The Economic Impact
of
The University of Glasgow Dumfries Campus

Crichton Institute

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This study was undertaken by researchers based in the *Crichton Institute,* David Clelland and Annie Wild.

Crichton Institute is an integral part of the University of Glasgow School of Interdisciplinary Studies which is situated on the University's campus in Dumfries. *Crichton Institute* is a one-stop hub for all aspects of research and Knowledge Exchange relative to the social, economic and cultural regeneration of rural areas, including South-West Scotland. Its staff work in collaboration with a range of academic and strategic partners who have a locus on the Crichton campus and with wider national and international partners. It is interdisciplinary in its approach to understanding issues and offering solutions.

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Executive Summary

I. The University of Glasgow Dumfries Campus has grown significantly since its establishment in 1999 and is now home to the University's School of Interdisciplinary Studies, which currently has over 350 students and 46 staff. The Campus is a significant presence in the Dumfries and Galloway economy.

II. Using a set of well-established techniques for generating estimates of economic impacts of higher education institutions, this report quantifies the contribution of the University of Glasgow Dumfries Campus to the local economy.

III. The Dumfries Campus contributes to activity in the economy through a combination of direct spending by the School of Interdisciplinary Studies, direct employment of staff, the spending of students, and the knock-on effects that all of this has on suppliers and other businesses. Based on figures for 2016/17, the existence of the Campus is estimated to:

   a. Generate a total of between £11.4 and £14 million expenditure in the economy;
   b. Support employment equivalent to between 107 and 148 full-time jobs;
   c. Make a contribution to total economic activity of between £5.8 and £8.9 million in Gross Value Added.

IV. University of Glasgow Dumfries Campus also delivers a significant return on public funding, with each £1 million of support from the Scottish Funding Council stimulating up to £4.5 million of Gross Value Added.

V. The estimates at III and IV above are in addition to the benefits accruing from the provision of world class teaching and learning, raising the level of skills and qualifications in the labour market, retaining (and attracting) young people in the region, supporting public policy and attracting visitors.

VI. Given the projected growth in student numbers, the future impacts of the Dumfries Campus can be expected to significantly increase over the coming years. Based on a scenario where there are 500 students at the Campus in 2020/21, it can be expected to stimulate total spending in the economy of up to £20 million, total employment of up to 192 FTE and Gross Value Added of up to £13 million.

1. Introduction

The University of Glasgow (UoG) first opened its doors to students on the Crichton Campus in Dumfries in 1999, with the first graduations – of six students – taking place in 2002. Since then, the University has located its School of Interdisciplinary Studies (one of five Schools in the College of Social Sciences) on the campus and it delivers the full spectrum of Higher Education opportunities in Dumfries (e.g. Summer School for Access, FE to HE articulation, Undergraduate, Postgraduate and Research degrees). Student numbers have increased to over 350, and are projected to reach 500 by 2020/2021; the number of research and teaching staff has increased to 33, and professional, administrative and support staff to 13. This represents a significant contribution to the provision of Higher Education in South West Scotland.

This report attempts to quantify the economic impacts of the University of Glasgow's Dumfries Campus. The methodology follows as closely as possible that employed in the economic impact study undertaken for the University as a whole (Viewforth/4-consulting, 2015) although it also incorporates, where relevant, approaches used in similar studies. In sensitivity to the fact that this is an 'in-house' study carried out within the School of Interdisciplinary Studies, the report seeks to make explicit the data that has been used and the processes by which estimates are generated in order that they are open to scrutiny and challenge. It also acknowledges the limitations with these approaches to estimating the economic impact of higher education institutions.

2. Methodology

2.1 Existing Approaches

There is no single or definitive method for establishing the economic impacts of higher education institutions. The impact study carried out by Viewforth/4-consulting (2015) for the University of Glasgow (and for a number of other UK universities using the same methodology) produces estimates of the direct and indirect impacts generated by the University across three measures.

