

The economic impact of the University of Edinburgh

Final report for the University of Edinburgh



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Head Office: Somerset House, New Wing, Strand, London, WC2R 1LA, United Kingdom.

w: londoneconomics.co.uk e: info@londoneconomics.co.uk : [@LE_Education](https://twitter.com/LE_Education)
t: +44 (0)20 3701 7700 f: +44 (0)20 3701 7701 [@LondonEconomics](https://twitter.com/LondonEconomics)

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Authors

James Forrester, Economic Consultant, +44 (0)20 3701 7707; jforrester@londoneconomics.co.uk

Andrew Pritchard, Economic Consultant, +44 (0)20 3701 7559; apritchard@londoneconomics.co.uk

Rhys Williams, Senior Economic Consultant, +44 (0)20 3701 7712; rwilliams@londoneconomics.co.uk

Dr Gavan Conlon, Partner, +44 (0)20 3701 7703; gconlon@londoneconomics.co.uk

Sabah Mohammed, Economic Analyst

Jenny Liu, Research Assistant

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Foreword

The University of Edinburgh is one of the oldest civic universities in the world. Our history and heart are rooted in this great city, but our influence and reach is global – we are one of the top 50 universities in the world and 4th in the UK for the quality and breadth of our research.

The impact of the University of Edinburgh is enormous and enduring. The University has been at the forefront of academia and critical thinking for more than 440 years. Our people are key to this success: the impressive results detailed in this analysis are down to them and I wish to extend my thanks to everyone in our community.

Thanks also to London Economics for working with colleagues to quantify the amazing work that is carried out across our institution each and every day.

We are a powerhouse for the UK economy, contributed £7.5 billion in the academic year 2021/2022. Our student community consists of over 45,000 students and our graduates contributed £857 million in the same period to the UK economy. Many go on to become future leaders in their fields and sometimes even their countries.

Our student body includes more than 10,000 new international students each year, who come to study with us from across the globe, representing more than 160 countries. They add much to the University helping to create a cosmopolitan community and culturally varied campus enhancing the experience of all. The report also confirms that fee income and money spent during their time studying at Edinburgh generates £1.8 billion in economic benefit to the UK.

Our research transforms lives and is world-changing – from understanding volcanic eruptions and investigating the influence of our genes on disease to our work at the forefront of applying technology to transform cultural practice. Our research community is made up of more than 9,200 academics who win around £300 million in research funding each year.

Breaking boundaries between disciplines, industry and community, we apply our knowledge to find solutions to the world's biggest challenges. Working with partners, our research creates a further £350 million of impact: improving patient care, financial services and sustainable energies.

Harnessing data for the good of society will be key to meeting all those challenges. Our Data Driven Innovation programme, funded initially by the Edinburgh and South East Scotland City Region Deal, is one example of our partnership approach, ambition and regional impact.

We are committed to making our ideas work for a better world. We have supported our entrepreneurs to create an impact of £162 million and support 1,830 jobs through their successful start-ups and spinouts.

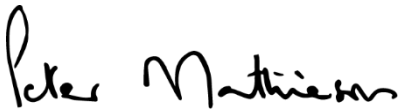
We are proud to be part of our local community and that's why we offer grants to support community groups with their amazing work changing lives of people in our area. We take our responsibilities seriously in protecting and enhancing the environment and are committed to



reaching net zero by 2040. We are making great strides in reducing our carbon emissions through a range of programmes.

The dedication and commitment of our University community continues to drive forward innovation, ambition and resilience in the pursuit of making the world a better place. The University of Edinburgh is a world-leading institution, committed to delivering excellence for our people, research, teaching and learning, and social and civic responsibility.

We have more than 400 years of excellence behind us, but we're not done yet. Working together, we can make the next 400 years even better.

A handwritten signature in black ink that reads "Peter Mathieson". The signature is written in a cursive style with a large initial 'P'.

