



UK Research
and Innovation

UKRI Data Pack on Research Financial Sustainability

November 2023





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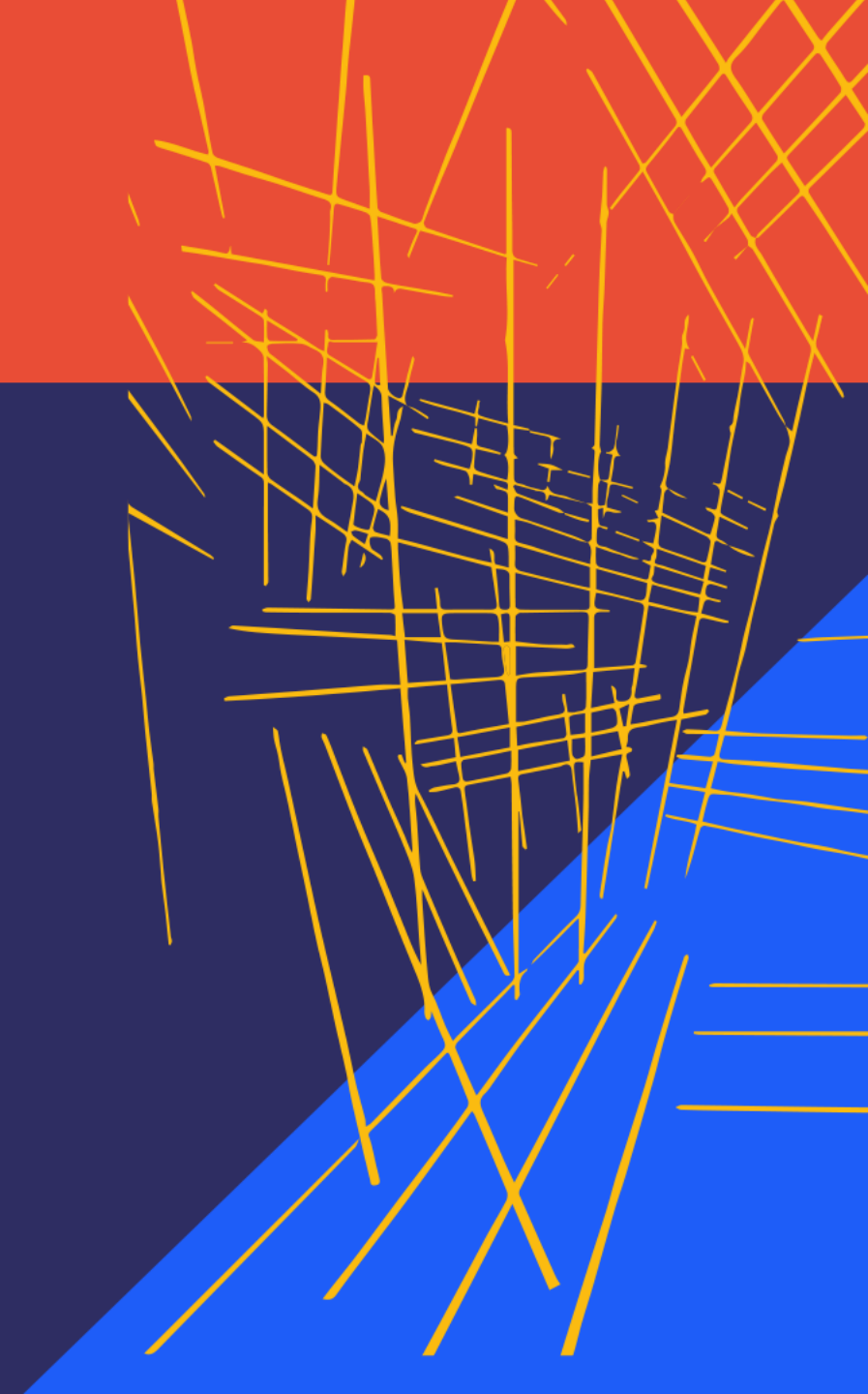
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Funding flows within
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Introduction



- UKRI's Research Sustainability programme seeks to develop evidence and understanding around the issues and factors affecting the financial sustainability of research activities and the resilience of the UK's research and innovation system.
- This document presents a summary of data, evidence and insight gathered by UKRI's Research Financial Sustainability team, highlighting the range of financial pressures and sustainability issues facing the system. The bulk of the analysis is concerned with understanding the sustainability of research in the university sector only.
- The document should be used in conjunction with '[Research financial sustainability - issues paper](#)', published on our website.
- UKRI's Research Financial Sustainability programme will continue to analyse the issues affecting the financial sustainability of the UK's research and innovation sector, publishing future insight into how this understanding informs choices and incentives within the system. To find out more about our programme of work, or to contact the Research Financial Sustainability team, please visit our website: [Research financial sustainability – UKRI](#).

£5.9bn

Funding from UKRI and funding councils for research and development in the public (government and UKRI), university and non-profit sectors.¹

£5.6bn

Investment made by universities into research and development in the public (government and UKRI), university and non-profit sectors.¹



3,661

Organisations supported by UKRI in 22/23, including 142 universities and our 59 institutes, centres and catapults.²

£1.1bn

UKRI funding to its institutes in 2022/23.



The deficit on research is growing

£5bn

Research deficit in 21/22, up 14% in 5 years.³



Reliance on cross-subsidy from international students

100k

1st-year Chinese student enrolments in 21/22.⁵



Deficit on public teaching also needs cross-subsidy

£1bn

Deficit on publicly-funded teaching in 21/22.³



Inflation higher than increases in funding

-2 to -6%

Real-terms reduction in UKRI's budget between FY21/22 and FY23/24.⁶



The COVID-19 pandemic severely disrupted research

29%

(£270m) fall in medical charities' spend between 18/19 and 20/21.⁴



Research institutes face specific sustainability issues

59

Institutes receiving long-term funding from UKRI.