- ***Total Output*** refers to both the University's own direct expenditure and activities, and the indirect and induced effects of this added to both the economic benefits derived from students' spending and the value to the economy of visitors to the University.
- ***Employment*** – in terms of full-time equivalent jobs (FTE) with regard to both direct employment in the University and that generated through secondary mechanisms.
- ***Gross Value Added*** (GVA) which is a measure of additional value that is generated by the University, and its net contribution to the economy.

Approaches taken by the other consultants in this field – including Biggar Economics in their series of reports for UK universities (e.g. Edinburgh Napier; Biggar Economics, 2014); Oxford Economics' work both on the national HE sector (Oxford Economics 2017) and for individual institutions (e.g. Oxford Economics, 2016); Regeneris Consulting (2015) for the University of Central Lancashire, London Economics' (2017) report on the Russell Group; and, a study undertaken by Scottish Enterprise (2012) differ to a certain degree in the measures and methods that they use to assess impacts. In addition, a broader range of work addresses the methods and limitations associated with economic impact studies (e.g. Scottish Enterprise, 2008; ONS, 2010a/b; SQW, 2009).

2.2 Measures of Impact

Due to its reliance on in-house economic modelling it has not been possible to exactly replicate the economic impact assessment carried out for UoG as a whole (Viewforth/4-consulting, 2015) for Dumfries Campus. However, it is a justifiable assertion that the total economic impact of UoG Dumfries campus is the sum of the direct activity of the School of Interdisciplinary Studies, the secondary (or knock-on) impacts generated from this and the spending of the student population – and that combining the results of this study and other relevant work with information about activity on the campus, will generate a reliable estimate (or range of estimates). The various ways of generating these estimates are set out in *Figure 2.2.1*. but it should be noted that due to the variety of different approaches and multipliers for each of these measures generated by different studies, this report presents a range of estimates. This is intended to highlight the degree of uncertainty – often left unstated in consultancy reports – in estimating economic impacts where calculations are necessarily based on specific assumptions.

As in the studies discussed above, estimates of these broader impacts have been extrapolated from available information (sourced from the School of Interdisciplinary Studies' internal data) on the activities of the campus.

Figure 2.2.1: Methods of Generating Economic Impact Estimates

Measure	Direct	Secondary	Student
Total Output	Annual Expenditure	Application of multipliers for indirect and induced expenditure effects	Off-campus expenditure based on national averages
Employment	FTE employees	Application of multipliers for indirect and induced employment effects	Application of employment multipliers to student expenditure
GVA	Application of sectoral GVA to workplace job and GVA to turnover ratios, or; Total revenue minus non-staff expenditure	Application of multipliers for indirect and induced GVA effects	Application of GVA multipliers to expenditure

2.3 Limitations

Economic impact studies are commonly used across a range of sectors to evaluate (or justify) spending on particular investments or interventions in economic terms. However, there are a number of problems and limitations with commonly employed approaches, beyond the variety of different, and often somewhat opaque, methodologies used by consultants even within the same sector. There are, for example, technical difficulties with generating GVA estimates for single businesses or organisations (ONS, 2010b) and challenges associated with estimating additionality (Scottish Enterprise, 2008; SQW, 2009) in the absence of counterfactuals. In this case, the application of multipliers from other studies implies the assumption that the Dumfries Campus shares sufficient similarities with the subjects of these studies for the resultant impacts to be of the same order of magnitude.

A further aspect to consider is how the estimated impacts are distributed geographically. The multipliers sourced from other studies are 'national' in that they are intended to capture the impact of institutions on the economy of either Scotland or the UK as a whole. The smaller the area of interest, the less of the total impact will be retained within this 'local' area, as a greater proportion of total demand generated for goods, services and labour will be met from elsewhere – local economies being open, porous and highly interconnected.

A final limitation with the methodology employed here is that it assesses the impact of the campus solely in the terms described in Section 2.2 – i.e. in the same way that any other business, organisation or investment would be assessed – but there are a number of additional elements to the likely impact of the Campus that relate to its specific role as a higher education institution. These are more challenging to measure or quantify and are discussed in Section 4.