Professor Sir Peter Mathieson, Principal and Vice-Chancellor, the University of Edinburgh

Executive Summary








The aggregate economic impact of the University of Edinburgh

The total economic impact on the UK economy associated with the University of Edinburgh's activities in 2021-22 was estimated at approximately **£7.522 billion** (see Table 1)¹. In terms of the components of this impact, the value of the University's **research and knowledge exchange activities** stood at **£3.180 billion (42%** of total), while the impact associated with the University's international students stood at **£1.770 billion (24%)**. The impact generated by the **operating and capital expenditures of the University** was **£1.535 billion (20%)**, and the impact of the University's **teaching and learning activities** accounted for **£857 million (11%)**. The remaining **2%** of economic impact (**£180 million**) was from the impact of **tourism** activities associated with the University.

The total economic impact associated with the University of Edinburgh's activities in 2021-22 stood at £7.52 billion.

Table 1 Total economic impact of the University of Edinburgh's activities in the UK and in Scotland in 2021-22 (£m and % of total)

| Type of impact | UK - £m (%) | Scotland - £m (%) |
|--|-----------------------|-----------------------|
|  Impact of research and knowledge exchange | £3,180m (42%) | £248m (9%) |
| Research activities | £2,830m (38%) | n.a. |
| Knowledge exchange activities | £350m (5%) | £248m (9%) |
|  Impact of teaching and learning | £857m (11%) | n.a. |
| Students | £397m (5%) | n.a. |
| Exchequer | £460m (6%) | n.a. |
|  Impact of international students | £1,770m (24%) | £1,279m (46%) |
| Tuition fee income | £968m (13%) | £697m (25%) |
| Non-tuition fee income | £802m (11%) | £582m (21%) |
|  Impact of the University's spending | £1,535m (21%) | £1,112m (40%) |
| Direct impact | £1,243m (17%) | n.a. |
| Indirect and induced impact | £292m (4%) | n.a. |
|  Impact of tourism | £180m (2%) | £133m (5%) |
| Direct impact | £79m (1%) | n.a. |
| Indirect and induced impact | £102m (1%) | n.a. |
| Total economic impact | £7,522m (100%) | £2,772m (100%) |

Note: All estimates are presented in 2021-22 prices, rounded to the nearest £1m, and may not add up precisely to the totals indicated. The percentage figures in the brackets represent the proportion of total impact in that region associated with the strand/sub-strand of analysis. *Source: London Economics' analysis*

In terms of the number of full-time equivalent (FTE) jobs supported, the results indicate that the total impact generated by the University's activities supported a total of **32,760** FTE jobs across the UK economy in 2021-22, of which **24,935** were located in **Scotland**.

¹ All estimates here are presented in terms of economic output (equivalent to income/turnover). The impact of the University's knowledge exchange activities, educational exports, institutional expenditures and related tourism can also be converted into gross value added (GVA) and full-time (FTE) employment, and these additional findings are provided within the relevant sections throughout this report.

Compared to the University's total operational costs of approximately **£1.086 billion** in 2021-22², the total impact of the University of Edinburgh's activities on the UK economy was estimated at **£7.522 billion**, which corresponds to a **benefit to cost ratio of 6.9:1**. This compares to an average benefit-to-cost ratio among Russell Group institutions of approximately **5.5:1**, and corresponds to a **34%** increase in the University's impact since 2015-16 (on a like-for-like basis, in real terms³).

In addition to assessing the total impact of **£7,522 million** on the UK economy as a whole, it is also possible to estimate the economic impact of a number of strands of the University's activities on Scotland. Specifically, we estimated the economic impact associated with the University's knowledge exchange activities, the impact of international students, the impact of the University's expenditure, and the impact of tourism activities associated with the University on Scotland. Given the difficulties in tracking graduate mobility over the working life nor the location where research spillovers may have been adopted, it is not possible to allocate the economic impact associated with the teaching and learning activity or the productivity spillovers associated with the University's research activities to different geographical areas.

