Impact of the Covid-19 pandemic on university finances

Report for the University and College Union

LE London Economics

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Table of Contents

1 Introduction

The Covid-19 pandemic has had an almost unimaginable impact on the United Kingdom. There are numerous families that have had their lives shattered, and the health and social impacts of the pandemic are likely to persist long into the future. The economic impact of the pandemic will also be significant, with millions of businesses and households across the country thrown into financial hardship, many of whom will fail to ever recover. Initial estimates of the economic impact of the pandemic are worse than *anything* the UK has ever experienced[1] - and deteriorating steadily. Reflecting the erosion of economic sentiment, as new economic forecasts are produced, even week-old forecasts are now being badged as unrealistically optimistic. Although the current lockdown is entirely necessary, the longer it persists, the deeper and more irreversible the economic damage, and the longer until recovery occurs.

For the higher education (HE) sector, the pandemic will have immense financial consequences. Universities have already suffered very significant revenue losses in respect of accommodation, conferences, and events activity. Optimistically, assuming that some face-to-face or widespread online provision will be possible in September 2020[2], the prospect of a significant proportion of domestic and international students **deferring** their decision to undertake a higher education qualification means that every university's core income streams will be severely jeopardised. There is also a compounding **timing risk** that essentially reduces the potential upside of any return to 'business as usual'. Specifically, because the decision to undertake higher education takes place well in advance of actual enrolment, even if there is complete certainty in respect of the nature of HE provision in the coming weeks – or even months – this will be too late for many students.

In this report, we consider the impact of the pandemic on the finances of a selection of universities across the United Kingdom. **First**, we combine the most recently produced UK and global economic growth forecasts with existing research on the determinants of HE student demand to identify the potential effect of the predicted economic recession on domestic and international enrolment rates. **Second**, we consider the most recent evidence on the impact of the pandemic on the decision of students to defer their decision to enrol in UK higher education (under the assumption that some form of either face-to-face or online provision will be available in autumn 2020). While the analysis assumes relatively optimistic outcomes for higher education institutions (HEIs), in reality, the potential financial impacts may be much **worse** than those presented here unless there is significant government intervention to support universities through this crisis.

In terms of core measures considered, in addition to the **number of first-year enrolments**, we identify the financial impact on UK higher education institutions. In particular, we focus on the decline in **tuition fee and public teaching grant income** associated with first-year enrolments, and in consequence, the extent to which universities are in surplus or deficit based on their **day-to-day operations** (i.e. focusing on institutions **net cash inflow from operating activities**). In economic terms, the latter measure assesses the extent to which universities are covering their **variable** or **operating** costs (and in the absence of financial reserves or alternative revenue sources might be considered the minimum requirement for medium term *commercial* viability). Finally, unless the UK government underwrites their financial losses, assuming that institutions cut their expenditures to match the decline in income, we also assess the impact on **job losses** across the HE sector, as well as the consequential **direct, indirect and induced economic impact** across the wider UK economy.

[1] Office for Budget Responsibility (2020). See Chart 1.2 in 'Commentary on the OBR coronavirus reference scenario'.
[2] The University of Aberdeen became the first higher education institution in the United Kingdom to formally delay the start of the Autumn term on 9th April 2020 – by two weeks. See University of Aberdeen (2020).

2 The baseline position of higher education institutions

To understand the baseline position of UK higher education institutions prior to the Covid-19 pandemic, we analysed publicly available information from the Higher Education Statistics Agency (HESA) on HE enrolments and finances relating to the 2018-19 academic year[3]. In other words (and in the absence of more recent information), we assume that, in the absence of the Covid-19 pandemic, higher education institutions' positions in relation to student enrolments, finances and staff in the 2020-21 academic year would have remained the same as in the 2018-19 academic year. Hence, all of the predicted impacts of the pandemic (presented in Sections 3 and 4) were estimated in comparison to this baseline.

Given the differential effect of the domestic and global slowdown on enrolments, the analysis was undertaken separately by **student domicile** (i.e. UK, EU and Non-EU students), **level of study** (undergraduate and postgraduate) and **mode of study** (full-time and part-time). In addition, following a previous study (undertaken for the Higher Education Policy Institute and Kaplan)[4] assessing the international demand for higher education in the United Kingdom, the analysis was split into **four clusters of higher education institutions**. In particular, rather than splitting institutions into their mission group membership (which is self-selected and somewhat arbitrary), we used the classification of UK higher education institutions developed by Boliver (2015)[5].

Using this analysis, we group UK higher education institutions into four clusters[6]. Cluster 1 consists of 2 institutions (University of Oxford and University of Cambridge). Cluster 2 includes 38 mainly pre-1992 institutions (Russell Group and/or former 1994 Group institutions or unaffiliated institutions). Cluster 3 consists of 67 institutions (covering members of the 1994 Group, Million+, University Alliance, Guild HE and unaffiliated institutions). Finally, Cluster 4 covers 18 institutions (including members of Million+, University Alliance, Guild HE and unaffiliated institutions).[7] Any institutions that were not included in Boliver's (2015) proposed clusters were excluded from the analysis.

2.1 First-year student enrolments

Table 2 presents the number of first year students enrolled at UK HEIs in 2018-19 (focusing on institutions covered in the Boliver (2015) clusters only). Of the **965,210** first-year students in 2018-19, approximately **73%** (**708,075**) were UK-domiciled, **6%** (**60,250**) were EU-domiciled, and **20%** (**196,885**) were from Non-EU countries (though note the considerable variation in the distribution of enrolments by domicile across institutions in different clusters). Approximately two-thirds of students were undertaking undergraduate qualifications (**64%**, **613,785**), and **81%** (**777,885**) were undertaking their qualifications on a full-time basis.

[3] 2018-19 being the most recent academic year for which this information was published, at the time of writing.
[4] See London Economics (2017a).
[5] Boliver's (2015) research suggests that, as a result of the differences in research activity, measures of perceived teaching quality (including National Student Survey satisfaction measures and Guardian University Guide scores), economic resources, academic selectivity, and socioeconomic student mix, it is possible to classify UK higher education institutions into four distinct clusters. Among the pre-1992 universities, Oxford and Cambridge 'emerge as an elite tier', with the remaining Russell Group universities essentially undifferentiated from the majority of other pre-1992 universities (Clusters 2 and 3). However, the cluster analysis further indicates that there is a division among the post-1992 universities, with around a quarter of these institutions categorised as Cluster 4, primarily based on their relatively lower levels of research activity, economic resources, and academic selectivity (as compared to Cluster 3 institutions). This classification covers 125 UK higher education institutions – but does not include a number of conservatoires and specialist institutions.
[6] See Annex A2.1 for an overview of each cluster.
[7] Note that the original analysis by Boliver (2015) included a total of 127 institutions in the classification. The analysis here focuses on 125 institutions, where we exclude SOAS University of London (since the relevant HESA financial information was unavailable for this institution) and the University of Wales, Newport (since it has now merged into the University of South Wales).

Table 1 Number and % of first-year students entering UK higher education in 2018-9, by domicile, study mode and level, and institution cluster

	# of students					% of total (separately by cluster)				
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**	**2**	**38**	**67**	**18**	**125**
UK										
UG full-time	5,175	135,165	243,830	46,345	**430,515**	25%	36%	51%	57%	**45%**
UG part-time	3,105	13,805	48,595	9,170	**74,675**	15%	4%	10%	11%	**8%**
PG full-time	3,015	50,065	46,140	8,390	**107,610**	14%	13%	10%	10%	**11%**
PG part-time	1,545	30,640	54,235	8,855	**95,275**	7%	8%	11%	11%	**10%**
Total	**12,840**	**229,675**	**392,800**	**72,760**	**708,075**	**62%**	**60%**	**81%**	**89%**	**73%**
EU										
UG full-time	605	12,985	16,030	3,155	**32,775**	3%	3%	3%	4%	**3%**
UG part-time	50	660	1,080	775	**2,565**	0%	0%	0%	1%	**0%**
PG full-time	1,430	13,380	5,995	530	**21,335**	7%	4%	1%	1%	**2%**
PG part-time	185	1,580	1,630	180	**3,575**	1%	0%	0%	0%	**0%**
Total	**2,270**	**28,605**	**24,735**	**4,640**	**60,250**	**11%**	**8%**	**5%**	**6%**	**6%**
Non-EU										
UG full-time	1,040	34,075	29,640	1,870	**66,625**	5%	9%	6%	2%	**7%**
UG part-time	150	3,950	2,390	140	**6,630**	1%	1%	0%	0%	**1%**
PG full-time	4,025	81,895	31,120	1,985	**119,025**	19%	22%	6%	2%	**12%**
PG part-time	545	1,825	1,920	315	**4,605**	3%	0%	0%	0%	**0%**
Total	**5,760**	**121,745**	**65,070**	**4,310**	**196,885**	**28%**	**32%**	**13%**	**5%**	**20%**
Total										
UG full-time	6,820	182,225	289,500	51,370	**529,915**	33%	48%	60%	63%	**55%**
UG part-time	3,305	18,415	52,065	10,085	**83,870**	16%	5%	11%	12%	**9%**
PG full-time	8,470	145,340	83,255	10,905	**247,970**	41%	38%	17%	13%	**26%**
PG part-time	2,275	34,045	57,785	9,350	**103,455**	11%	9%	12%	11%	**11%**
Total	**20,870**	**380,025**	**482,605**	**81,710**	**965,210**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: All numbers cover only the 125 institutions grouped into clusters by Boliver (2015), and are rounded to the nearest 5.

Source: London Economics' analysis of HESA data (see HESA, 2020a)

2.2 Baseline financial position

2.2.1 Tuition fee and teaching grant income

As presented in Table 2, the total tuition fee income (from first-year and continuing students) generated by UK-domiciled students in 2018-19 stood at approximately **£11.14 billion**, with a further **£1.06 billion** accrued from EU-domiciled students, and **£5.47 billion** generated from non-EU students. The total tuition fee income (excluding education contracts relating to FE courses, transnational education and continuing professional development etc.) accrued by UK higher education institutions stood at **£17.67 billion** in 2018-19.