Sources

¹ Office for National Statistics, *UK gross domestic expenditure on research and development, 2021 (designated as official statistics)*. "Funding councils" relates to the national funding bodies of Scotland, Wales and Northern Ireland: Scottish Funding Council; Higher Education Funding Council Wales; and Department of Education – Northern Ireland.

² UKRI, *Annual Report and Accounts 2022-23*

³ TRAC data for UK universities. 2015/16 and earlier years are pre-financial reporting standards (FRS), making comparison difficult between historic and more recent data.

⁴ Estimates from Association of Medical Research Charities <https://www.amrc.org.uk/covid-19-one-year-on-for-medical-research-charities>

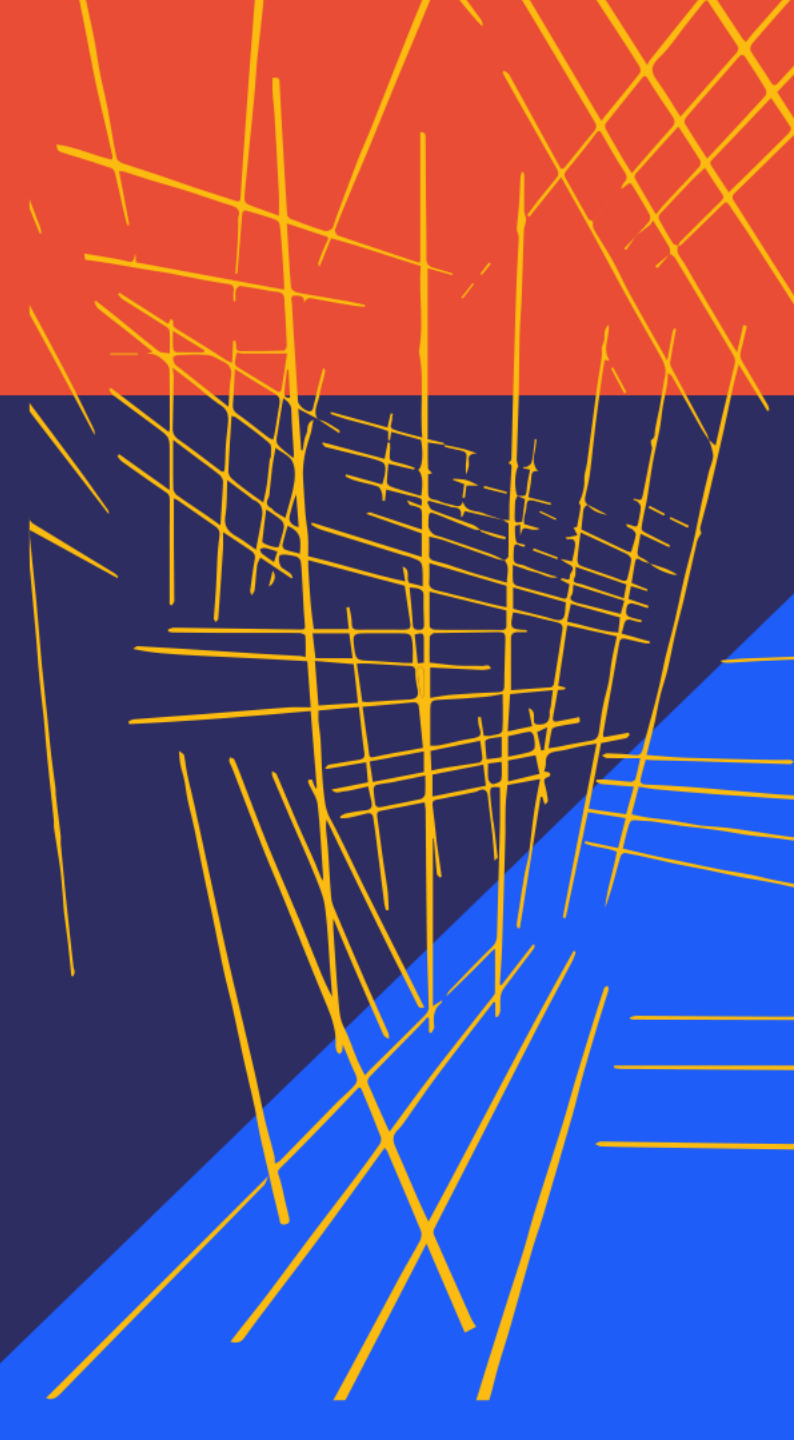
⁵ Higher Education Statistics Agency student data 2021/22. China represented 29% of non-EU first-year enrolments in 21/22; India second with 25%.

⁶ As opposed to **8% nominal increase**. -2% based on deflating UKRI's budget using GDP deflator (HMT) September 2023. -6% based on deflating UKRI's budget using CPI (OBR) March 2023. FY21/22 prices.