Following this approach the analysis identified that approximately **£3,835 million (51%)** of the University of Edinburgh's total impact of **£7,522 million** can be disaggregated geographically (see Section 7.1 for more information), of which approximately **£2,772 million (72%)** occurred in Scotland.



The impact of the University of Edinburgh's research and knowledge exchange activities

To estimate the **direct** economic impact associated with the University of Edinburgh's research, we used information on the total research-related income accrued by the University in 2021-22. The total research-related income accrued by the University in 2021-22 stood at **£423 million**. To arrive at the net impact of the University's research activities, we deducted the public costs of funding the University's research. Together, these public costs amounted to **£271 million** in 2021-22, resulting in a **net direct research impact of £152 million**.

Existing academic literature⁴ suggests strong evidence of the existence of **productivity spillovers** from public investment in university research. Applying estimates from the literature, our analysis implies a spillover multiplier of approximately **6.3** associated with the University of Edinburgh's research income in 2021-22. Combining the **net direct impact** of the University's research activities (**£152 million**) with the resulting **productivity spillovers** accrued by other organisations across the UK (**£2,678 million**), the total impact of research conducted by the University in 2021-22 was estimated at **£2,830 million**.

In addition to the University of Edinburgh's research, the analysis estimated the impact associated with **knowledge exchange activities** (the activities of The University of Edinburgh's **spinout and start-up companies**, and **other knowledge exchange activities**). The analysis considers the direct, indirect, and induced economic impacts associated with these activities. The **direct** impact of these activities was based on the turnover/investment in the University of Edinburgh's active spinout and

² This relates to the University's total operating expenditure, excluding capital expenditure.

³ See London Economics (2017). The analysis of the economic impact of all Russell Group institutions (including the University of Edinburgh) was based on the 2015-16 academic year.

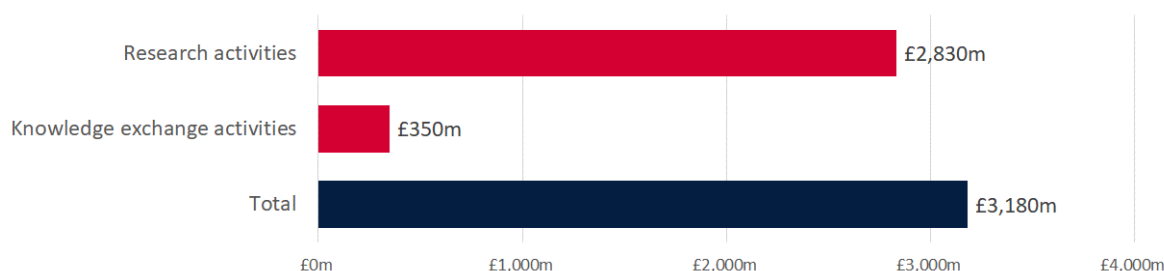
⁴ See Haskel and Wallis (2010), and Haskel et al. (2014). It is important to note that the multipliers estimated in the academic research cover a wide range of research activities. As such, these multipliers capture the average productivity spillover associated with research undertaken by all higher education institutions and is not specific to the University of Edinburgh's research. However, to reflect the quality of the research undertaken by the University of Edinburgh, we adjust the multiplier used in this analysis to identify productivity spillovers to specifically reflect the origin of research funding received by the University.

The impact of the University of Edinburgh's research and knowledge exchange activities in 2021-22 stood at £3,180 million.

start-up companies, and the income generated from the various other knowledge exchange activities. The **total direct, indirect, and induced impacts** of these activities was then estimated using relevant **economic multipliers** derived from a (multi-regional) Input-Output model. Using this approach, the analysis estimates that the University of Edinburgh's knowledge exchange activities generated a total of **£350 million** of impact across the UK economy in 2021-22.