3. Economic Impacts of the Dumfries Campus

3.1 Introduction

This section sets out the results of an analysis of the economic impacts of the Dumfries Campus across the three indicators in the UoG study (Viewforth/4-consulting, 2015) described in Section 2, based on data for 2016/17. These are set out sequentially as the estimates of employment and GVA are based in part on those of total spending. For each of these indicators, there is an estimate of a) direct impacts arising from the spending or employment of the School of Interdisciplinary Studies; b) secondary impacts stimulated in the wider economy by this activity; c) estimates of the impacts of spending by students in the wider economy; and d) a summary of total economic impacts through all of these mechanisms. High and low estimates of impact are presented for each to take into account the range of different multipliers that are used by similar studies. Finally, Section 3.5 summarises the future economic impacts of the campus based on projections for 2020/21.

3.2 Output Impacts

Direct

Any university, business or other organisation generates a direct economic impact through purchasing goods and services and employing people. In the Viewforth/4-consulting (2015) report, the direct output of the University of Glasgow is assumed to be equal to total institutional revenue or 'turnover'. In other studies (e.g. London Economics, 2017), expenditure is used as the basis for calculating output – in this case, expenditure is used as this is lower than revenue (i.e. the School of Interdisciplinary Studies generates a surplus for the University as a whole). In some circumstances, it is considered good practice to multi-year averages, on the grounds that expenditure can fluctuate significantly year-to-year (Scottish Enterprise, 2008). However, in this case, the trend over a number of years has been for steady increases in the School's revenue and expenditure that are projected to grow still further in the future. Thus, use of the multi-year average would tend to under-represent the current economic contribution of the Campus. On this basis, and in line with the approaches taken by other studies in the sector, information for the most recent financial year is used. In 2016/17, the expenditure of the School of Interdisciplinary Studies was £3.413m[1].

Secondary

This expenditure generates further 'knock-on' economic impacts through two mechanisms. Firstly, there are indirect effects through the School's purchase of goods and services from other businesses. This, in turn, generates further demand in the economy within those businesses' supply chains and through their employment of staff, leading to a ripple effect of spending across different sectors. Secondly, there are induced effects through employees spending their wage income on housing, goods and services, which again, in turn creates, further income and employment.

Throughout the various impact studies looking at Higher Education Institutions, the likely aggregate effects on the economy tend to be calculated through 'input-output' analysis that generate output multipliers which estimate the relationship between direct output and secondary impacts. These 'Type II' multipliers (ONS, 2010b) include both indirect and induced effects. If, for example the output multiplier is estimate is 2.0, every £1 of direct output creates a further £1 of knock-on

[1] Based on School of Interdisciplinary Studies' internal data.

impacts in the economy. As in the recent report estimating the economic impact of Russell Group universities (London Economics, 2017), this analysis applies multipliers established through existing work. Here a range of multipliers from previous HE economic impact studies are presented along with the estimates of secondary outputs that these would imply, based on the direct expenditure of the School.

Figure 3.2.1: Secondary Output Multipliers and Impact Estimates (2016/17)

Source	Basis	Geography	Multiplier	Secondary Impact (£M)
Viewforth/4-consulting (2015)	University of Glasgow	UK	2.37	4.676
		Scotland	2.18	4.027
Hermannsson et al. (2010)	University of Glasgow	Scotland	2.11	3.788
Kelly *et al*. (2014)	UK HE Sector	UK	2.35	4.608
Oxford Economics (2017)	UK HE Sector	UK	2.49	5.085

Note: Based on direct output of £3.413m

It is important to note that these multipliers seek to take account of two factors that may limit aggregate economic impacts. Firstly, there is the possibility that either direct or secondary output may displace economic activity that would have taken place in its absence. Secondly, there is likely to be some degree of leakage – i.e. some of the demand created will be for goods and services imported from elsewhere. This therefore raises the question of what geographical area is of interest in attempts to calculate aggregate economic impacts. As illustrated in *Figure 3.1*, the secondary output multipliers for impacts on the Scottish economy are lower than for the UK – reflecting the fact that as a smaller economy, there is likely to be a greater degree of leakage from Scotland. At a local level, leakages are likely to be greater still – for example it is estimated that only around 60% of the University of Glasgow's gross output impact is within Glasgow City itself.