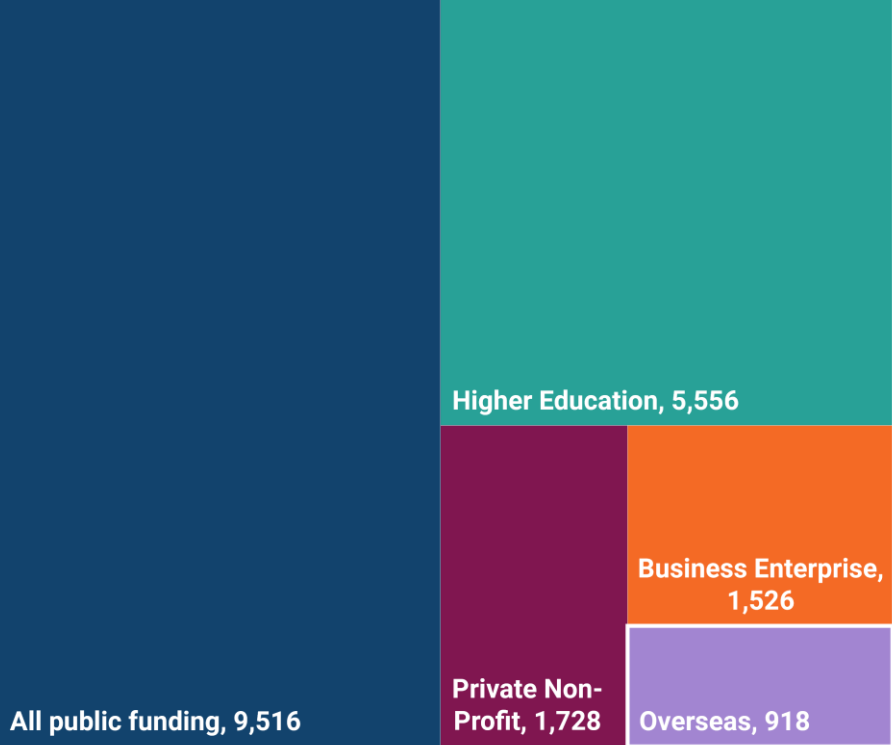
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Funding of research and development in the public, university and non-profit sectors



Public funding was the largest source of funding for research and development performed in the public, university and non-profit sectors in the UK in 2021

Figure 1: Funding sources for research and development performed in the UK by the public, university and non-profit sectors (£ million, current prices)



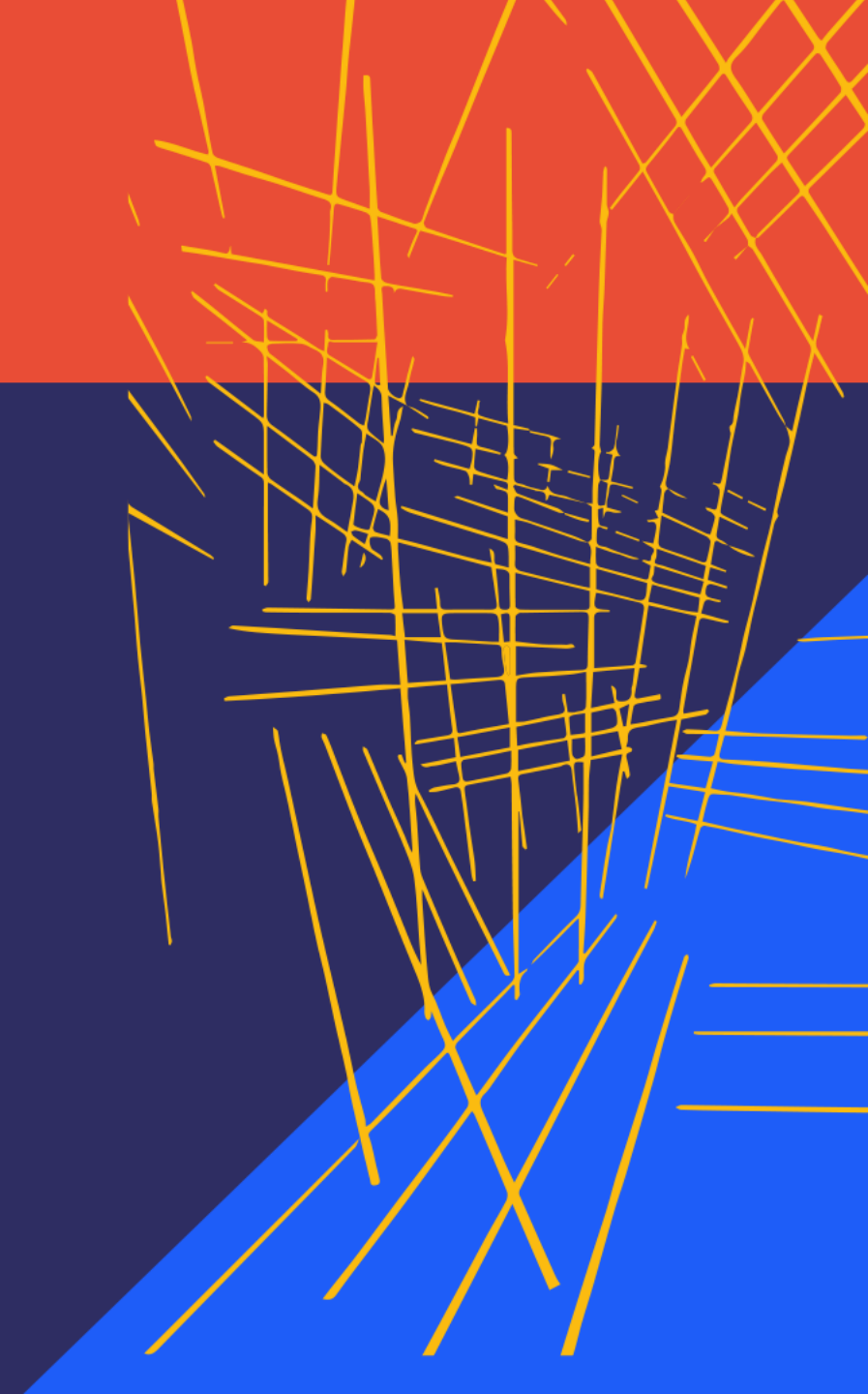
Public funding (government, UKRI and funding councils) represented almost 50 per cent of all funding for research and development performed in the public (government and UKRI), university and non-profit sectors in the UK in 2021.