This equates to an average of approximately **£141 million** in tuition fee income per higher education institution. However, there is significant variation depending on cluster. Specifically, Cluster 1 and 2 institutions accrued an average of **£266 million** and **£219 million** in tuition fee income per HEI in 2018-19 respectively, compared to **£115 million** and **£62 million** per institution in Cluster 3 and 4 respectively. In addition, of particular importance here is the dependency amongst Cluster 1 and 2 institutions on fee income from non-EU students. Specifically, Cluster 1 and 2 institutions accrued an average of **£129 million** and **£99 million** per institution in tuition fee income from non-EU students, respectively, compared to an average of only **£21 million** and **£4 million** per institution in Clusters 3 and 4 respectively. For institutions in Clusters 1 and 2, the tuition fee income from EU-domiciled and non-EU domiciled students accounted for between **51%** and **58%** of total tuition fee income in 2018-19 (compared to between **11%** and **24%** for Clusters 3 and 4).

Table 2 Total tuition fee income accrued by higher education institutions in 2018-19, by student domicile and institution cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**
Total across all HEIs					
UK	£222m	£4,037m	£5,891m	£991m	**£11,140m**
EU	£53m	£514m	£438m	£57m	**£1,063m**
Non-EU	£257m	£3,755m	£1,387m	£72m	**£5,470m**
Total	**£532m**	**£8,306m**	**£7,716m**	**£1,120m**	**£17,674m**
% of total					
UK	42%	49%	76%	88%	**63%**
EU	10%	6%	6%	5%	**6%**
Non-EU	48%	45%	18%	6%	**31%**
Total	**100%**	**100%**	**100%**	**100%**	**100%**
Average per HEI					
UK	£111m	£106m	£88m	£55m	**£89m**
EU	£27m	£14m	£7m	£3m	**£9m**
Non-EU	£129m	£99m	£21m	£4m	**£44m**
Total	**£266m**	**£219m**	**£115m**	**£62m**	**£141m**

Note: Numbers are rounded to the nearest £m or %. The income presented focuses on higher education course fees only, and excludes any income from other courses or education contracts (e.g. further education courses, transnational education courses, etc.).
Source: London Economics' analysis of HESA data (see HESA, 2020b)

In addition, higher education institutions received **£1.84 billion** in public teaching grant income in respect of UK-domiciled and EU-domiciled students (from the Office for Students, the Higher Education Funding Council for Wales, the Scottish Funding Council, and the Department for the Economy Northern Ireland).

2.2.2 Total income, expenditure and staff

As presented in Table 3, for the institutions under consideration, total income in 2018-19 stood at **£37.63 billion**, of which more than **half** relates to the combined total of tuition fee and teaching grant income[8]. Although not under consideration here, a further **£7.00 billion** in university income was accrued from the provision of a range of other services (for instance, accommodation, catering and events), which will clearly be impacted by the economic slowdown and the reduced number of students expected to enrol in UK HEIs in 2020.

The total expenditure of higher education institutions in 2018-19 stood at approximately **£40.94 billion**, of which **£24.27 billion** was spent on staff related costs (**59%**), and **£16.67 billion** was spent on non-staff costs (**41%**). Universities employed almost **475,000** staff in 2018-19 (headcount), comprising **200,600** academic staff, **66,600** academic staff on atypical contracts, and **207,780** non-academic staff.

Table 3 Total income accrued, expenditure incurred and staff employed by higher education institutions in 2018-19, by institution cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**
Income					
Tuition fees & educ. contracts	£674m	£8,924m	£7,908m	£1,148m	**£18,655m**
Funding body grants	£375m	£2,852m	£1,485m	£182m	**£4,894m**
Research grants & contracts	£1,217m	£4,333m	£571m	£18m	**£6,139m**
Other income	£2,007m	£3,287m	£1,499m	£209m	**£7,003m**
Investment income	£145m	£166m	£46m	£4m	**£362m**
Donations & endowments	£224m	£322m	£34m	£2m	**£581m**
Total	**£4,642m**	**£19,885m**	**£11,543m**	**£1,563m**	**£37,633m**
Expenditure					
Staff costs	£2,472m	£13,871m	£7,020m	£910m	**£24,273m**
Non-staff costs	£2,418m	£8,616m	£4,965m	£672m	**£16,671m**
Total	**£4,890m**	**£22,487m**	**£11,985m**	**£1,582m**	**£40,944m**
# of staff (headcount)					
Academic (excl. atypical)	13,120	104,815	74,105	8,560	**200,600**
Non-academic	13,080	111,990	73,020	9,690	**207,780**
Academic atypical	3,165	39,850	18,820	4,765	**66,600**
Total	**29,365**	**256,655**	**165,945**	**23,015**	**474,980**

Note: Any financial data are rounded to the nearest £m. Staff numbers are measured in headcount (in terms of HESA's definition of full-person equivalence), rounded to the nearest 5, and include staff on academic atypical contracts.
Source: London Economics' analysis of HESA data (see HESA, 2020b and 2020c)

2.2.3 Net cash inflow from operating activities

To understand the financial position of higher education institutions, rather than use surplus or deficit as a proportion of total income, we have considered institutions' **net cash inflow from operating activities as a proportion of total income**. This measure, which is used as a key financial indicator by HESA[9], provides an indication of the financial health of an institution in terms of its **day-**

[8] In Table 3, the income from teaching grants (£1.84 billion) is included in the income from on funding body grants (£4.89 billion), while the tuition fee income from HE course fees (£17.67 billion) is included in the total income from tuition fees and education contracts (£18.66 billion).
[9] See HESA (2020b).

to-day operations. This metric is different from another common and straightforward financial metric of **surplus or deficit as a proportion of total income,** because it does not include any items of **non-cash expenditure** (such as depreciation, amortisation and (most importantly) adjustments for pension liabilities), or income from and expenditure on financing activities. We use this approach because the inclusion of pension provision charges in particular distorts the more standard surplus metric so that it cannot be used to assess the core sustainability of a university's business model. However, it is important to note that this measure (net cash inflow) is not perfect, with one of the main issues being the different approaches adopted by higher education institutions in respect of the accounting treatment of depreciation and amortisation.

In general, the estimate of **net cash inflow from operating activities as a proportion of total income** is typically approximately **10-12 percentage points** higher than the standard measure of surplus or deficit as a proportion of total income. In the absence of significant financial reserves, we would define organisations with a **net cash inflow** of less than **5%** as facing **significant operational challenges in the medium term** (as insufficient cash reserves are being generated to service debt or to build up cash reserves to pay for necessary capital refurbishment for instance)[10]. Most institutions that focus on net cash inflow would target achieving **at least 8%**.

Table 4 presents information in respect of institutions' net cash inflow positions in the baseline (i.e. in 2018-19). Across all HEIs considered in the analysis, the average net cash inflow from operating activities as a proportion of total income stood at approximately **9.8%** in 2018-19. By cluster, these proportions were highest for institutions in Clusters 3 and 4 - despite accruing relatively smaller net cash inflows in absolute terms (which in part reflects the very significant income generated by institutions in Clusters 1 and 2).

The analysis further indicates that, in 2018-19, there were **21** higher education institutions with a net cash inflow from operating activities of less than **5%**, of which **7** had a negative net cash inflow.

Table 4 Baseline net cash inflow from operating activities in 2018-19 by institution cluster (in £m and as a % of income)

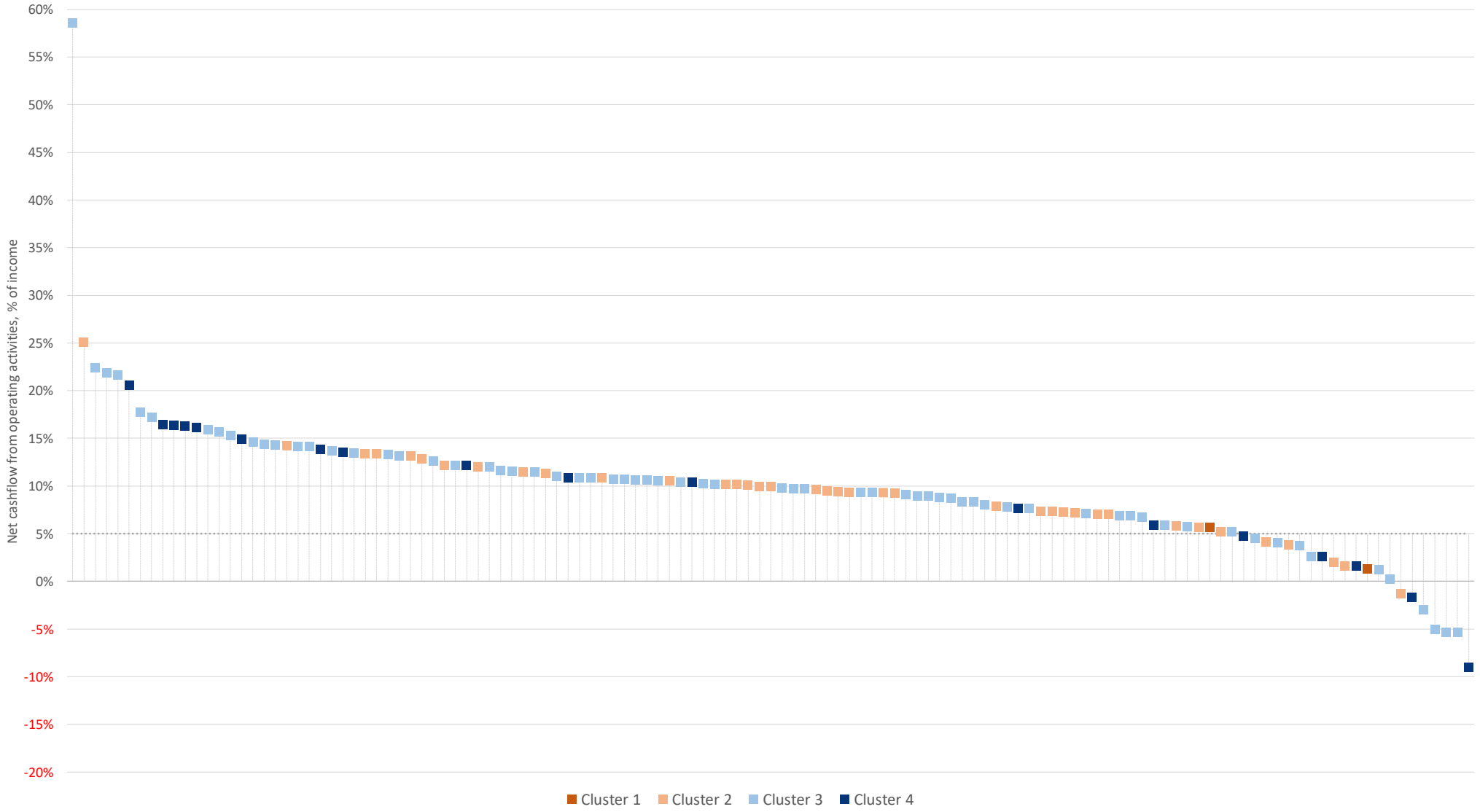
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**
Net cash inflow (per institution)	£79m	£47m	£18m	£8m	**£26m**
Net cash inflow (% of total income)	3.5%	9.1%	10.4%	9.7%	**9.8%**
# of HEIs with net cash inflow <5%	1	5	10	5	**21**
# of HEIs with net cash inflow <0%	0	1	4	2	**7**

Source: London Economics' analysis of HESA data (see HESA, 2020b)

Figure 1 presents net cash inflow from operating activities as a proportion of total income, in 2018-19, separately by institution. It is important to note that institutions from all clusters were distributed across the entire spectrum, with a slightly higher concentration of institutions in Cluster 3 and 4 at the upper end of the spectrum (i.e. with higher net cash inflow positions).