Student Spending

A further element considered by most analyses of universities' impact on the economy is the expenditure of students. While students' fees and their on-campus expenditure (for example on catering or accommodation) are included in institutions' turnover and therefore the direct outputs of the campus as outlined above, students also spend money off-campus on private accommodation, food, entertainment, travel etc. There are alternative approaches in these studies to estimating this – with some considering only non-UK or non-Scottish domiciled students as bringing additional expenditure, and others including the expenditure of all students as being retained locally. In addition, there are different estimates of the levels of student spending. The approach taken here is as follows:

- In academic year 2016/17, 354 students[2] were enrolled on Programmes in the School of Interdisciplinary Studies. For the purposes of this estimate, it is assumed that these are all additional – i.e. that none of these students would have entered alternative education in the region had courses provided by the University of Glasgow not been available.

[2] Total headcount of enrolled students – undergraduate, postgraduate taught and postgraduate research – based on SoIS internal data

- Based on the most recent and robust UK study of student expenditure (Pollard *et al*., 2013), it is assumed that the average off-campus spend of these students is £9,387 per year[3]. This supposes that the cost of living for students studying in Dumfries is broadly comparable to the results of this survey and also assumes that a similar proportion of students live away from home and therefore incur accommodation costs.

- Combining these figures, the total annual off-campus expenditure of University of Glasgow students studying in Dumfries can be estimated at £3.322 million, subject to the caveats above.

In common with the University's own expenditure, students' expenditure will have further knock-on impacts in the economy as it is recirculated through the firms that have students as customers. Again, these impacts are estimated using a range of multipliers from relevant studies. These are lower than for the University's spending, but vary widely with implied secondary impacts of between around one-quarter and two-thirds of direct student spending.

Figure 3.2.2: Student Expenditure Output Multipliers and Impact Estimates (2016/17)

Source	Basis	Geography	Multiplier	Induced Impact (£M)
Viewforth/4-consulting (2015)	University of Glasgow	UK	1.32	1.063
		Scotland	1.26	0.864
Nef consulting (2013)	UK HE Sector	UK	1.64	2.126
Kelly *et al*. (2014)	UK HE Sector	UK	1.50	1.661

Note: Based on total student spending of £3.322 million

Total Output (Spending) Impacts

Taking together these estimates of direct, secondary and student economic impact, a range of gross output impacts – essentially the level of spending generated in the economy – for the University of Glasgow's Dumfries Campus can be calculated. Based on the assumptions detailed above, this impact can be estimated at between £11.4 and £14.0 million per annum.

Figure 3.2.3: Total Output Impact Estimates (£M) (2016/17)

	Direct	Secondary	Student (Direct and Indirect)	Total
Low	3.413	3.788	4.186	11.387
High		5.085	5.538	14.036

3.3 Employment

Direct

The Dumfries Campus generates direct employment – currently employing 46 contracted members of staff. As there are both full-time and part-time staff, there were the equivalent to 38.4 full-time posts[4] in 2016/17.

[3] This is based on the median expenditure of full-time students (minus participation costs) uprated by annual CPI inflation

[4] SoIS internal data

Secondary

As outlined in section 3.2 above, there are secondary effects from University spending that will generate additional employment in the rest of the economy. Existing studies of this kind attempt to quantify these employment impacts in two ways. Firstly, a multiplier can be applied to the number of full-time equivalent jobs generated through direct employment. Secondly, alternative estimates can be made by applying a multiplier to direct output (expenditure) – i.e. the number of jobs supported by each £1 million of direct spending. The resulting estimates are set out in *Figure 3.3.1* below. Work by Biggar Economics (2014) on the economic impact of Edinburgh Napier University is included here to illustrate how different consultants' methodologies can result in different multiplier estimates.