The total economic impact associated with the University of Edinburgh's research and knowledge exchange activities in 2021-22 was estimated at **£3,180 million** (see Figure 1). The University's knowledge exchange activities supported an estimated **3,745 full-time equivalent jobs** across the UK as a whole, of which the majority (approximately **2,805, 75%**) were located within Scotland.

Figure 1 Total impact of The University of Edinburgh's research activities in 2021-22, £m



Note: All values are presented in economic output in 2021-22 prices, rounded to the nearest £1 million, and may not add up precisely to the totals indicated. *Source: London Economics' analysis*



The impact of the University of Edinburgh's teaching and learning activities

The analysis of the impact of the University of Edinburgh's teaching and learning activities estimates the **enhanced employment and earnings benefits to graduates**, and, separately, the **additional taxation receipts to the public purse** associated with higher education qualification attainment at the University⁵. The analysis is adjusted for the characteristics of the **8,390** UK domiciled students who started a qualification at the University of Edinburgh in the 2021-22 academic year.

Incorporating both the expected costs associated with qualification attainment and the labour market benefits expected to be accrued by students/graduates over their working lives, the analysis suggests that the **net graduate premium** achieved by representative Scottish domiciled students in the 2021-22 cohort completing a **full-time first degree** (with a SCQF Level 6/RQF Level 3 qualification as their highest level of prior attainment) stands at approximately **£81,000** (in 2021-22 money terms). Separately, taking account of the benefits and costs to the public purse, the analysis indicates that the corresponding **net Exchequer benefit** associated with these students stands at **£64,000**.⁶

⁵ The estimation of the net graduate premiums and net Exchequer benefits is based on a detailed econometric analysis of the Labour Force Survey. The analysis considers the impact of higher education qualification attainment on earnings and employment outcomes; however, as no information is specifically available on the particular HEI attended, the analysis is not specific to the University of Edinburgh alumni. Rather, the findings from the analysis are adjusted to reflect the characteristics of the 2021-22 cohort of the University of Edinburgh students (e.g. in terms of mode of study, level of study, subject mix, domicile, gender, average age at enrolment, duration of qualification, and average completion rates).

⁶ The full set of net graduate premiums and net Exchequer benefits for all domiciles and characteristics is presented in Annex A2.2.5.

The net graduate premiums and net Exchequer benefits were combined with information on the number of students starting qualifications in 2021-22 and expected completion rates. The aggregate economic impact generated by teaching and learning activities associated with the 2021-22 cohort stood at approximately **£857 million** (see Section 3). This is split favourably for the Exchequer, with **£397 million (46%)** of the economic benefit generated accrued by students/graduates undertaking qualifications at the University of Edinburgh, and the remaining **£460 million (54%)** accrued by the Exchequer.

The total economic impact of the University of Edinburgh's teaching and learning stands at £857 million.

Table 2 Aggregate impact of the University of Edinburgh teaching and learning activities associated with the 2021-22 entrant cohort (£m), by type of impact, domicile, and level of study

| Beneficiary and study level | Domicile | | | | Total |
|-----------------------------|--------------|--------------|-------------|------------------|--------------|
| | Scotland | England | Wales | Northern Ireland | |
| Students | £213m | £171m | £7m | £7m | £397m |
| Undergraduate | £172m | £124m | £4m | £5m | £305m |
| Postgraduate | £41m | £48m | £3m | £1m | £93m |
| Exchequer | £181m | £261m | £8m | £10m | £460m |
| Undergraduate | £129m | £187m | £4m | £8m | £328m |
| Postgraduate | £52m | £73m | £3m | £2m | £131m |
| Total | £394m | £432m | £14m | £16m | £857m |
| Undergraduate | £301m | £311m | £8m | £13m | £633m |
| Postgraduate | £93m | £121m | £6m | £3m | £224m |

Note: All estimates are presented in 2021-22 prices, discounted to reflect net present values, rounded to the nearest £1m, and may not add up precisely to the totals indicated. *Source: London Economics' analysis*