Source: Office for National statistics, UK gross domestic expenditure on research and development, 2021



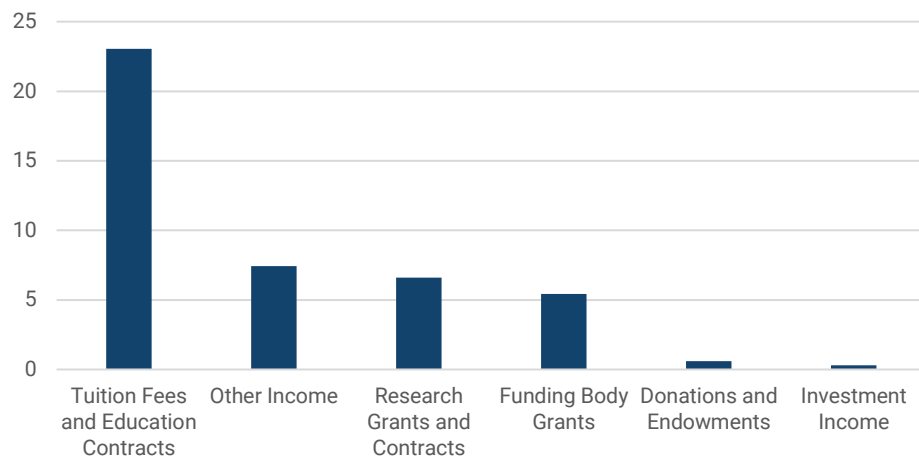
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Income sources for universities



Universities play an important role through their strategic missions for teaching, research and knowledge exchange

Figure 2: University sector income by income type (£ billion, 2021/22 prices)



Source: HESA income data for 153 UK universities reporting TRAC returns in 2021/22.

Table 1: University sector income by income type (£ billion, 2021/22 prices)

Income type	Income (£ billion)	Income (%)
Tuition Fees and Education Contracts	23.0	53%
Other Income	7.4	17%
Research Grants and Contracts	6.6	15%
Funding body grants	5.4	13%
Donations and Endowments	0.6	1%
Investment Income	0.3	1%
Total	43.4	100%*

*Note: rounded subtotals may not always sum to 100%.



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Cost recovery on universities' activities



Deficits on research and public teaching are increasing the reliance on cross-subsidy

In 21/22, the research deficit reached almost £5 billion; in addition, universities expect the per-student deficit on public teaching to grow significantly due to the freeze on the tuition fee cap.*

Table 2: University sector surplus/deficit by activity (£ million, 2021/22 prices)

Activity	Surplus/Deficit (£ million)		
	2019/20	2020/21	2021/22
Teaching (Public)	-£735m	-£431m	-£1,015m
Teaching (Private)	£2,455m	£2,629m	£3,004m
Research	-£4,828m	-£4,210m	-£4,962m
Other	£-240m	£1,993m	£807m
Total	-£3,348m	-£20m	-£2,165m

Source: TRAC data for UK universities.

- Teaching and research activities are interdependent: research relies on cross-subsidy from international student income, while university reputations and rankings are linked to research quality metrics.
- Universities increasingly rely on tuition fees for most of their income.
- Growth in teaching income has been driven by increases in international (non-EU) fee income.
- Research-intensive universities have significantly grown their numbers of Asian students over recent years, especially from China.

Cost recovery rates are reported to be lower than UKRI funding rates, dipping below 70% in 2021/22

Despite UKRI awarding much of its grant funding at 80 per cent of the full economic cost (FEC), cost recoveries in TRAC* are consistently lower than this and declining. Postgraduate research (PGR) funding has been below 50 per cent for many years, though student numbers have remained high.

Table 3: Full economic cost recovery rates by funder type

Funder Type	Percentage FEC recovered		
	2019/20	2020/21	2021/22
European Union	63%	63%	63%
Industry	75%	76%	74%
Other Govt Depts	76%	77%	76%
Research Councils	71%	72%	69%
UK Charities	57%	57%	57%
Provider Own Funded	17%	21%	16%
Postgraduate Research	46%	48%	46%
Total Research Activity	70%	72%	69%

Source: TRAC data for UK universities.