Figure 3.3.1: Range of Secondary Employment Multipliers and Impact Estimates (2016/17)

Source	Basis	Geography	Multiplier	Secondary Impact (FTEs)
Employment-based			**Per Direct FTE**	
Viewforth/4-consulting (2015)	University of Glasgow	UK	2.29	49.5
		Scotland	2.09	41.9
Kelly *et al*. (2014)	UK HE Sector	UK	2.17	44.9
Oxford Economics (2017)	UK HE Sector	UK	2.07	41.1
Biggar Economics (2014)	Edinburgh Napier	Scotland	1.90	34.6
Output-Based			**Per £1M**	
Viewforth/4-consulting (2015)	University of Glasgow	UK	14.4	49.1
		Scotland	11.5	39.2

Note: Based on direct employment of 38.4 FTE/and direct output of £3.413

Student Spending

In a similar way, it is possible to estimate the employment impacts from students' expenditure in the economy by applying the range of multipliers generated by relevant studies to the estimate of student spending generated in Section 3.2 above. This leads to an estimate of between 34.0 and 59.7 FTE jobs resulting from the spending of students at the Dumfries Campus.

Figure 3.3.2: Student Expenditure Employment Multipliers and Impact Estimates (2016/17)

Source	Basis	Geography	Multiplier (FTE per £1M)	Employment Impact (FTE)
Viewforth/4-consulting (2015)	University of Glasgow	UK	10.86	36.1
		Scotland	10.22	34.0
Kelly *et al*. (2014)	UK HE Sector	UK	12.71	42.2
Oxford Economics (2017)	UK HE Sector	UK	17.96	59.7

Note: Based on total student spending of £3.322 million.

Total Employment Impacts

Combining the direct employment of staff on the Dumfries Campus with the estimates of secondary impacts supported by University, staff and student spending suggests a total employment impact of between 107 and 148 FTE jobs (*Figure 3.3.3*).

To put this in context, in 2015 there were around 70,000 jobs in Dumfries and Galloway[5] although around one third of these were part-time. It is also worth noting that Dumfries and Galloway has amongst the lowest levels of average pay in Scotland and a relatively low proportion of jobs in professional and associate professional/technical roles (Crichton Institute, 2014). In contrast, the majority of jobs in the School of Interdisciplinary Studies are in highly skilled and relatively well-paid academic research and teaching posts.

Figure 3.3.3: Employment Impact Estimates (Full Time Equivalent Jobs) (2016/17)

	Direct	Secondary	Student	Total
Low	38.4	34.6	34.0	107.0
High		49.5	59.7	147.6

3.4 Gross Value Added

Direct

Gross Value Added (GVA) is a measure of net contribution to the overall level of value created in the economy, and is the sector- or regional-level equivalent to Gross Domestic Product. As a measure of added value, this is broadly to be considered a more meaningful way of estimating the additional impacts of an investment or intervention than total spending or output (Scottish Enterprise, 2008).

There are a variety of methods for generating an approximate estimate of the GVA of an individual organisation (Scottish Enterprise, 2008), although the Office for National Statistics (2010b) emphasise that there are difficulties associated with estimating GVA at this level. While the authors of the University of Glasgow study (Viewforth/4-consulting, 2015) do not specify the source of their direct GVA estimate, previous work suggests that this is likely to be derived from the value of its turnover less non-labour operating expenses (Kelly et al., 2014). Based on financial information for the School of Interdisciplinary Studies, on this basis the direct GVA for of the Dumfries Campus can be estimated at £2.515 million for 2016/17[6].

Secondary

The relationship between direct GVA and the further impacts throughout the economy that this stimulates can again be estimated through the application of multipliers established by existing studies. Once more, the multiplier from Biggar Economics (2014) study of Edinburgh Napier is included as an (significantly lower) alternative to those of the UoG and sector-wide studies. The implied secondary GVA impact therefore ranges from £1.4 to £2.9M (*Figure 3.4.1*).