[10] Net cash inflow should exceed the institution's annual costs of servicing borrowing, i.e. interest and repayments. In 2018-19, the average of finance costs as a proportion of total income was estimated to be marginally above 4%, although for some institutions, the estimate was in excess of 10%.

Figure 1 Net cash inflow from operating activities as a % of income in 2018-19, by institution and cluster



Source: London Economics' analysis of HESA data (see HESA, 2020b)

3 Estimating the impact of the Covid-19 pandemic

3.1 Estimating the impact of the predicted global recession

3.1.1 UK-domiciled students

Economic growth forecasts for the UK

In the Office for Budget Responsibility's Economic and Fiscal Outlook for March 2020 (published in early March 2020), GDP growth was estimated to be **1.4%** for 2019, with expected subsequent annual growth of between **1.1%** and **1.8%** between 2020 and 2025[11]. However, more recent forecasts for the UK economy (including updates from the OBR itself) have predicted significant reductions in UK GDP in 2020. In Table 5, we present some of the most recent estimates of expected annual GDP growth in 2020 (compared to 2019), as well as estimates of quarterly growth in the 2nd Quarter of 2020 (compared to the 1st Quarter of 2020).

Table 5 Forecasts of economic growth in the UK, from oldest (top) to most recent (bottom)

Source of forecast	% change on previous period	
	Q2 2020 (compared to Q1 2020)	2020 (compared to 2019)
KPMG 'downside scenario'	-	-5.4
Morgan Stanley	-	-5.1
Bloomberg '4-week lockdown'	-9.0	-
Capital Economics	-15.0	-
CEBR	-15.0	-
Société Générale	-19.0	-10.0
Pantheon	-15.0	-7.0
Oxford Economics	-8.5	-5.1
Nomura	-13.5	-7.8
NatWest Markets	-13.1	-6.6
JP Morgan	-7.5	-3.6
ING Financial Markets	-10.0	-6.1
Goldman Sachs	-12.4	-7.5
Fathom Consulting	-20.0	-
Economic Perspective	-15.2	-10.8
Deutsche Bank	-13.2	-6.5
Commerzbank	-14.0	-6.0
Capital Economics	-24.0	-12.0
Bank of America	-14.2	-7.4
Deutsche Bank	-13.2	-6.5
OBR 'Covid-19 reference scenario'	-35.0	-13.0

Source: Economic forecasts in **black** font from Office for Budget Responsibility (2020b). Economic forecasts presented in grey font from BBC News (April 9th, 2019).

Relatively early estimates (end of March 2020) for the 2nd Quarter of 2020 predicted a decline in GDP of between **9.0%** to **15.0%** compared to the previous quarter; however, more recent estimates indicate that the quarterly decline is expected to range between **7.5%** and **24.0%.** Assuming that the current lockdown remains in place for three months followed by a gradual relaxation, the Office for Budget Responsibility now estimates that the 2nd Quarter decline in economic output in the UK will be approximately **35%**.

[11] See Office for Budget Responsibility (2020a).

Over the entire year, the OBR now expects a **13%** decline in output - which is considerably greater than other recent independent forecasts presented in Table 5 (ranging between **3.6%** and **12.0%**). While the OBR's most recent forecast is the most pessimistic, following the Great Financial Crisis of 2008, growth estimates from independent economic forecasters were successively downgraded as the extent of the financial crisis became apparent. As such, we consider the OBR forecast to be a reasonable assessment of the impact of the pandemic on economic growth in 2020, and have used this estimate in subsequent modelling (described in further detail below).

Understanding the impact of the recession on UK-domiciled students

Specifically, to understand the impact of the economic downturn on UK-domiciled student enrolments, using information from the UK Quarterly Labour Force Survey (between Q1 2005 and Q1 2018), we analysed the historic correlation between UK higher education participation and GDP growth. Theoretically, we would expect to see:

- A **countercyclical relationship** between **full-time** HE participation and economic growth. Specifically, as an economic slowdown occurs, the labour market options available to prospective full-time students decline, resulting in lower opportunity costs (in terms of labour market earnings) associated with higher education participation (effectively the 'price' of participation). This would result in an expected increase in full-time HE participation; and
- A **procyclical relationship** between **part-time** HE participation and economic growth. Given that a high proportion of part-time students are working in the labour market when making the decision to enrol in HE, an economic slowdown would reduce prospective students' disposable income, resulting in these individuals spending less on *all* goods and services – including higher education. The result would be a lower propensity to enrol in higher education[12].

The analysis of the Labour Force Survey – albeit being relatively simplistic and not reflective of the scale of the predicted economic slowdown and the more limited wider economic opportunities – suggests that a 1 percentage point reduction in annual UK GDP growth is associated with a **0.03% increase in full-time enrolments** in UK HE (at any level). For part-time students, the effect is more substantial and is in the opposite direction (as expected), with the analysis indicating that a 1 percentage point reduction in the annual UK GDP growth rate is associated with a **0.56% decrease in part-time enrolments** in UK higher education.

Combining these estimates with the above OBR economic forecast (indicating that UK GDP growth in 2020 will be approximately **14.8 percentage points** lower than in the previous year (i.e. in the absence of the pandemic), we estimate that, on average, there would be a **1%** increase in first-year full-time enrolments in 2020-21 (compared to the baseline), an **8%** decline in part-time enrolment, and an overall **2%** decrease in domestic students enrolling in higher education institutions (equivalent to **11,550** students)[13].

It is important to note that these estimates only provide a *partial* estimate of the impact of the Covid-19 pandemic, as they do not account for any *additional* student deferrals due to the pandemic (e.g. students deferring their enrolment into UK higher education – or no longer considering undertaking UK higher education at all – due to the significant uncertainty over how/whether they

[12] For a detailed discussion of the theory underpinning the behaviour of part-time and full-time students in response to changing economic conditions, see London Economics (2017b).
[13] As outlined above, we assume differential effects across institutions in different clusters, with HEIs in Cluster 1 (i.e. the most prestigious institutions) expected to face the relatively largest increase in the number of full-time students and the smallest decline in part-time students as a result of the impact of the UK's economic recession. Please refer to Annex A2.2.1 for more detail.

will be able to attend their chosen course). These additional deferral effects are further discussed in Section 3.2.

3.1.2 International students

Economic forecasts for the global economy

There have been a number of recent forecasts of the impact of Covid-19 on the global economy. In particular, there have been a range of forecasts predicting significantly lower global GDP growth than in the absence of the pandemic (i.e. than estimated pre-crisis), including estimates by the OECD (**1.5 percentage points** lower (Figure 5, link)); Morgan Stanley (**3.1 percentage points** lower (link); Capital Economics (**6.8 percentage points** lower (link)); the United Nations (**3.4 percentage points** lower (link); and the International Monetary Fund (**6.3 percentage points** lower (link)). Notably, those forecasts published more recently again offer a more pessimistic estimate of the impact of the pandemic on global economic growth. In other forecasts estimating the extent of the global contraction (rather than the difference in pre- and post-pandemic growth rates), the National Institute for Economic and Social Research estimate a **4%** contraction of the global economy compared to 2019 (link), while a World Bank study from 2013 estimated the specific impact of a severe flu pandemic on the global economy at **4.8%** of global GDP (link).

For the purposes of this analysis, based on the World Bank analysis, we assume that the global economy will contract by **4.8%** in 2020.

Understanding the impact of the global recession on international students

In previous work undertaken on behalf of the Higher Education Policy Institute and Kaplan International[14], we identified that every 1% reduction in global GDP was associated with a **0.485%** reduction in first-year international undergraduate students entering UK higher education in a given year. While no such effect was identified for postgraduate students, clearly, it is intuitively correct that an economic slowdown of the magnitude forecast for 2020 will have a negative impact on postgraduate students coming to the United Kingdom from overseas. Hence, as we have not applied any recession effect to these prospective students, our estimates of the recession effect associated with the pandemic on international students likely underestimate the true impact.

Combining the above estimate with an assumed **4.8%** global GDP contraction (estimated by the World Bank (2013)), we estimate a **2%** decline in the number of international EU-domiciled and non-EU-domiciled first-year undergraduate students coming to study in the United Kingdom in 2020-21[15].

Combining the impacts on UK and international first-year students, the analysis indicates that the economic recession caused by the Covid-19 pandemic – by itself – would result in a (minimum) **1.5%** reduction in the number of first-year students entering UK HE in 2020-21 (corresponding to approximately **14,000** students). Again, note that this is a relatively conservative estimate, with the true effect likely to be significantly higher. In addition, as outlined above, these estimates do not yet account for the impact of the additional student deferrals caused by the pandemic, discussed in the next section.

3.2 Estimating the impact of student deferrals due to the pandemic

To understand the impact of the pandemic on student deferrals, we have relied on several recent pieces of research analysing the potential effects on domestic and international students. However,

[14] See London Economics (2017a).
[15] Again, please refer to Annex A2.2.1 for more detail on the assumed underlying differential effects by university cluster.

the reasonableness of these analyses crucially depends on the extent to which institutions are fully operational in autumn 2020, as well as when there is some degree of certainty in respect of the institutional offer. We have assumed that the estimated deferral rates are reflective of the information available at the time in relation to the duration of the current lockdown, and the current delivery of higher education teaching across the sector. Clearly, if there is a significant delay in the availability and notification of when 'full' provision might take place, the greater the likelihood of deferral and the more significant the financial impact on institutions.

