will also be an impact from projects supported such as buying supplies and services for construction of amenities. There could also be longer term impacts. Best practice in administering community benefits involves supporting projects that have a long term impact on an area such as funding skills initiatives or projects that enhance the tourism capacity in an area.

As well as economic impacts there are also environmental impacts. Kenly wind farm will save 19,000 tonnes of CO₂ per annum.

Table 12.1: Potential Impact of Kenly Wind Farm - £m

	Fife	Scotland
Development and Construction Phase	7.0	10.8
Operational Phase	13.2	16.8
Community Benefit Fund	1.2	1.2

Source: BIGGAR Economics

Table 12.2: Potential Impact of Kenly Wind Farm – Jobs

	Fife	Scotland
Development and Construction Phase (Job Years)	67	96
Operational Phase (25 year period)	4	5
University of St Andrews jobs saved	120	120

Source: BiGGAR Economics

The University is also developing other renewable energy projects including the development of a former paper mill at Guardbridge. This site will host a Green Energy Centre, which will generate and distribute energy (in the form of heat and electricity) produced by biomass, hydro-power, ground source heat pumps and possibly gas reclamation from sewage. This could result in 12,000 tonnes of CO₂ per annum being saved which would bring the combined amount of CO₂ saved by the two projects to 31,000 tonnes.

As with Kenly Wind Farm the cost savings from reducing energy costs will be used to support jobs within the University.

This development will be significant given the socio-economic context of the loss of key employers in the local area such as the closure of the paper mill in 2008 and the closure of other firms such as the construction firm Torith. In addition Guardbridge is located next to Leuchars, which is losing its main employer the RAF site. The investment in the paper mill with its potential range of uses from accommodating spin-outs and start-ups to retail and leisure could create a new economic centre.

13 SUMMARY

The quantifiable economic impact associated with the University of St Andrews's activity in 2011/12 is estimated as:

- **£200.8 million** in GVA, **4,586 jobs**, and a 'premium' associated with each year's graduates of **£15.0 million** in the St Andrews economy;
- **£248.8 million** in GVA, **5,712 jobs**, and a graduate premium of **£16.9 million** in the Fife economy;
- **£252.6 million** in GVA, **5,782 jobs**, and a graduate premium of **£23.5 million** in the Dundee City Region economy; and
- **£384.4 million** in GVA, **8,913 jobs**, and a graduate premium of **£95.9 million** in the Scottish economy and a return to medical research **of £3.0 million**.

The range of quantifiable impacts are summarised in the tables below.

Table 13.1: Total Quantitative Impacts GVA (£m)

	St Andrews	Fife	Dundee CR	Scotland
Direct Impact	114.3	114.3	114.3	114.3
Supplier Impact	0.8	2.0	2.8	13.8
Staff Spending Impact	29.7	73.3	73.3	157.2
Capital Spend Impact	9.5	9.8	11.2	15.0
Student Impact	36.4	38.5	38.9	53.9
Tourism Impact	2.2	2.4	2.4	3.4
Valorisation	7.2	7.8	9.0	26.1
Community Impact	0.8	0.8	0.8	0.8
Total Quantitative Impact	200.8	248.8	252.6	384.4
<i>Graduate Premium</i>	15.0	16.9	23.5	95.9
<i>Returns to Medical Research</i>	>0.01	0.05	0.3	3.0
Total	215.9	265.7	276.4	483.3

Source: BiGGAR Economics – Figures may not total due to rounding

Table 13.2: Total Quantitative Impacts Jobs

	St Andrews	Fife	Dundee CR	Scotland
Direct Impact	2,093	2,093	2,093	2,093
Supplier Impact	26	57	72	343
Staff Spending Impact	666	1,677	1,677	3,903
Capital Spending Impact	179	187	212	290
Student Impact	1,401	1,458	1,472	1,791
Tourism Impact	121	127	127	168
Valorisation	101	113	128	324
Total Impact	4,586	5,712	5,782	8,913

Source: BiGGAR Economics

The quantifiable economics shows that the University of St Andrews delivers value to the economy and significant returns to Scottish Funding Council grant income. The table below shows that every pound of income received by the University generates £2.25 in the wider economy. This ratio increases to £2.83 when the graduate premium and returns to health research impacts are included as well.