[5] NOMIS – Jobs Density
[6] SoIS internal data

Figure 3.4.1: Range of Secondary GVA Multipliers and Impact Estimates (2016/17)

Source	Basis	Geography	Multiplier	Implied Secondary Impact (£M)
Viewforth/4-consulting (2015)	University of Glasgow	UK	2.09	2.741
		Scotland	1.94	2.364
Kelly *et al*. (2014)	UK HE Sector	UK	2.03	2.590
Oxford Economics (2017)	UK HE Sector	UK	2.17	2.943
Biggar Economics (2014)	Edinburgh Napier	Scotland	1.55	1.383

Note: Based on direct GVA of £2.515M

Student Spending

Again, multipliers can be applied to student spending to estimate the implied impact in terms of GVA. These multipliers are lower (mostly below 1) as GVA is a narrower measure than total expenditure – only a proportion of student spending will result in additional value being generated in the economy. The question of whether students' contribution should be treated as additional is also relevant here, with some studies only considering the impact of international students as being a net gain in GVA terms. While at a national scale this is likely to be true, at a more local scale the presence of students is likely to be attributable to the existence of the Dumfries Campus.

Figure 3.4.2: Student Expenditure GVA Multipliers and Impact Estimates (2016/17)

Source	Basis	Geography	Multiplier	Implied Secondary Impact (£M)
Viewforth/4-consulting (2015)	University of Glasgow	UK	0.61	2.026
		Scotland	0.58	1.927
Kelly *et al*. (2014)	UK HE Sector	UK	0.70	2.325
Oxford Economics (2017)	UK HE Sector	UK	1.04	3.455

Note: Based on total student spending of £3.322 million

Total GVA Impacts

Taking together the estimates of Gross Value Added created directly by the UoG in Dumfries and that stimulated by the University's and students' spending suggests a total impact in GVA terms of between £5.8 and £8.9 million (see *Figure 3.4.3*). To put this in context, the most recent estimate of the total GVA of Dumfries and Galloway is £2,802 million (ONS, 2016). The relatively wide range of possible values reflects the degree of variation in the multipliers generated by (and the underlying methodologies of) different studies – and the inherent uncertainty in estimating economic impacts.

Figure 3.4.3: GVA Impact Estimates (£M) (2016/17)

	Direct	Secondary	Student	Total
Low	2.515	1.383	1.927	5.825
High		2.943	3.455	8.913

3.5 Projected Growth

As already noted, the Dumfries Campus has experienced steady growth over recent years, and this is expected to continue, with current projections for total student numbers to increase to 500 by

2020/21[7] - an increase of 41% on the 2016/17 headcount. Such a scenario is expected to involve an increase in staff numbers on the campus of 5.5 FTE, with associated increases in total direct expenditure and GVA. Based on these projections, the likely economic impacts (direct and indirect) in 2020/21 can also be calculated in the same way as the current impacts in the preceding sections. These are summarised in *Figure 3.5.1* below – the scenario outlined above can be expected to stimulate total spending in the economy of up to £20 million, total employment of up to 192 FTE and Gross Value Added of up to £13 million.

Figure 3.5.1: Projected Economic Impacts (2020/21)

	Low	High
Total Output (£M)	16.6	20.3
Employment (FTE)	131.8	192.5
GVA (£M)	8.5	13.0

Note: Based on SoIS internal projections and methodologies set out in Sections 3.2-3.4

Although these estimates carry an additional degree of uncertainty, as they are based on the application of current assumptions and multipliers to projected figures, they give an indication of the likely magnitude of the Campus's future economic impacts based on current planned growth.

[7] SoIS internal projections

4. Further Impacts

Beyond the quantifiable impacts on the economy that are generated by the University of Glasgow's presence on the Dumfries Campus, there are a number of further effects that are not accounted for in the estimates set out in the previous section. These can be broadly separated into two categories – those immediate economic impacts for which there is insufficient information to generate robust estimates, and those more diffuse, long-term or intangible impacts that are likely to be of economic and social benefit. While there are no standard approaches to capturing these impacts within the range of economic impact studies for the sector – and many of these are not addressed by the Viewforth/4-consulting (2015) report for the University of Glasgow – they are of relevance in understanding the impact of the Campus and are briefly summarised below.