The impact of the University of Edinburgh's educational exports

With Edinburgh being an attractive destination for many international students, the University's higher education offer represents a tradeable activity with imports and exports like any other tradeable sector. The economic impact of the University of Edinburgh's contribution to educational exports is based on the **direct** injection of **tuition fee** and **non-tuition fee income** from international students. As with the University's knowledge exchange activities, this income generates **indirect** and **induced impacts** throughout the UK economy, through supply chain and wage income effects. The analysis focuses on the cohort of **10,020** non-UK domiciled students who started qualifications at the University of Edinburgh in the 2021-22 academic year. Of these students, **1,270 (13%)** were EU-domiciled, and **8,750 (87%)** were from non-EU jurisdictions.

Combining the estimates of tuition fee income (net of the University of Edinburgh's cost of funding international students) and non-tuition fee income associated with international students in the 2021-22 cohort, the **total export income (i.e. direct impact)** generated by this cohort stood at **£682 million**. Slightly over half of this income (**£365 million**) was generated from international students' (net) tuition fee expenditure accrued by the University of Edinburgh, while just over half (**£317 million**) was generated from international students' non-tuition fees expenditure (including costs related to accommodation, subsistence, course-related purchases, and travel).

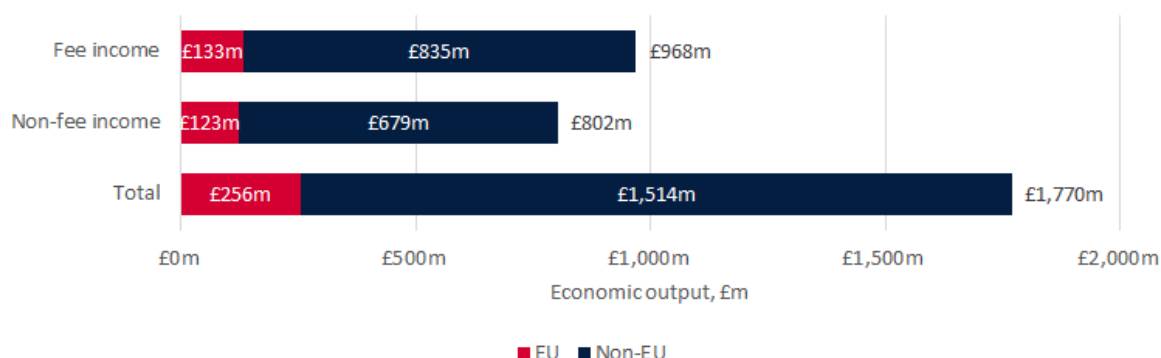
The total (direct, indirect, and induced) economic impact associated with this income was again estimated using relevant economic multipliers, identifying the extent to which the direct export

income generates additional activity throughout the UK economy. We thus estimate that the **total economic impact** on the UK generated by the (net) tuition fee income and non-tuition fee income associated with international students in the 2021-22 the University of Edinburgh cohort amounts to **£1,770 million**. Of this total, **£968 million** of this impact was associated with international students' (net) **tuition fees**, and **£802 million** was associated with these students' **non-tuition fee expenditures** over the duration of their studies at the University of Edinburgh (see Figure 2).

The impact of the export income generated by the 2021-22 the University of Edinburgh cohort stood at £1,770 million.

The University's activities in respect of educational exports supported an estimated **16,585 full-time equivalent jobs** across the UK as a whole, of which **12,490 jobs** were located across Scotland.

Figure 2 Impact of the University of Edinburgh's educational exports associated with international students in the 2021-22 entrant cohort (£m), by domicile and type of income



Note: All estimates are presented in 2021-22 prices, discounted to reflect net present values, rounded to the nearest £1m, and may not add up precisely to the totals indicated.