For **domestic students**, a recent joint UCAS/Youthsight[16] survey of 500 'A' level students that had applied to enter higher education identified that approximately **14%** were considering deferring their place. We apply this proportion to all UK-domiciled first-year students, irrespective of study level and mode of study, but with differential deferral rates applied to institutions in different university clusters (assuming the lowest deferral rates for institutions in Cluster 1, and the highest for institutions in Cluster 4).[17]

For **international students**, the British Council[18] recently published results from a survey of Chinese nationals who had applied to study higher education courses overseas in the 2020-21 academic year (of which 98% had applied to study in the United Kingdom). Respondents were asked to indicate to what extent they were likely to cancel or delay their plans to study. **12%** of respondents had either already cancelled their plans or were 'very likely' to defer, with a further **12%** being 'somewhat likely'. **39%** were undecided ('neither likely nor unlikely'), while a further **25%** were 'somewhat unlikely' and the remaining **12%** were 'very unlikely' to delay or cancel their plans. We then applied a simple likelihood to each category of response (ranging from a 100% probability of deferral to those that had already cancelled their plans or were very likely to, to 0% for those very unlikely to cancel their plans). The expected probability-adjusted deferral rate was thus estimated to be approximately **47%**.[19] Although this survey related to prospective Chinese students only, we applied this deferral rate to all EU-domiciled and Non-EU domiciled students (again varying by cluster[20], and assuming the same deferral rate across all levels and mode of study).

Note again that we did not apply the same magnitude of impact of either the recession or the pandemic effect across institutional clusters. In particular, to account for prospective students' switching behaviour, we applied differential estimates across clusters so that institutions in Cluster 1 were assumed to be the *least negatively impacted* by either the economic recession or expected deferrals, and institutions in Cluster 4 were the *most negatively impacted*. Although the assumed variation across clusters was not particularly large, this does potentially address some change in institutional behaviour in respect of attracting students to fill enrolment shortfalls.

Further note that the impacts of the recession and student deferrals were applied *sequentially,* where above-described deferral rates were applied to the estimated number of first-year students *after* taking account of the recession effects. Given the multiplicative nature of the modelling, the aggregate impact of both types of effects remains unaffected by this sequencing.

[16] See UCAS and Youthsight (2020).
[17] See Annex A2.2.2 for more information.
[18] British Council (2020).
[19] In terms of the reasonableness of this assumption, other recent research estimated that amongst international students initially intending to study overseas, approximately **53%** are intending to defer their place, with an additional **8%** no longer intending to study overseas (link).
[20] See Annex A2.2.2 for more information.

4 The impact of the Covid-19 pandemic

4.1 Impact on student enrolments and income

Combining the impact of the economic downturn and the expected deferral rate, the analysis indicates that compared to baseline (i.e. 2018-19) first-year enrolments, a total of approximately **231,895** students will no longer enrol in UK higher education in 2020-21 – equivalent to approximately **24%** of the baseline cohort (see Table 6). This includes approximately **111,000** fewer UK-domiciled students (a **16%** decline), while the estimated decline in EU and non-EU students stands at **28,410** and **92,345** (approximately **47%** within each category; amounting to a total decline in international students of **120,755**).

This corresponds to a total decline of approximately **1,845** students per institution (split evenly between domestic and international students), although there is some significant variation by university cluster. In particular, the analysis indicates that there will be approximately **2,700** fewer first-year enrolments per institution in Cluster 1 and 2, **1,595** fewer enrolments per institution in Cluster 3 and **955** fewer enrolments per institution in Cluster 4.

Table 6 Estimated impact of the pandemic on first-year student enrolments in 2020-21, by student domicile and institution cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total	% diff (to baseline)
# of HEIs	**2**	**38**	**67**	**18**	**125**	**-**
Total across all HEIs						
UK	-1,775	-32,725	-63,820	-12,820	**-111,140**	**-16%**
EU	-1,025	-13,310	-11,815	-2,260	**-28,410**	**-47%**
Non-EU	-2,595	-56,560	-31,115	-2,075	**-92,345**	**-47%**
Total	**-5,395**	**-102,595**	**-106,750**	**-17,155**	**-231,895**	**-24%**
Average per HEI						
UK	-885	-860	-955	-710	**-890**	**-16%**
EU	-510	-350	-175	-130	**-225**	**-47%**
Non-EU	-1,295	-1,490	-465	-115	**-740**	**-47%**
Total	**-2,690**	**-2,700**	**-1,595**	**-955**	**-1,845**	**-24%**

Note: All numbers are rounded to the nearest 5.
Source: London Economics' analysis

In terms of the financial impact, the total decline in tuition fee and teaching grant income experienced across the sector was estimated to be **£2.47 billion** (comprised of a decline in tuition fee income of **£2.33 billion**, and a loss of teaching grant income of **£137 million**). By student domicile, approximately **£612 million** of this loss in income is associated with UK-domiciled students, with a further **£350 million** associated with EU-domiciled students. Driven by the significantly higher tuition fees charged to non-EU students, the largest decline in income was associated with non-EU students, where the expected loss in fee income was estimated to be approximately **£1.51 billion**.[21]

Per institution, while the average decline in income per institution stands at approximately **£20 million**, the variation in the reliance on international students across clusters results in a significant

[21] Note again HEIs receive no teaching grant funding for Non-EU students, so that there is no estimated impact of the pandemic on this type of income.

variation in impacts by cluster. In Cluster 1, the average impact was estimated to be **£42 million** per institution compared to estimates of **£37 million**, **£13 million** and **£6 million** per institution in Clusters 2,3 and 4 respectively.

Table 7 Estimated impact of the pandemic on HEI income in 2020-21, by institution cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total	% diff (to baseline)
# of HEIs	**2**	**38**	**67**	**18**	**125**	**-**
Total across all HEIs						
Tuition fees	(£82m)	(£1,336m)	(£809m)	(£108m)	**(£2,334m)**	**-13%**
Teaching grants	(£2m)	(£65m)	(£64m)	(£6m)	**(£137m)**	**-7%**
Other income	-	-	-	-	**-**	**-**
Total	**(£85m)**	**(£1,400m)**	**(£872m)**	**(£114m)**	**(£2,472m)**	**-7%**
Average per HEI						
Tuition fees	(£41m)	(£35m)	(£12m)	(£6m)	**(£19m)**	**-13%**
Teaching grants	(£1m)	(£2m)	(£1m)	(£0m)	**(£1m)**	**-7%**
Other income	-	-	-	-	**-**	**-**
Total	**(£42m)**	**(£37m)**	**(£13m)**	**(£6m)**	**(£20m)**	**-7%**

Note: All numbers are rounded to the nearest £m.
Source: London Economics' analysis

It is important to note that these estimates relate solely to income from tuition fees and teaching grants, and do not include any loss in income associated with the provision of ancillary services (such as accommodation, catering, conferences etc). Furthermore, we only consider the decline in fee and teaching grant income associated with first-year students in the 2020-21 academic, i.e. in these students' first year of study. Given the fact that many higher education students enrol in multi-year programmes, the total financial impact associated with the decline in first-year students (over their entire study duration) may be much larger – especially depending on the extent to which students decide to no longer come to the UK at all.

4.2 Impact on net cash inflow from operating activities

In Figure 2 and Figure 3, we provide information on the change to the key financial metric of **net cash inflow from operating activities**, in absolute monetary terms and as a proportion of total income, by institution and cluster (all ranked from highest (left) to lowest (right) net cash inflow in the baseline).

As outlined in Figure 2, the impact of the pandemic on individual higher education institutions' net cash inflow in monetary terms is stark. Specifically, the analysis estimates that the institution with the highest baseline net cash inflow (of **£147 million**) will experience a decline in net cash inflow of **£106 million** to approximately **£41 million**, while most other institutions in the top 10 (excluding one Cluster 2 and one Cluster 3 institution) experience declines of around **£50 million** each. Importantly, it is not just those institutions with healthy baseline cash net inflows (in absolute terms) that will be affected. In particular, there are a number of institutions in the middle of the distribution that are significantly impacted, with one Cluster 2 institution moving from a net cash inflow of **£18 million** in surplus to **£53 million** in deficit, following an expected **£71 million** decline in income.

Figure 3 presents net cash inflows as a proportion of income by institution, with the corresponding information at cluster level presented in Table 8. The analysis indicates that overall, the average net cash inflow across all higher education institutions declines from **9.8%** to **2.9%** (a fall of **6.9 percentage points**). The decline is more acute amongst Cluster 1 and Cluster 2 institutions, where

there is a greater reliance on international students. In particular, amongst Cluster 2 institutions, net cash inflow declines from an average **9.1%** to **2.2%** of income (a fall of **6.9 percentage points**, corresponding to **£37 million** (reflecting the above reduction in income per institution (see Table 7).

In terms of the number of institutions facing a **net cash inflow position of less than 5%**, this is estimated to increase from **21** institutions in the baseline (pre-pandemic) to **91** institutions in 2020-21. **31** out of the **38** Cluster 2 institutions are expected to face this position (compared to only **5** in the baseline), with the corresponding number in Cluster 3 standing at **47** out of **67** HEIs (compared to **10** in the baseline).