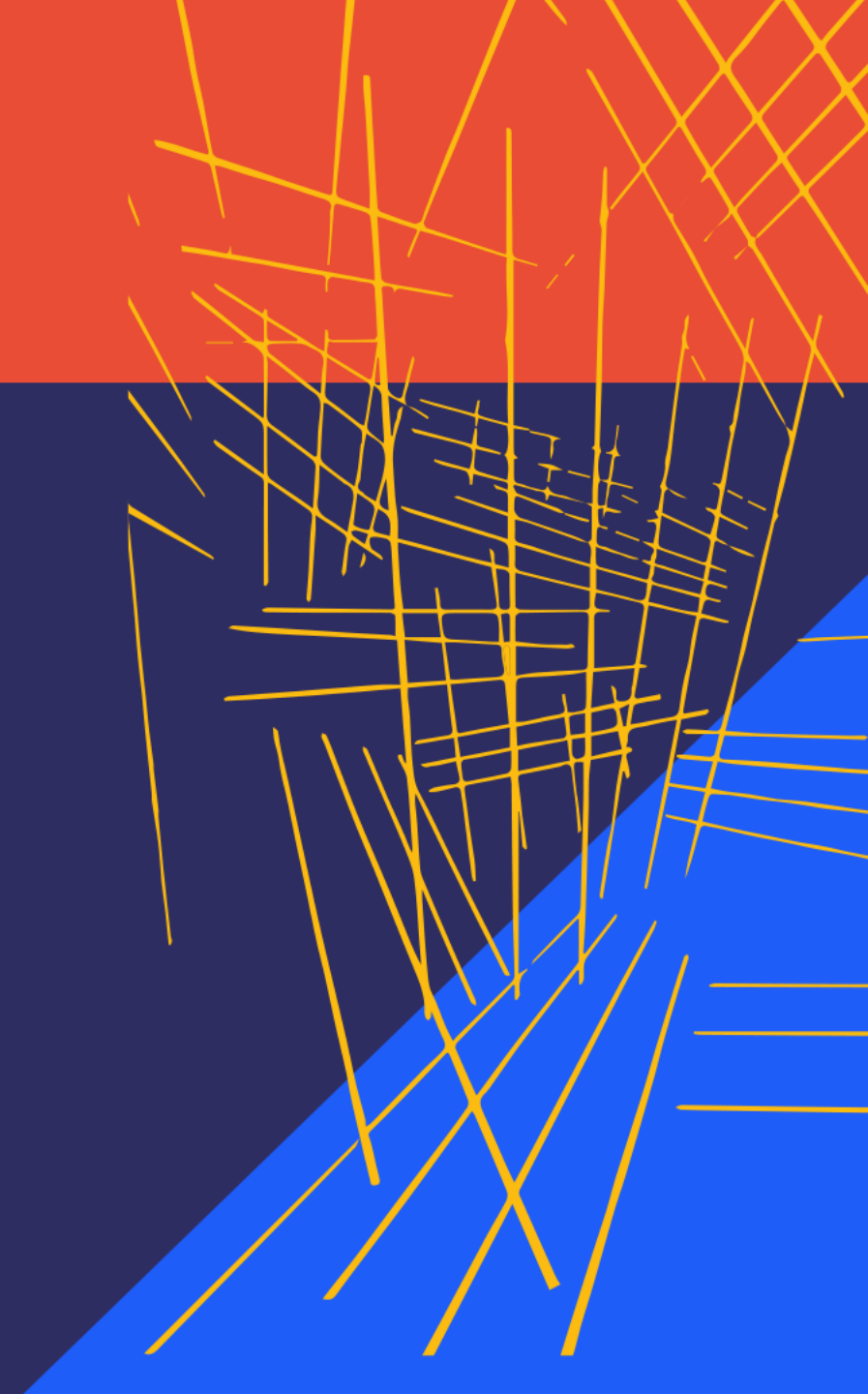
Reasons for this could include:

- Not all funding is awarded at 80 per cent FEC
- Costing/pricing behaviours in application and review stages
- Match-funding
- Wider, “end-to-end” costs not factored into a grant
- Inflationary pressures
- Methodological complications
- Significant institution own-funding into PGR



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Funding flows within universities



Sankey diagram explainer: Funding flows within universities are complex

Our Sankey diagrams (enlarged in subsequent slides) illustrate the cross-flows of funding within the university sector.

The bars on the very left-hand side of the diagram show sources of income, with the income levels shown alongside the different income types:

- Research funding: Research councils; UK-based charities; Industry; Postgraduate funders; Other govt department; EU research grants and contracts; QR or equivalent; and Other research-related income.
- Teaching income: Non-publicly funded teaching and Publicly funded teaching.
- Other income: Other income generating activities and Non-commercial.

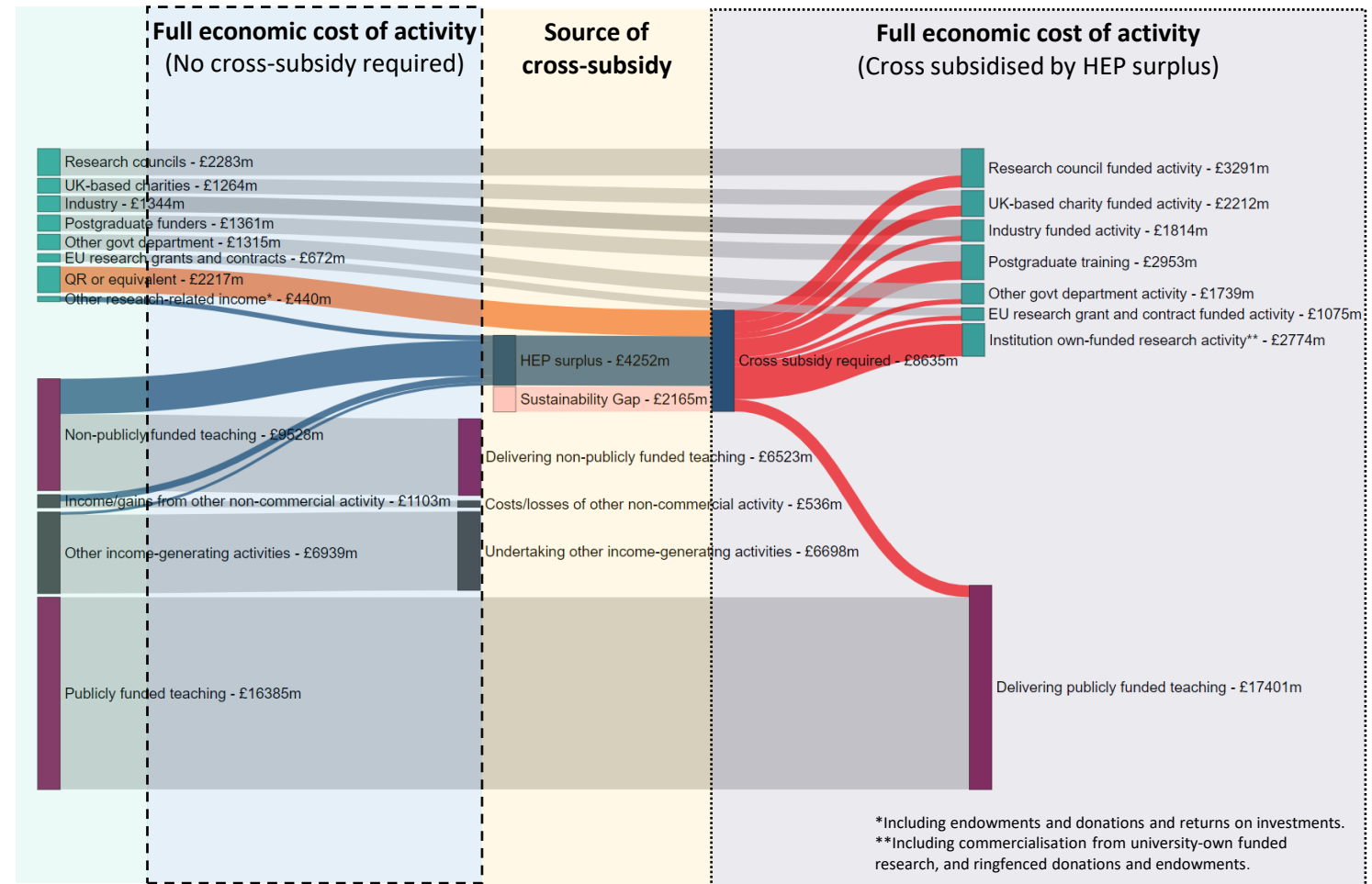
Some of these income streams, such as Non-publicly funded teaching, Other income generating activities and Non-commercial, cover the full economic cost of the activities that they are intended to fund. These bars only extend into the dashed box (shown above), rather than all the way to the right-hand side of the diagram. For these activities, there is no cross-subsidy required from other income streams. The full economic cost of these activities is shown at the right-hand side of the bar, e.g., full economic cost of Delivering non-publicly funded teaching is £6,523 million.