Student Employment

In addition to the spending of students that has been included in the preceding analysis, some approaches (e.g. Biggar Economics, 2014) also attempt to quantify the impact of students taking up employment while studying. By applying the methodology used in this study (on Edinburgh Napier University) to the number of students on the Dumfries Campus this can be estimated at a further £1.06 million in GVA. However, the significant assumptions about student employment, the local labour market and the level of additionality in economic impact that are the basis of such an estimate mean that it cannot be considered particularly robust.

Visitors

The presence of the School of Interdisciplinary Studies in Dumfries stimulates visits from academics, students and other 'business' visitors to the region, from elsewhere in Scotland and the UK and from overseas – for example through the annual International Summer School and partnerships with overseas institutions. Data on such visits is however not systematically collected. In addition, there may be visits to the region by friends or family of students or staff at the Campus that will generate additional spending in the local economy. For example, around 200 potential students attend interviews for the Primary Education with Teaching Qualification degree in Dumfries every year. Around three quarters of these come from outside the region and many, accompanied by family members stay overnight in accommodation in the town. Likewise many family and friends of graduating students – of whom there were 60 in 2017 – are visitors to the region.

Skills and Learning

The main activity of the Dumfries Campus is of course the provision of Higher Education. The broader impacts of the University's activity, and in particular of raising skills and qualification levels in the region would however be difficult to estimate (in economic terms) with any degree of accuracy. The impacts of this on productivity and economic growth are not captured by the traditional type of analysis presented here (London Economics, 2017) and not included in the UoG impact analysis (Viewforth/4-consulting, 2015). Some other studies in the sector (e.g. Biggar Economics, 2014; Regeneris Consulting, 2015) attempt to quantify this based on the average 'graduate premium' – the net increase in lifetime earnings that accrue from holding a degree – as a proxy for increased productivity. For a full-time undergraduate student at a Russell Group university in Scotland, this figure is estimated at £92,000 (London Economics, 2017). Applying this to the Campus's 2016/17 cohort of 60 graduates implies that they would, were they to all remain in

Dumfries and Galloway, generate an additional £5.5 million in the region's economy over the course of their working lives.

There are also potential economic and social impacts in terms of widening access to higher education. The School of Interdisciplinary Studies launched UoG's first HNC articulation program in November 2012, and also guarantees interviews for the MA Primary Education with Teaching Qualification to all D&G College applicants with an HNC. The percentage of students from the SIMD 20% and 40% 'most deprived' areas has increased to 25%.

Demographics

While the estimates here have included the impacts of students' spending on the economy, there are further potential long-term benefits to Dumfries and Galloway of retaining young people in the region. Dumfries and Galloway faces significant demographic challenges common to many rural areas with an ageing population, falling numbers of working age people and net out-migration amongst those aged 16-24 (Crichton Institute, 2014). While there are of course a variety of factors that drive migration amongst this age group, including employment opportunities and access to leisure and cultural amenities, the availability of higher education provision is likely to be significant in the decisions of many young people (Hill, 2004). This will have knock-on benefits through the local labour market, giving local employers access to a pool of highly qualified potential recruits.

In addition, the existence of academic jobs in the School of Interdisciplinary Studies helps to attract highly qualified working age people (and their families) to the region.

World-class research

The School of Interdisciplinary Studies' brings the experience and benefits of one of the world's leading universities to a rural region in which access to Higher Education has historically been unavailable. In addition to teaching excellence this gives the region direct access to, and the direct benefits of, world class research that shapes policy and practice e.g. that delivered by the *End of Life Studies group;* the *Care Campus* initiative with its potential to embed elder care in an academic community, inculcate new co-produced norms and deliver capital investment to the region. It also brings research expertise in a diversity of areas that impact locally, regionally and internationally including: environmental change and land use; community resilience; social and cultural impacts of science and technology; cultural history; tourism; inequalities; and public health – and is home to the Crichton Institute and host for the National Centre for Resilience.