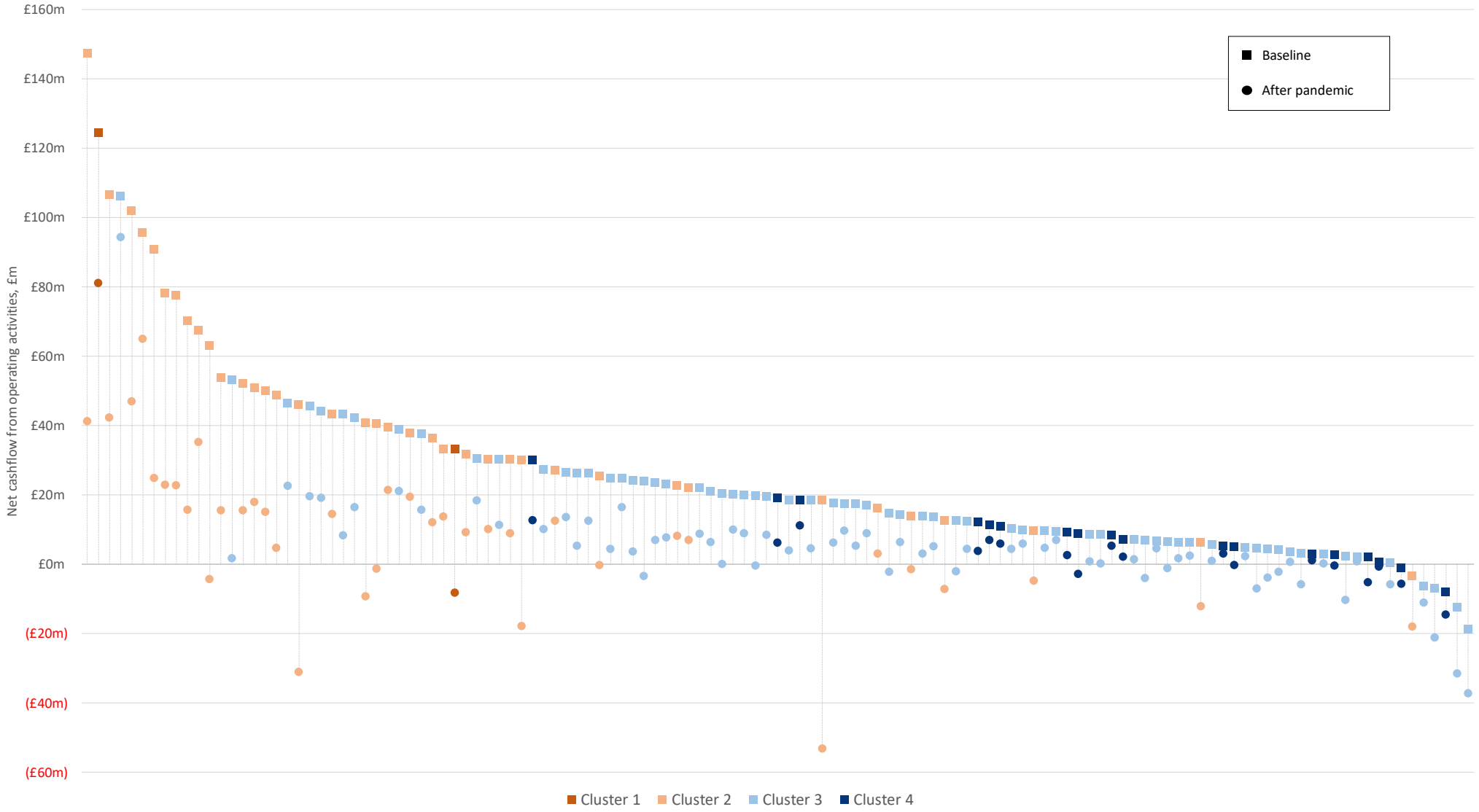
In terms of **negative net cash inflows**, compared to the baseline, where only **7** institutions posted a negative net cash inflow, this is expected to increase to a total of **36** institutions (of which **12** are in Cluster 2 and **16** are in Cluster 3).

Table 8 Estimated net cash inflow from operating activities (in £m and as a % of income) in 2020-21, baseline vs. after pandemic, by institution cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**
Net cash inflow (% of total income)					
Baseline	3.5%	9.1%	10.4%	9.7%	**9.8%**
After pandemic	1.7%	2.2%	3.4%	2.5%	**2.9%**
Net cash inflow (per institution)					
Baseline	£79m	£47m	£18m	£8m	**£26m**
After pandemic	£36m	£10m	£5m	£2m	**£6m**
# of HEIs with net cash inflow <5%					
Baseline	1	5	10	5	**21**
After pandemic	2	31	47	11	**91**
# of HEIs with net cash inflow <0%					
Baseline	0	1	4	2	**7**
After pandemic	1	12	16	7	**36**

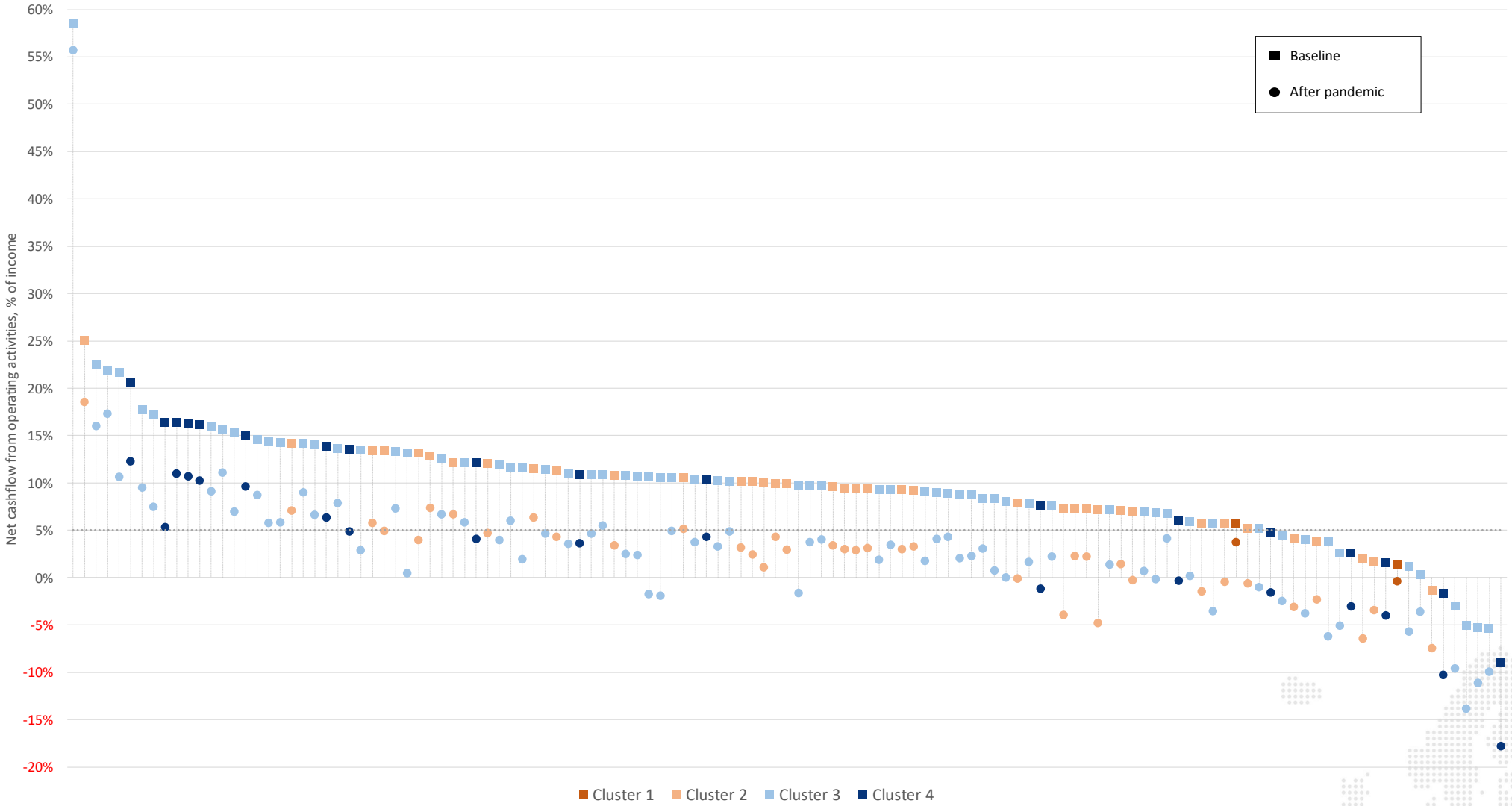
Note: All monetary estimates are rounded to the nearest £m.
Source: London Economics' analysis

Figure 2 Net cash inflow from operating activities (in £m) per institution in 2020-21, baseline vs. after pandemic, by institution and cluster



Source: London Economics' analysis

Figure 3 Net cash inflow from operating activities (as a % of total income) per institution in 2020-21, baseline vs. after pandemic, by institution and cluster



Source: London Economics' analysis

4.3 Impact on employment

The previous sections illustrated the impact of the Covid-19 pandemic on universities' financial positions based on the estimated decline in tuition fee and teaching grant income resulting from the pandemic, but making no assumptions regarding any reductions in institutions' expenditures or assistance from the government to make up for the lost revenue.

To understand what the decline in institutions' financial positions might mean for their staff, we have used information on the breakdown of university expenditure into staff and non-staff costs, as well as the average staff cost per employee, in 2018-19. Specifically, for this element of the analysis we have assumed that the estimated reduction in income for each institution following the pandemic would be fully offset by a corresponding reduction in institutional expenditure, and that the relative reduction in staff and non-staff costs will reflect the baseline distribution of expenditure of staff and non-staff costs. Similarly, we assume the same average level of staff expenditure per employee as in the baseline[22], and that job losses occur in proportion to the current employment profile in each university (i.e. we assume that job losses are not targeted at one particular category of staff, but rather spread evenly across each institution). To estimate the reduction in institutional staff as a result of the pandemic, we then divide the estimated decline in staff-related costs by the average staff expenditure per employee (again separately for each institution).

The results presented in Table 9 indicate that if, in the absence of substantial underwriting of their losses by the UK government, institutions reduced their expenditure by **£2.47 billion** (reflecting the estimated decline in university income after the pandemic (Table 7)), this would result in approximately **30,280** job losses across the HE sector (in headcount terms). This equates to approximately **240** job losses per institution. Again reflecting the differential effect of the pandemic on institutions depending on their core reliance on international students, the losses vary from an average of **95** staff per institution in Cluster 4 to **420** in in Cluster 2 institutions (with additional significant variation within clusters, with one institution potentially facing as many as **1,000** job losses).