For the activities mentioned above, the income received is greater than the full economic cost of the activities being funded. The surplus income flows into the bar in the middle of the diagram labelled 'HEP surplus' (higher education provider surplus).

HEP surplus can be used to cross-subsidise research and teaching activities. QR (quality-related research funding) or equivalent funding can be used flexibly to support research and knowledge exchange activities.

The bars on the right-hand side of the diagram, that have flowed into the dotted box (shown above), represent activities that require cross-subsidisation from other income streams. The full economic cost of each activity is shown at the right-hand side of the bar.

Overall, there is a sustainability gap of £2,165 million, representing the amount by which the full economic cost of all universities' activities exceeds income.



NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.

Source: Summation of 153 UK universities from TRAC 2021/22.

Interpretation of the Sankey diagrams

Sustainability gap

- In 2021/22, the full economic cost of teaching, research and other activities across UK universities exceeded the sector's income by £2.2 billion, which we refer to as a 'sustainability gap'.
- Universities may have various means to cover their sustainability gap, such as through borrowing or drawing down their reserves, but a worsening position places greater reliance on surplus-generating income streams and makes the sector less resilient.
- The sustainability gap is not evenly distributed across the sector - some universities can meet the required levels of sustainable investment more than others.

Variability within the TRAC groups

- The following slides include analysis of the funding flows within the different TRAC groups (explained in subsequent slides).
- Whilst it is useful to draw comparisons between TRAC groups, there is variability between institutions within each group that is not captured within the analysis.
- Therefore, conclusions about a TRAC group as a collective cannot necessarily be applied to individual institutions within that group.

Further caveats

- In Sankey form, this is of course a simplification of financial flows within the university sector. For example, the 'Income/gains from other non-commercial activity' may include new donations or new endowments for which the income has been recognised in full in the university's financial accounts, but in reality this income is intended to be spent on activity over many years.

General findings from the Sankey diagrams

Research income

- Research-intensive institutions in TRAC groups A and B tend to receive a significant proportion of their research income through competitive project grants from Research Councils. In contrast, less research-intensive institutions tend to fund a higher proportion of their research activity through unhypothecated block-grant funding (QR or equivalent).
- UK charity research income is a major source of project funding for TRAC group A institutions, but not other peer groups. 93 per cent of UK-based charity income for research is received by TRAC group A institutions.