Source: London Economics' analysis



The impact of the University of Edinburgh's expenditure

The University of Edinburgh's physical footprint supports jobs and promotes economic growth throughout the UK. This is captured by the **direct, indirect, and induced impact** associated with the expenditures of the institution. The **direct impact** of the University of Edinburgh's physical footprint was based on the operating and capital expenditures of the University. In 2021-22, the University of Edinburgh incurred a total of **£1,243 million** of expenditure (including **£1,086 million** of operating expenditure and **£157 million** of capital expenditure)⁷.

The impact of the University of Edinburgh's expenditure on the UK economy in 2021-22 stood at £1,535 million.

Again, the direct increase in economic activity resulting from the expenditures of the University of Edinburgh generates additional rounds of spending throughout the economy (through the University's supply chains, and the spending of staff). Applying the relevant economic multipliers, the **total direct, indirect, and induced impact**

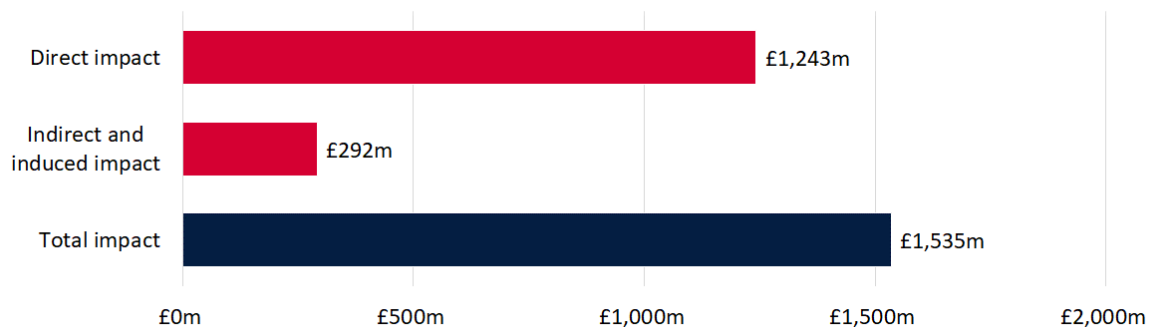
⁷ The total operational expenditure (excluding capital expenditure) of the University of Edinburgh in 2021-22 stood at **£1,389 million**. From this, for the purpose of the analysis, we excluded **£61 million** in depreciation costs and **£242 million** in movements in pension provisions, as it is assumed that these are not relevant from a procurement perspective (i.e. these costs are not accounted for as income by other organisations).

associated with the University of Edinburgh's expenditures in 2021-22 was estimated at **£1,535 million** (see Section 5).

In terms of **region**, almost three-quarters of this impact (**£1,105 million, 72%**) occurred in **Scotland**, while the remainder (**£429 million, 28%**) was accrued across the rest of the UK.

In relation to the **sector of impact**, in addition to the impacts occurring in the government, health, and education sector itself (**£699 million, 46%**), there are also large impacts felt within other sectors, e.g. including the production sector (**£203 million, 13%**), the distribution, transport, hotel, and restaurant sector (**£200 million, 13%**), and the real estate sector (**£137 million, 9%**).

Figure 3 Impact associated with the University of Edinburgh's expenditure in 2021-22 (£m)



Note: All estimates are presented in 2021-22 prices, rounded to the nearest £1m, and may not add up precisely to the totals indicated.

Source: London Economics' analysis

In terms of the number of FTE jobs supported, the University of Edinburgh's expenditure supported a total of **10,490** FTE jobs across the UK economy in 2021-22 of which **8,085 (77%)** were based in Scotland. The remaining **2,410** jobs supported by the activities of the University of Edinburgh are located across the rest of the UK⁸.



The impact of the University of Edinburgh's contribution to tourism

As a final strand of impact, the University attracts a range of visitors to Edinburgh, including tourists, business visitors, friends and family visiting the University's staff and students, and participants in study trips to the University.