Table 9 Number of staff employed by HEIs in 2020-21 (in headcount), baseline vs. after pandemic, by cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**
Total across all HEIs					
Baseline	29,365	256,655	165,945	23,015	**474,980**
After pandemic	28,860	240,705	153,790	21,345	**444,700**
Difference	**-505**	**-15,950**	**-12,155**	**-1,670**	**-30,280**
Average per HEI					
Baseline	14,685	6,755	2,475	1,280	**3,800**
After pandemic	14,430	6,335	2,295	1,185	**3,560**
Difference	**-255**	**-420**	**-180**	**-95**	**-240**

Note: All numbers are rounded to the nearest 5.
Source: London Economics' analysis

[22] Note that the staff costs per employee were estimated by dividing the total staff costs in 2018-19 incurred by each institution by the number of total academic, non-academic and academic atypical staff (in headcount) employed by the institution in that academic year.

4.4 Wider economic impact

Finally, we consider the wider economic impact associated with the expected reduction in higher education institutions' income and expenditure. As illustrated in the many existing analyses of the economic contributions of higher education institutions[23], the economic impact of universities goes well beyond their campuses and buildings. Universities act as very significant economic units within their local economies, generating economic output through the purchase of products and services from their suppliers, as well as the expenditure of their staff. These **direct, indirect and induced** economic impacts are defined as follows:

- **Direct effect:** This considers the economic output generated by a university itself, by purchasing goods and services (including labour) from the economy in which it operates.
- **Indirect effect:** The university's purchases generate income for the supplying industries, which they in turn spend on their own purchases from suppliers to meet the university's demands. This results in a chain reaction (or 'ripple/multiplier effect') of subsequent rounds of spending across industries.
- **Induced effect**: The university's employees will use their wages to buy consumer goods and services within the economy, generating wage income for employees within the industries producing these goods and services, who in turn spend their own income. Again, this leads a 'ripple effect' of spending throughout the economy as a whole.

Applying existing estimates of the economic multipliers associated with higher education institutions' expenditure and employment to the estimated reductions in university expenditure and employment (in the absence of substantial underwriting of institutions' financial losses by the UK government)[24], Table 10 illustrates the effect of the pandemic on total UK economic output and employment. In particular, the analysis estimates that the combined direct, indirect and induced economic impacts of the activities of the 125 higher education institutions declines from **£101.9 billion** to approximately **£95.8 billion** (a reduction of approximately **£6.1 billion**). In terms of employment losses, the reduction in institutional activity would be expected to result in approximately **62,620** job losses, of which approximately **30,280** occur directly in higher education institutions, with a further **32,340** jobs lost throughout institutions' local, regional and national supply chains.

Again, throughout this analysis we have made a number of relatively conservative assumptions based on the information available, and focused only on specific university income streams that will be directly impacted by the expected reduction in first-year enrolments as a result of the recession and student deferrals. It is likely that the impact of the pandemic on the higher education sector, and the consequential impact on the UK economy, will be significantly larger than the estimates presented here.

[23] E.g. see London Economics (2017c).

[24] Specifically, we make use of economic multipliers estimated by Oxford Economics (2017) as part of an analysis of the economic impact of UK higher education institutions on the UK economy (for the 2014-15 academic year). The analysis indicates that every £1m of direct university expenditure generates an additional **£1.49 million** of economic output throughout the rest of the UK economy, and that every 1,000 staff employed directly by HEIs support an additional **1,070 jobs** throughout the UK economy as a whole.

Table 10 Total direct, indirect and induced economic impact generated by higher education institutions' expenditures in 2020-21, baseline vs. after pandemic, by cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**
Economic output (£m)					
Baseline	£12,175m	£55,993m	£29,842m	£3,939m	**£101,949m**
After pandemic	£11,964m	£52,506m	£27,669m	£3,655m	**£95,795m**
Difference	**(£211m)**	**(£3,487m)**	**(£2,172m)**	**(£284m)**	**(£6,154m)**
Employment (headcount)					
Baseline	60,785	531,260	343,485	47,635	**983,165**
After pandemic	59,740	498,275	318,350	44,180	**920,545**
Difference	**-1,045**	**-32,985**	**-25,135**	**-3,455**	**-62,620**

Note: Staff numbers are rounded to the nearest 5, and monetary estimates are rounded to the nearest £m.
Source: London Economics' analysis

4.5 Impact of the pandemic by region

In addition to the above analysis by cluster, Table 11 presents the impact of the pandemic by **region** (based on the main campus location of each higher education institution included in the analysis).

In terms of the number of students, given the high number of institutions located in London (**18**) and these institutions' high dependency on non-UK-domiciled students, the capital will face the largest total decline in the number of first-year students (**42,960**), followed by institutions in the South East (**25,010**), Scotland (**24,120**), the West Midlands (**22,415**) and the North West (**22,130**). Note that the decline in enrolments at London institutions is largely driven by a significant loss in first-year Non-EU students; however, for institutions located elsewhere, the decline in UK-domiciled first-year enrolments outweighs the decline in Non-EU students. It is also important to note that institutions in all other regions are also expected to face significant reductions in their student bodies, with the pandemic expected to generate significant economic losses across the country.

Reflecting the reductions in first-year enrolments, the analysis indicates that the total loss in income associated with the pandemic stands at **£549 million** for institutions located in London, **£261 million** in the South East, **£251 million** for Scottish institutions, **£245 million** in the West Midlands, and **£233 million** in the North West. In the absence of the UK government underwriting these losses, the reduction in income for HEIs is expected to result in an increase in the number of institutions with **net cash inflow positions of less than 5%** of income in all regions, with **13** out of **18** London institutions, **14** out of **16** South East institutions, and **14** out of **15** institutions in Scotland expected to face this position in 2020/21.

Again, assuming no underwriting of these financial losses by the UK government, if institutions were to reduce their expenditures to mirror their income losses, this would result in significant job losses across the country. The analysis indicates that **5,920** jobs would be lost at HEIs in London, followed by **3,370** in the West Midlands, **3,220** in Scotland, **3,070** in the North West, and **3,035** in the South East.

Table 11 Estimated impact of the pandemic in 2020-21, by region of institution

	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorkshire &The Humber	Wales	Scotland	Northern Ireland	Total
# of HEIs	9	7	18	5	12	16	11	12	10	8	15	2	**125**
Decline in first-year students													
UK	-8,845	-6,815	-14,845	-5,870	-12,530	-12,345	-8,015	-11,310	-9,605	-7,405	-10,550	-3,005	**-111,140**
EU	-1,325	-2,390	-7,320	-1,080	-1,730	-3,340	-1,400	-2,395	-1,280	-1,460	-4,090	-600	**-28,410**
Non-EU	-7,140	-4,995	-20,795	-4,865	-7,870	-9,325	-5,325	-8,710	-8,445	-4,385	-9,480	-1,010	**-92,345**
Total	**-17,310**	**-14,200**	**-42,960**	**-11,815**	**-22,130**	**-25,010**	**-14,740**	**-22,415**	**-19,330**	**-13,250**	**-24,120**	**-4,615**	**-231,895**
Decline in income													
Tuition fees	(£176m)	(£135m)	(£527m)	(£114m)	(£224m)	(£253m)	(£141m)	(£236m)	(£211m)	(£96m)	(£202m)	(£21m)	**(£2,334m)**
Teaching grants	(£6m)	(£5m)	(£22m)	(£4m)	(£9m)	(£8m)	(£6m)	(£9m)	(£7m)	(£2m)	(£49m)	(£9m)	**(£137m)**
Other income	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total	**(£182m)**	**(£140m)**	**(£549m)**	**(£118m)**	**(£233m)**	**(£261m)**	**(£147m)**	**(£245m)**	**(£218m)**	**(£98m)**	**(£251m)**	**(£29m)**	**(£2,472m)**
# of HEIs with net cash inflow <5%													
Baseline	3	1	2	0	3	1	0	2	2	3	3	1	**21**
After pandemic	6	4	13	4	10	14	5	8	5	6	14	2	**91**
# of HEIs with net cash inflow <0%													
Baseline	0	1	1	0	2	0	0	0	0	2	1	0	**7**
After pandemic	4	2	5	1	5	3	0	2	3	4	6	1	**36**
# of staff (in headcount), assuming decline in expenditure													
Baseline	33,175	29,365	75,075	20,200	48,580	60,510	35,255	43,405	41,860	22,885	55,805	8,865	**474,980**
After pandemic	30,820	27,865	69,155	18,705	45,510	57,475	33,290	40,035	39,120	21,655	52,585	8,485	**444,700**
Difference	**-2,355**	**-1,500**	**-5,920**	**-1,495**	**-3,070**	**-3,035**	**-1,965**	**-3,370**	**-2,740**	**-1,230**	**-3,220**	**-380**	**-30,280**

Note: All student and staff numbers are rounded to the nearest 5, and all monetary estimates are rounded to the nearest £m. ***Source: London Economics' analysis***

4.6 Proposed student number caps

In the recent letter from Universities UK to the Secretary of State for Education requesting support throughout the pandemic period[25], one of the measures suggested related to the introduction of a **one year stability measure**, whereby "institutions in England and Wales in 2020-21 would be able to recruit UK and EU-domiciled undergraduate students up to the sum of the 2020-21 total forecast for UK and EU-domiciled full-time undergraduate students (plus 5% of the intake)".

In Figure 4, we have presented the number of full-time UK and EU-domiciled undergraduate students in 2018-19 – without any additional 5% student number cap – for institutions across the entire UK (not just in England and Wales). We also present the expected level of enrolment in 2020-21 estimated in this analysis. The figure clearly displays the gap even between expected enrolments and a cap at 2018-19 levels (with no uplift), and provides an indication of the extent to which all higher education institutions will face incentives to fill the large potential gaps in their recruitment.

Considering the ratio of the expected decline in *all* first-year students to the decline in expected full-time UK and EU-domiciled undergraduate ('capped') first-year students (presented in Table 12), the analysis indicates that the average ratio for Cluster 1 institutions stands at **6.1**, compared to **4.3**, **2.5** and **2.0** in Clusters 2,3 and 4, respectively. Given the prevalence of Cluster 2 institutions in particular, and the expected decline in the number of 'uncapped' (i.e. international, postgraduate, and undergraduate part-time) students (by **79,005**), this suggests that institutions in Cluster 2 have the greatest incentive to recruit from the remaining pool of UK and EU-domiciled full-time undergraduate (as well as international, postgraduate, and undergraduate part-time) students to make up for the widespread loss in student numbers.