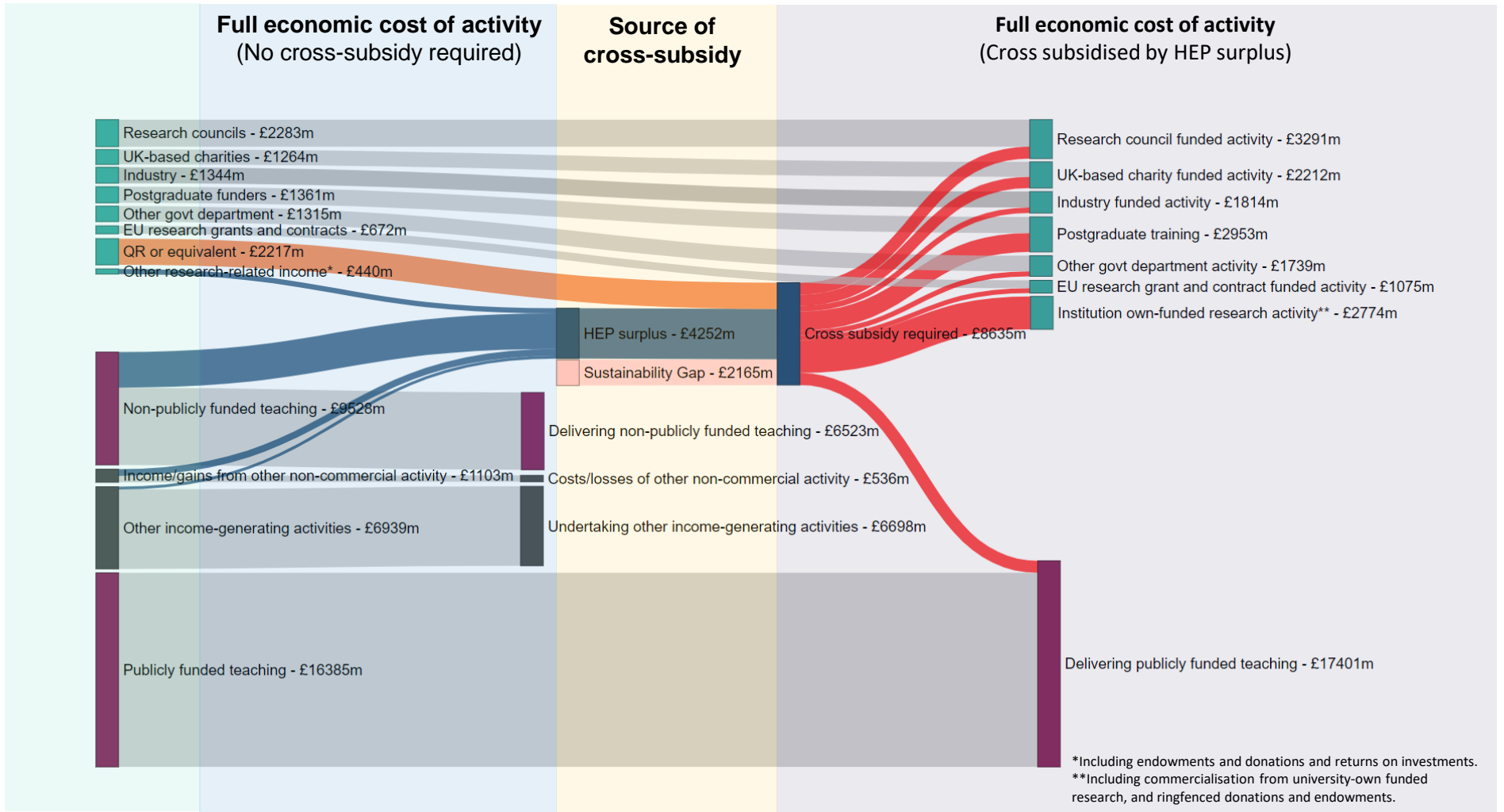
Teaching income

- The relative proportion of teaching income between publicly and non-publicly funded sources varies between TRAC peer groups. Publicly-funded teaching tends to be a more significant income source for less research-intensive universities, forming half of teaching income for group A institutions but over 75 per cent of teaching income for group D and E institutions.

Sustainability gap

- Institutions in TRAC groups A and B tend to be able to cover most of their cross-subsidy requirements through QR funding and other surpluses. However, institutions in groups C, D and E are only able to cover a small proportion of cross-subsidy requirements, leaving a relatively larger sustainability gap. Specialist TRAC group F institutions are more similar to the research-intensives in this regard, due to much greater relative surpluses from non-publicly funded teaching.

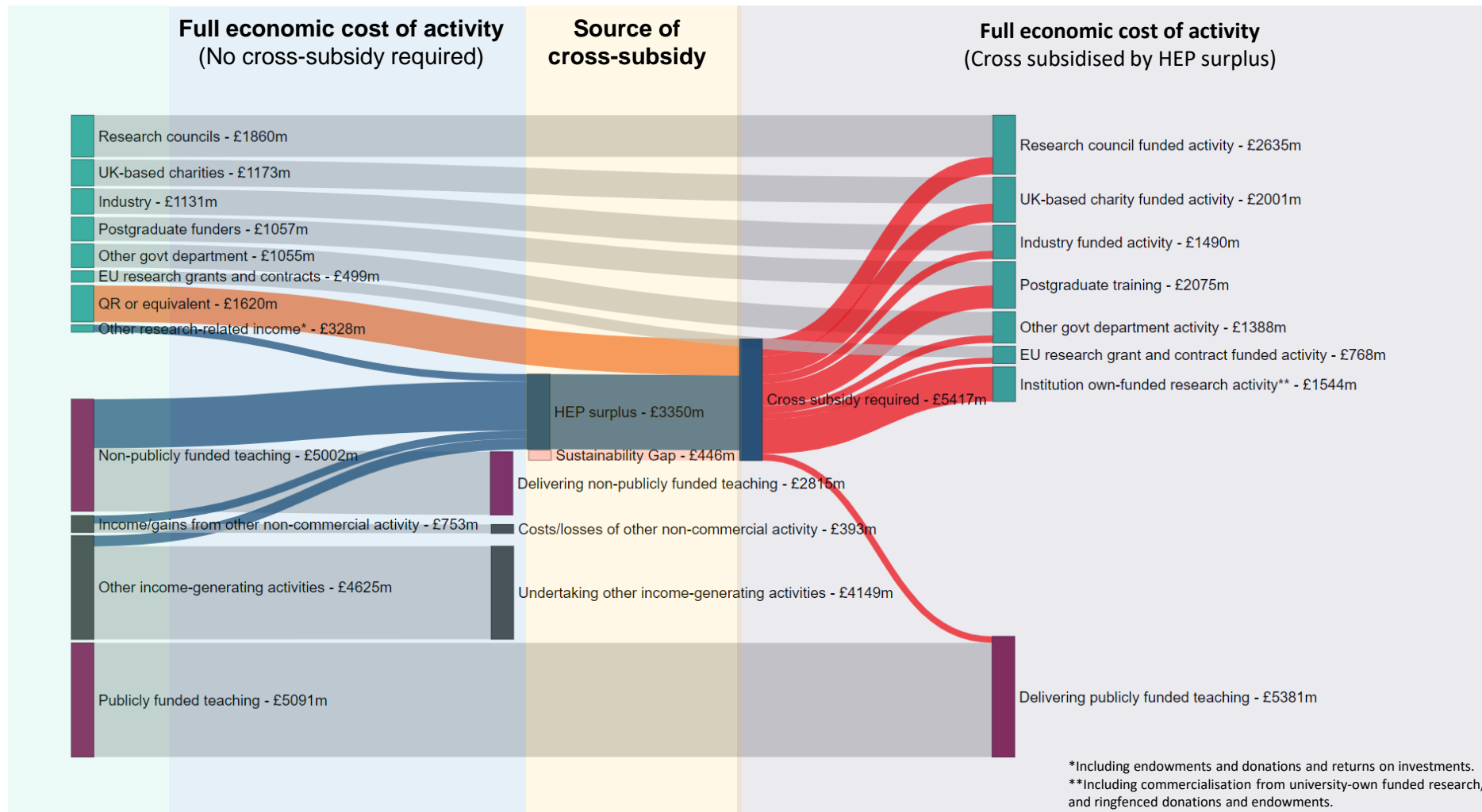
Sankey diagram of funding flows in UK universities (AY2021/22) (sector view)