Policy

Policy advisory outputs can be defined as the time spent in the provision of advice to public sector or third sector organisations for no or below market rate remuneration (Kelly et al., 2008). This could include the participation of staff in advisory committees or professional networks, and presentations, workshops or other knowledge exchange events aimed at public or third sector bodies. Such inputs can be expected to make a contribution to the quality and delivery of public policy and services. While the value of this could be estimated by pricing the number of hours of this work at standard rates, this data is not routinely collected. Some examples of this type of contribution include work undertaken by the Crichton Institute to provide evidence and analysis that

has supported the development of regional economic and anti-poverty strategies by Dumfries and Galloway Council.

5. Summary and Conclusions

This report has attempted to calculate the likely economic impacts of the University of Glasgow's Dumfries Campus. In line with the measures used in *The Economic Impact of the University of Glasgow* (Viewforth/4-consulting, 2015), these are estimated in terms of:

- Output (or total spending in the economy)
- Employment (in terms of full-time equivalent jobs)
- Gross Value Added (a measure of the net value of goods and services produced, and the contribution to the total value of all activity in the economy)

Figure 5.1: Dumfries Campus Economic Impact Estimates (2016/17)

	Direct	Secondary	Student	Total
Output (£M)				
Low	3.4	3.8	4.2	11.4
High		5.1	5.5	14.0
Employment (FTE)				
Low	38.4	34.6	34.0	107.0
High		49.5	59.7	147.6
GVA (£M)				
Low	2.5	1.4	1.9	5.8
High		2.9	3.5	8.9

Estimates of these impacts are calculated by combining the direct impacts of the Campus with those indirect effects stimulated by the spending of the University and its students. These estimates are generated by applying a series of multipliers and assumptions based on similar existing studies. In particular, this assumes that, firstly, the nature of activity on the Dumfries Campus is sufficiently similar to other institutions that these multipliers are broadly applicable, and secondly there is a high degree of 'additionality' in the contribution of the Campus, particularly in student numbers. Reflecting the element of uncertainty in this approach, rather than placing a definitive figure on impacts, a range of potential impacts are calculated – this aims to avoid making claims with 'false precision' (Drucker, 2015). For example, as the table above shows, the impact of the Dumfries Campus in terms of Gross Value Added (the most meaningful measure of contribution to economic activity) can be estimated at between £5.8 and £8.9 million per year.

While there will be some degree of 'leakage' as the impacts of University, staff and student spending filter out to other areas, a significant proportion of the impacts generated by the Campus can be expected to be retained in Dumfries and Galloway. The region has relatively low levels of productivity, wages and high-skill employment (Crichton Institute, 2014) and a high proportion of employment in the public sector that is being eroded by ongoing cuts to local authority budgets. As such, the Dumfries Campus can be considered as an 'anchor institution' (CLES, 2015) that contributes to the resilience of the local economy.

These estimates can be used to establish the return to public funding for the Dumfries Campus in terms of the total economic impact that this stimulates. The Scottish Funding Council provided direct support of £1.995 million in 2016/17[8]. On this basis, each £1 million of direct funding for the Dumfries Campus, along with the other income that this helps to leverage (for example research grants and tuition fees) supports up to £7 million of spending in the economy, 74 full-time equivalent jobs, and £4.5 million in Gross Value Added.

Figure 5.2: Economic Impact/Funding Ratios (2016/17)

	Total Impact	Per £1M SFC Funding
Output (£M)		
Low	11.4	5.7
High	14.0	7.0
Employment (FTE)		
Low	107.0	53.6
High	147.6	73.9
GVA (£)		
Low	5.8	2.9
High	8.9	4.5

These immediate impacts of the University of Glasgow's presence on the Dumfries Campus are based on its role in the economy – through spending and employment – on the same basis as any other business or employer. However, it is important to note that as an institution providing higher education and undertaking research, it is likely to generate further impacts in the local area through, for example, attracting visitors; or longer term benefits such as developing the skills of the area's workforce. These are more difficult to quantify.

Finally, the estimates presented here represent only a snapshot of the likely impacts of the Dumfries Campus based on current data. The numbers of students and staff on the Campus have grown steadily over recent years and are projected to grow further. Such growth would lead to significantly larger economic impacts, with a projected contribution to GVA of between £8.5 and £13.0 million by 2020/21.

[8] SoIS internal data

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