Further evidence of this is presented in Figure 5, illustrating the ratio of the expected decline in total students to the expected decline in UK and EU-domiciled full-time undergraduates by institution. Clearly, all institutions are expected to lose international and/or postgraduate students following the pandemic, so the ratio is always in excess of 1. However, the degree of dependency on these students is highlighted by those institutions with the highest ratios. The analysis illustrates that **14** institutions have **ratios in excess of 5**, essentially meaning that the loss in (predominantly) international and/or postgraduate students is at least **four times** as large as the expected drop in UK and EU-domiciled full-time undergraduates (with a more significant impact on income). As such, these institutions will have the sharpest incentives to try and recruit additional domestic students to make up for the shortfall in international and/or postgraduate students

[25] See Universities UK (2020).

Table 12 Estimated impact of the pandemic on first-year student enrolments in 2020-21, 'capped' vs. 'uncapped' students, by institution cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
# of HEIs	**2**	**38**	**67**	**18**	**125**
Decline in first-year students					
'Capped' students (UK and EU UG FT only)	-880	-23,590	-42,480	-8,775	**-75,725**
'Uncapped' students	-4,515	-79,005	-64,270	-8,380	**-156,170**
Total	**-5,395**	**-102,595**	**-106,750**	**-17,155**	**-231,895**
Cap on UK and EU-domiciled UG FT students					
100% of 2018-19 enrolments	5,780	148,150	259,860	49,500	463,290
105% of 2018-19 enrolments	6,070	155,560	272,855	51,975	486,455
Difference with additional 5%	290	7,410	12,995	2,475	23,165
Ratio of decline in total to 'capped' students					
Ratio	**6.1**	**4.3**	**2.5**	**2.0**	**3.1**

Note: All student numbers are rounded to the nearest 5.
Source: London Economics' analysis

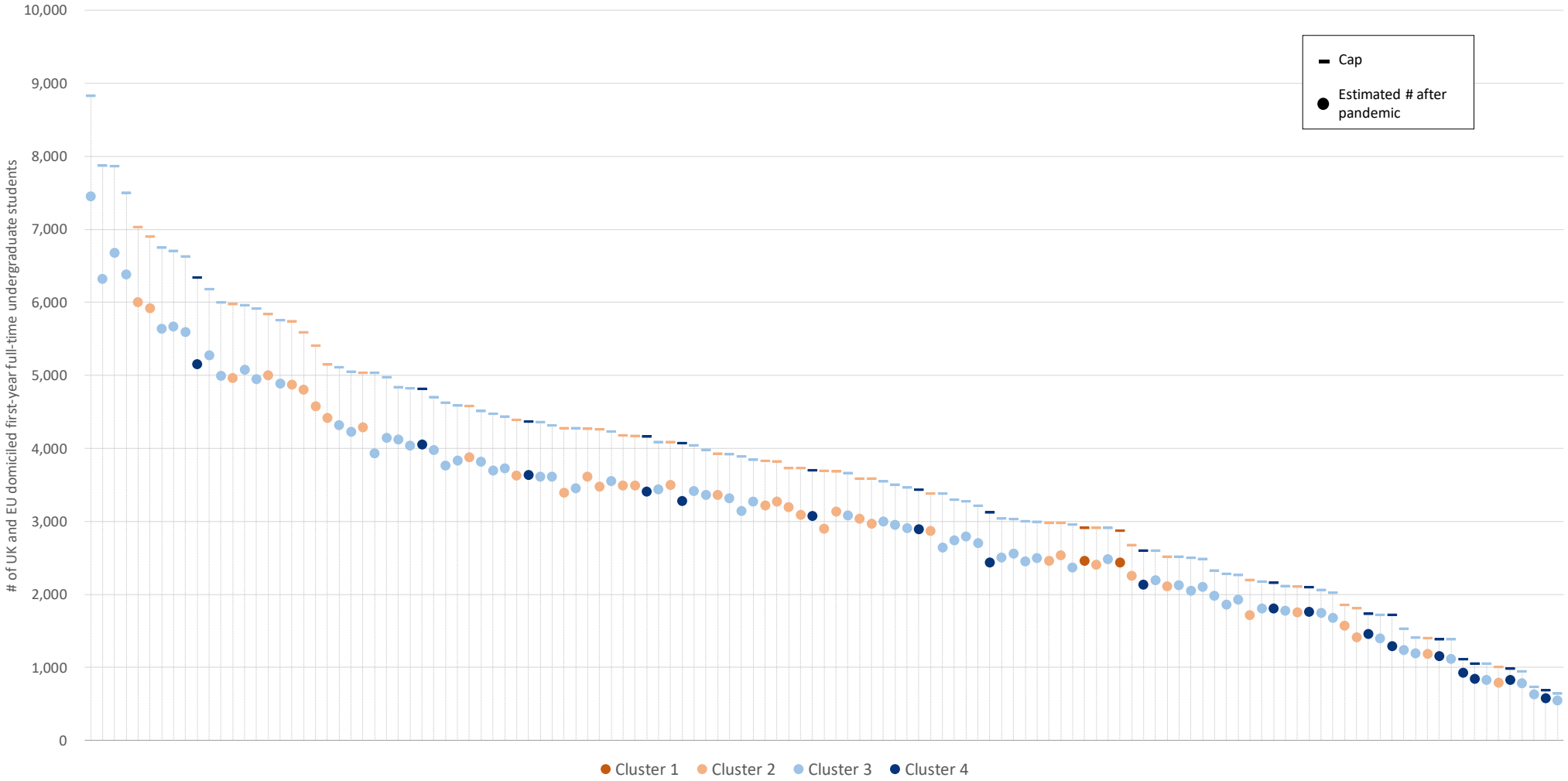
This analysis is based on an assumption of a 100% cap on relevant student numbers (i.e. UK and EU-domiciled full-time undergraduates). In practice, raising this cap on UK and EU-domiciled full-time undergraduate students to 105% equates to an additional **23,265** students[26] offering HEIs additional room for manoeuvre.

However, the level of the cap has important **distributional effects**. The level of cap will essentially act as a mechanism for sharing the economic and financial losses across the higher education sector. However, rather than the larger more established providers bearing increased financial pain, the effect of the cap essentially re-distributes potential (and considerable) financial losses from large established internationally-focused institutions (in Cluster 1 and 2) to smaller more domestically-focused and potentially more vulnerable institutions in Clusters 3 and 4. The lower the level of cap, the greater the (already very significant) financial losses that will be borne by Cluster 1 and 2 institutions, while the higher the cap, the greater the financial losses that will be incurred by Cluster 3 and 4 institutions.

In addition, the cap is asymmetric. Given there are strong incentives for institutions to poach students to avert financial losses, the construction of a 'one-sided' cap (i.e. no guaranteed funding for a *minimum* level of enrolment, but only a cap on the maximum level of students) might result in a heavy cascading effect. In particular, if Cluster 2 institutions take **7,700** prospective students from Cluster 3 institutions (in part to offset losses to Cluster 1 institutions), then Cluster 3 institutions would have the incentive (and potential flexibility) to poach **20,695** students from Cluster 4 institutions. This would essentially more than double the pandemic effect already impacting these institutions.

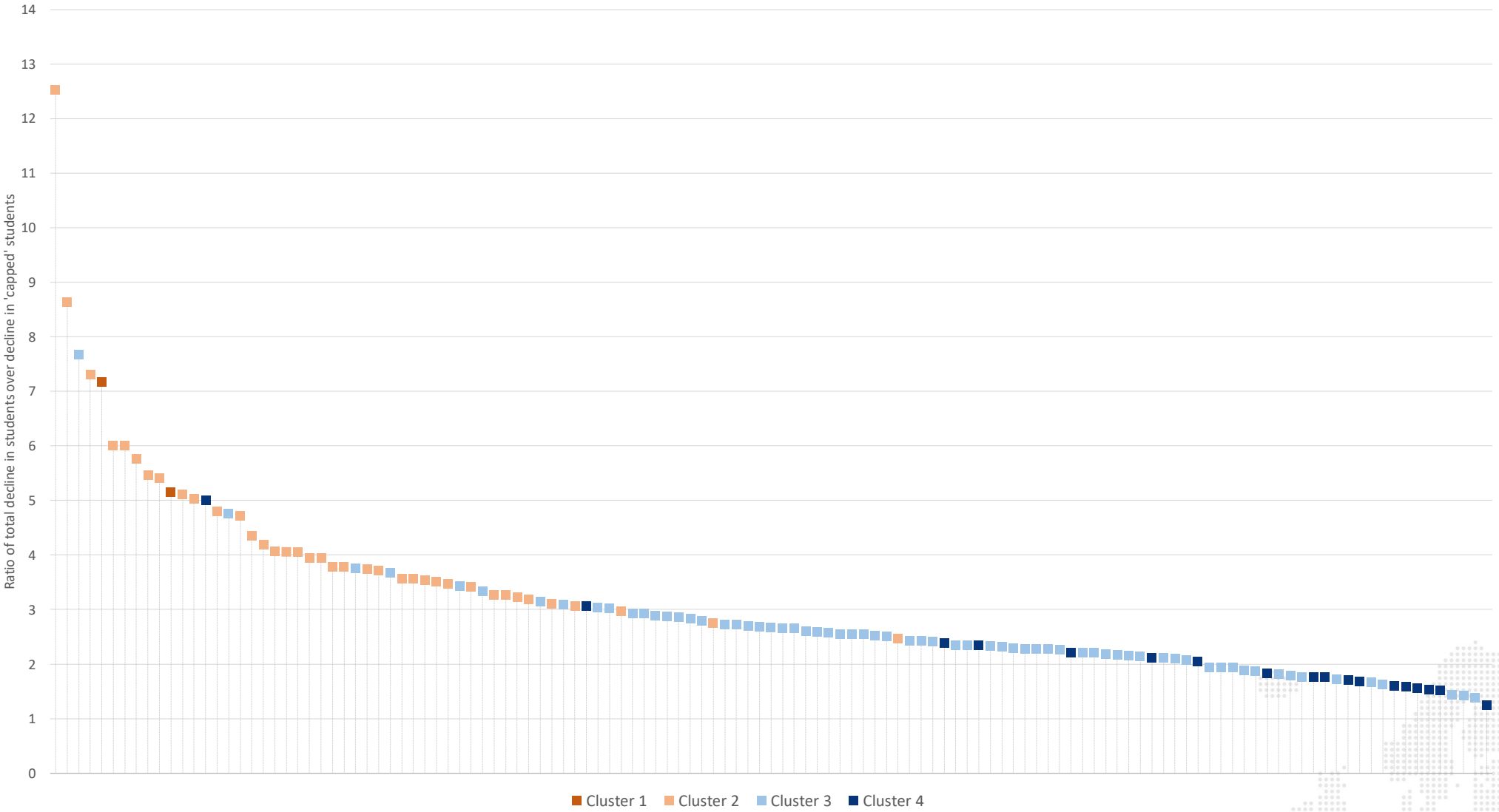
[26] This is equivalent to approximately **one-third** of the expected decline in the number of students subject to the potential cap and **one-tenth** of the overall expected decline in student enrolments.