Similarly, the University of St Andrews generates £9.57 of impact for every £1 of grant funding from the Scottish Funding Council, or £12.04 if the graduate premium and returns to health research is included.

It also shows that for each job at the University of St Andrews supports 4.3 jobs throughout the economy.

Table 13.3: Quantitative Impact Ratios (Scottish Economy)

	Without graduate premium and returns to medical research	With graduate premium and returns to medical research
Impact:Total Income	2.25:1	2.83:1
Impact:SFC Income	9.57:1	12.04:1
Total GVA:Direct GVA	3.36:1	4.23:1
Total Jobs:Direct Jobs	4.3:1	4.3:1

Source: BiGGAR Economics

This economic impact study confirms that the University is the main provider of economic activity in St Andrews, not least because the University is a direct employer of 31% of the employees in St Andrews.

Taking into account of all the jobs impact the University supports 60% of employment in St Andrews and 4.4% of employment in Fife.

Part of impact comes from the contribution the University makes to tourism related activity, which as demonstrated in section 2.2.4 is a key employer in the study areas, particularly St Andrews and fife. The University contributes to tourism related activity not just through increasing the number of visitors to the area, but also from contributing to tourism infrastructure through museums and through the spending of staff and students in restaurants and bars. In addition the

presence of part-time student labour enables these establishments to fulfil their labour requirements.

Table 13.4: Employment supported by the University of St Andrews as percentage of employees in St Andrews and Fife

	St Andrews	Fife
Total Employment Supported	4,586	5,712
Employees in study area	7,634	131,100
Employment supported as % of employees in study area	60.1%	4.4%

Some of the University's impacts are exports since they derive from overseas income. The value of exports associated with the University of St Andrews is £73.5 million. The University also makes an indirect contribution as its activities increase trust between people overseas and the UK, which significantly increases the level of interest in opportunities for business and trade with the UK.

The quantifiable economic impact of the University does not capture all of its impacts, as there are benefits that cannot easily be captured, such as the impact of the transfer of knowledge into practice to inform policy makers and practitioners. This impact is difficult to capture as:

- it is hard to define by how much the University's expertise has contributed to improvements to policy and adherence to policy; and
- some of these have impacts that are hard to quantify such as impacts on the environment, healthcare and cultural heritage.

Another source of impact that is difficult to capture in monetary terms is the University's engagement with the community. Through work related to its museum collections and supporting festivals such as StAnza the University preserves and makes relevant our cultural heritage. Through this and through providing courses it keeps people engaged in ideas, more aware of the world around them and enables to continue learning which contributes to well being. These festivals are supported by the time given by the students to volunteer at them. Students also contribute to the community through fundraising activities.

The University is proactive in maintaining and enhancing its impact on the economy, society and the environment. For example the University is planning two renewable energy projects will create economic benefits through their construction and operation and maintenance. Jobs will also be secured through the energy cost savings. There will be wider social impact as the location of one of these projects is in an area of significant job losses and the other project provides community benefit funding.

The GVA impact set out in this report is 26% higher than the figure in the previous report. Including graduate premium and returns to health impact the GVA impact in this report is 47% higher than the figure in the previous report. The value of exports is almost £20 million higher than in the previous report.

This has been achieved over a time frame where the University's income has increased by 16% and so the University's economic impact has increased significantly in both absolute terms and relative to income.

Table 13.5: Comparison with 2008/09

	2011/12 (£m)	2008/09 (£m)	% change
Income	170.6	147.1	16%
GVA	384.3	305.3	26%
GVA inc. graduate premium & returns to health research impact	483.2	328.0	47%
Value of exports	73.5	54.1	36%

Source: BiGGAR Economics