To understand the economic impact associated with the University's contribution to tourism through the attraction of these visitors, we estimate the number of visitors to Edinburgh in a typical year that were associated with the University's presence. Due to the impact of the pandemic and the associated restrictions, this analysis (for the 2021-22 *academic year*) is based on visits to Edinburgh in the 2019 *calendar year* (i.e. we adopt the most recently available pre-pandemic data to give an indication of the "typical" impact of tourism associated with the University of Edinburgh). The analysis focuses only on visits to Edinburgh that involved overnight stays by visitors from overseas, as it is assumed that any domestic (day or overnight) visits to Edinburgh would have displaced activity from other regions of the UK (and should not be considered 'additional' to the UK economy, although it is additional to the Scottish economy). Out of a total of **2,206,000** overnight visits from overseas visitors to Edinburgh, we estimate that approximately **78,000** resulted from the University's activities. Combined with information on the average trip expenditure per visitor, the **direct impact** of the University's contribution to tourism was estimated at **£79 million**.

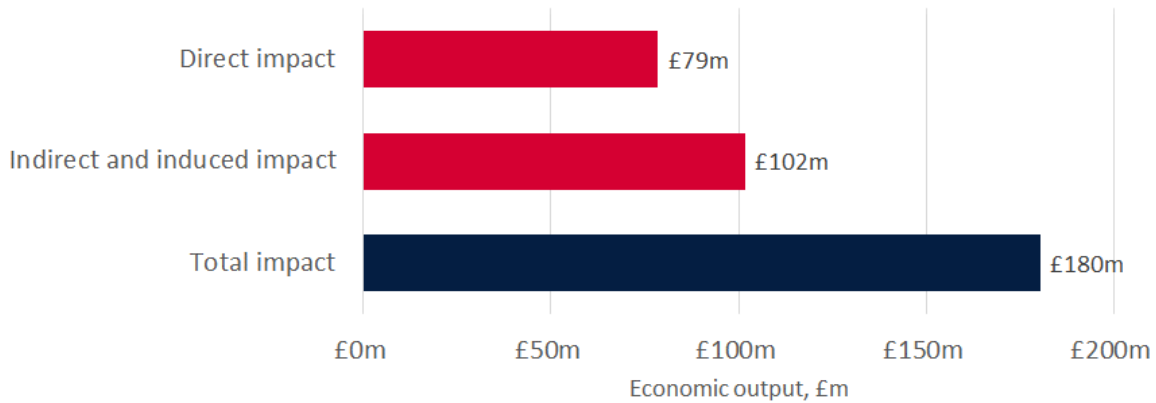
⁸ Totals may not add up precisely due to rounding.

As with the University’s knowledge exchange activities, educational exports, and the spending of the University, this visitor expenditure results in subsequent rounds of expenditure throughout the UK economy. Again, this is measured by the **indirect, and induced impacts** associated with these expenditures, estimated by applying relevant economic multipliers to the direct impact. Using this approach, the analysis indicates that the **total direct, indirect, and induced impact** of the visitor expenditure generated by the University of Edinburgh stood at approximately **£180 million** (see Figure 4).

The impact of the University of Edinburgh’s annual contribution to tourism stands at £180 million.

The University’s contribution to tourism activities supported an estimated **1,960 full-time equivalent jobs** across the UK as a whole, with **1,555 jobs** of these jobs supported in Scotland.

Figure 4 Impact associated with the University of Edinburgh’s annual contribution to tourism (£m)



Note: All estimates are presented in 2021-22 prices, rounded to the nearest £1m, and may not add up precisely to the totals indicated.
 Source: London Economics’ analysis



LE

London Economics

Somerset House, New Wing, Strand
London, WC2R 1LA, United Kingdom
info@londoneconomics.co.uk
londoneconomics.co.uk

🐦: @LE_Education @LondonEconomics
+44 (0)20 3701 7700