Figure 4 Number of first-year UK and EU domiciled full-time undergraduate students per institution in 2020-21 – Cap vs. estimated number after impact, by institution and cluster



Source: London Economics' analysis

Figure 5 Ratio of expected decline in total students divided by expected decline in UK and EU full-time undergraduate students in 2020-21, by institution and cluster



Source: London Economics' analysis

Index of Tables and Figures

Tables

Figures

ANNEXES

Annex 1 References

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Annex 2 Methodological Annex

A2.1 Overview of HEIs by cluster

Table 13 Presentation of university clusters (based on Boliver, 2015)

Cluster 1 (2 HEIs)	Cluster 3 (67 HEIs)	Cluster 3 continued
University of Cambridge[a]	Abertay Dundee University[d]	The University of Northampton[d]
University of Oxford[a]	Aberystwyth University[c]	Nottingham Trent University[f]
	Arts University Bournemouth[e]	Northumbria University[f]
	University of the Arts London[g]	Oxford Brookes University[f]
	Aston University[c]	Plymouth University[f]
Cluster 2 (38 HEIs)	Bangor University[c]	University of Portsmouth[f]
University of Aberdeen[c]	Bath Spa University[d]	Queen Margaret University[g]
University of Bath[b]	University of Bedfordshire[d]	Robert Gordon University[g]
University of Birmingham[a]	Birmingham City University[d]	University of Roehampton[g]
University of Bristol[a]	Bournemouth University[f]	University of Salford[f]
Cardiff University[a]	University of Bradford[f]	Sheffield Hallam University[f]
University of Dundee[c]	University of Brighton[g]	Staffordshire University[d]
Durham University[ab]	Brunel University London[c]	University of Stirling[c]
University of East Anglia[b]	Canterbury Christ Church University[d]	University of Sunderland[d]
The University of Edinburgh[a]	Cardiff Metropolitan University[f]	Swansea University[c]
University of Exeter[ab]	University of Central Lancashire[d]	Teesside University[f]
University of Glasgow[a]	University of Chester[g]	Ulster University[c]
Goldsmiths, University of London[b]	University of Chichester[e]	University of the West of England[f]
Heriot-Watt University[c]	City University[c]	University of West London[d]
Imperial College London[a]	Coventry University[f]	University of the West of Scotland[d]
University of Kent[c]	University for the Creative Arts[e]	University of Westminster[g]
King's College London[a]	De Montfort University[g]	The University of Winchester[e]
Lancaster University[b]	University of Derby[g]	University of Worcester[e]
University of Leeds[a]	Edinburgh Napier University[d]	
University of Leicester[b]	University of Essex[b]	
University of Liverpool[a]	Falmouth University[e]	**Cluster 4 (18 HEIs)**
University College London[a]	University of Glamorgan[f]	Anglia Ruskin University[d]
London School of Economics[ab]	Glasgow Caledonian University[f]	Bishop Grosseteste University[e]
Loughborough University[b]	University of Gloucestershire[g]	University College Birmingham[e]
The University of Manchester[a]	University of Greenwich[f]	University of Bolton[d]
Newcastle University[a]	Harper Adams University[e]	Buckinghamshire New University[e]
The University of Nottingham[a]	University of Hertfordshire[f]	University of Cumbria[d]
Queen Mary University of London[ab]	Univ. of the Highlands & Islands[g]	University of East London[d]
Queen's University Belfast[a]	University of Huddersfield[f]	Edge Hill University[g]
University of Reading[b]	The University of Hull[c]	Glyndwr University[e]
Royal Holloway, University of London[b]	Keele University[c]	Leeds Trinity University[e]
University of St Andrews[b]	Kingston University[f]	Liverpool Hope University[g]
The University of Sheffield[a]	Leeds Beckett University[d]	London Metropolitan University[d]
University of Southampton[a]	University of Lincoln[f]	University of St Mark and St John[g]
University of Strathclyde[c]	Liverpool John Moores University[f]	Southampton Solent University[e]
University of Surrey[b]	London South Bank University[g]	University Campus Suffolk[g]
University of Sussex[b]	Manchester Metropolitan University[f]	University of Wales Trinity Saint David[c]
The University of Warwick[ab]	Middlesex University[d]	University of Wolverhampton[d]
The University of York[ab]	Newman University, Birmingham[e]	York St John University[e]

a. Russell Group;
b. 1994 Group;
c. Unaffiliated Old (pre-1992) universities;
d. Million+;
e. GuildHE;
f. University Alliance;
g. Unaffiliated New (post-1992) universities.

Note: *SOAS University of London (originally in Cluster 2) was excluded from the above list due to a lack of financial data available from HESA for this institution. In addition, we excluded the University of Wales, Newport (originally in Cluster 4), as it no longer exists (as it merged with the University of Glamorgan to create the University of South Wales, in 2013) .

Source: Boliver (2015)

A2.2 Assumed differential impacts of the pandemic by university cluster

A2.2.1 Impact of the expected economic recession

As outlined above, to estimate the impact of the expected decline in global economic growth on first-year **international students** (from EU and non-EU countries), based on previous work undertaken for the Higher Education Policy Institute, we assumed that a 1% reduction in global GDP is associated with a **0.485%** reduction in first-year international undergraduate enrolments. To understand the differential effect across different university clusters, we made use of the 95% confidence intervals from the econometric analysis undertaken as part of the previous analysis. We split these confidence intervals into four equal segments, calculated the mid-point of each segment, and multiplied these mid-points by the estimated **4.8%** decline in global GDP estimated by the World Bank (2014). We then assigned the resulting estimates to the four university clusters, assuming that institutions in Cluster 1 would face the relatively *smallest decline* in the number of (both full-time and part-time) undergraduate international students (**-1.9%**), while HEIs in Cluster 4 would face the relatively *largest decline* instead (**-2.8%**, see Table 14)[27].

Table 14 Assumed changes in first-year students due to economic recession, by student domicile, level, mode and university cluster

	UG full-time	UG part-time	PG full-time	PG part-time
UK students				
Cluster 1	0.6%	-6.4%	0.6%	-6.4%
Cluster 2	0.5%	-7.5%	0.5%	-7.5%
Cluster 3	0.5%	-8.6%	0.5%	-8.6%
Cluster 4	0.4%	-9.6%	0.4%	-9.6%
International students				
Cluster 1	-1.9%	-1.9%	-	-
Cluster 2	-2.2%	-2.2%	-	-
Cluster 3	-2.5%	-2.5%	-	-
Cluster 4	-2.8%	-2.8%	-	-

Source: London Economics' analysis

For **UK domiciled students**, we followed a similar approach to estimating differential changes by university cluster. Our analysis of the UK Labour Force Survey suggested that a 1 percentage point reduction in UK GDP growth per annum is associated with a **0.03%** increase in **full-time enrolment** (at both undergraduate and postgraduate level). To estimate a differential effect by cluster, we assumed the same variation around this central elasticity (in percentage terms) as for international students (i.e. based on the above-discussed confidence interval estimated for international students' response to changes in global GDP). Again, we then split the resulting elasticity range into four equal segments, and multiplied the mid-point of each segment by the **14.8 percentage point** decline in UK GDP growth in 2020 (as compared to 2019) predicted by the Office for Budget Responsibility (2020). We then assigned the resulting estimates to each cluster, assigning the relatively *largest increase* in UK full-time students to Cluster 1 (**0.6%**), and the *smallest increase* to Cluster 4 (**0.4%**).

[27] Note again that no effect was identified for international postgraduate students, as the econometric results for postgraduate international students estimated on behalf of the Higher Education Policy Institute (2017) were statistically insignificant.

We proceeded similarly to estimate the impact of the recession on first-year UK **part-time students** (assigning the *smallest decline* (**-6.4%**) to Cluster 1 and the *largest decline* (**-9.6%)** to Cluster 4).

A2.2.2 Impact of deferrals

The analysis of the impact of deferrals on **UK domiciled** students assumes that approximately **14%** of first-year domestic students (both full-time and part-time, and at all levels) would defer their place as a result of the current pandemic[28]. To estimate differential effects by cluster, we assume a 5 percentage point variation around this central estimate, again divide the resulting range (**-11.5%** to **-16.5%**) into four equal segments, and assign the mid-points to different clusters, so that HEIs in Cluster 1 would face the *smallest decline* (**-12.1%**) in first-year UK students, and HEIs in Cluster 1 would face the *largest decline* (**-15.9%**).

Table 15 Assumed changes in first-year students due to deferrals, by student domicile, level, mode and university cluster

	UG full-time	UG part-time	PG full-time	PG part-time
UK students				
Cluster 1	-12.1%	-12.1%	-12.1%	-12.1%
Cluster 2	-13.4%	-13.4%	-13.4%	-13.4%
Cluster 3	-14.6%	-14.6%	-14.6%	-14.6%
Cluster 4	-15.9%	-15.9%	-15.9%	-15.9%
International students				
Cluster 1	-44.9%	-44.9%	-44.9%	-44.9%
Cluster 2	-46.1%	-46.1%	-46.1%	-46.1%
Cluster 3	-47.4%	-47.4%	-47.4%	-47.4%
Cluster 4	-48.6%	-48.6%	-48.6%	-48.6%

Source: London Economics' analysis

Similarly, using the expected **47%** deferral rate for **international** first-year students[29] (again across all levels and study modes), and again assuming a 5 percentage point variation around this estimate, we assume that institutions in Cluster 1 would face a decline in international first-year students of approximately **-44.9%**, compared to **-48.6%** for HEIs in Cluster 4.

[28] See UCAS and YouthSight (2020).
[29] See British Council (2020).

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