- Across the university sector, at an aggregate level, surplus income from delivering non-publicly funded teaching, non-commercial and other income-generating activities supports the delivery of research activities and publicly-funded teaching. As well, quality-related research funding ('QR or equivalent') supports the delivery of research and knowledge exchange activities.
- Despite this cross-subsidisation, there is still an overall sustainability gap of £2.2 billion, meaning that the full economic cost of universities' activities exceeds the income intended for them.

NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.
Source: 2021/22 TRAC data for 153 UK universities.

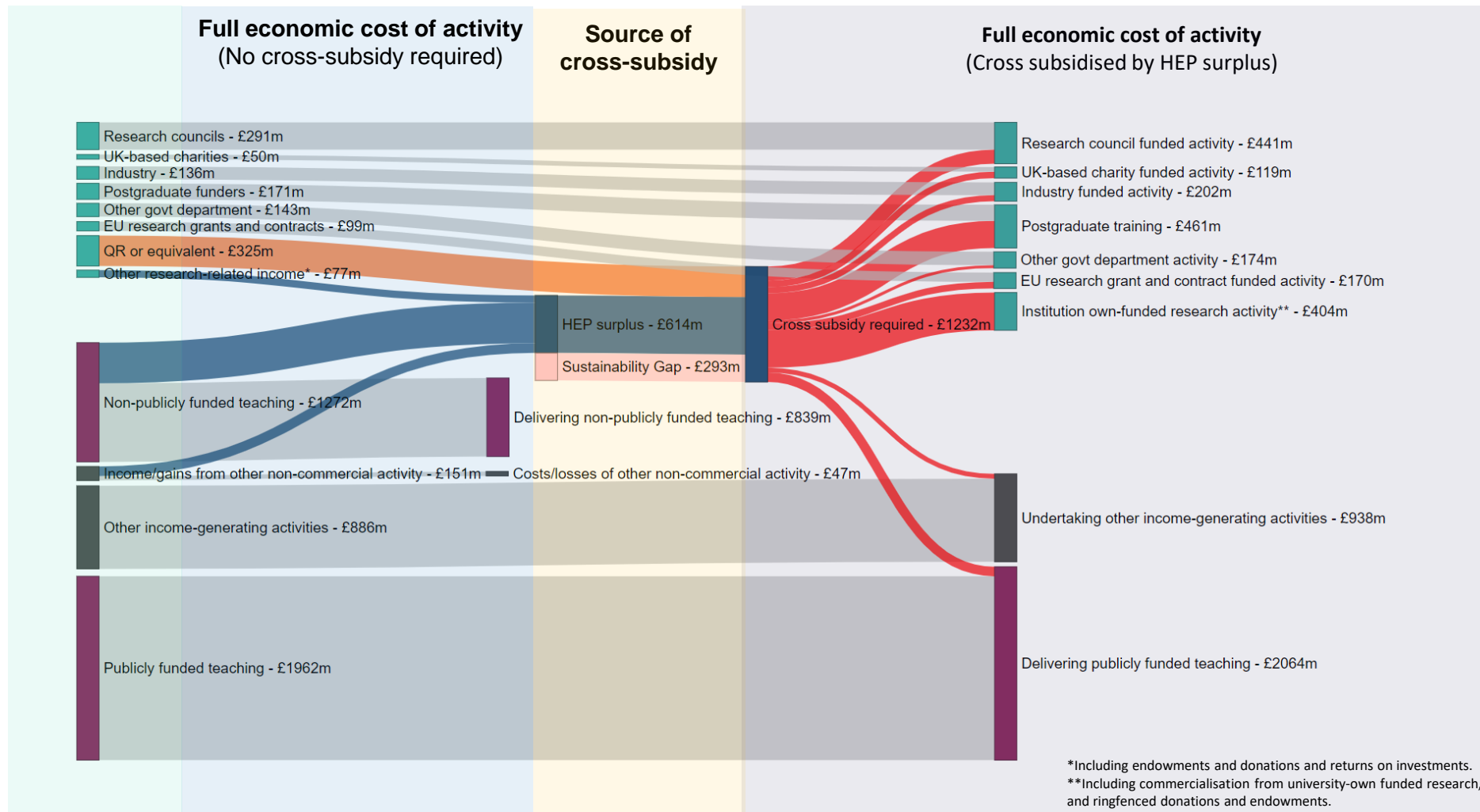
Sankey diagram of funding flows in TRAC group A universities (AY2021/22)



- TRAC A peer group universities are institutions with a medical school and research income of 20 per cent or more of total income. Between them, TRAC group A universities receive more than 70 per cent of public funds intended for research in universities.
- TRAC A universities, which are typically more research-intensive, utilise quality-related research funding and surplus income intended for delivering non-publicly funded teaching to support the delivery of research and knowledge exchange activities.
- Across TRAC A, income for delivering non-publicly funded teaching accounts for 21 per cent of all income, whilst the full economic cost of this activity only accounts for 11 per cent of the total full economic cost of all activities.

NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.
Source: 2021/22 TRAC data for 32 UK TRAC A universities.

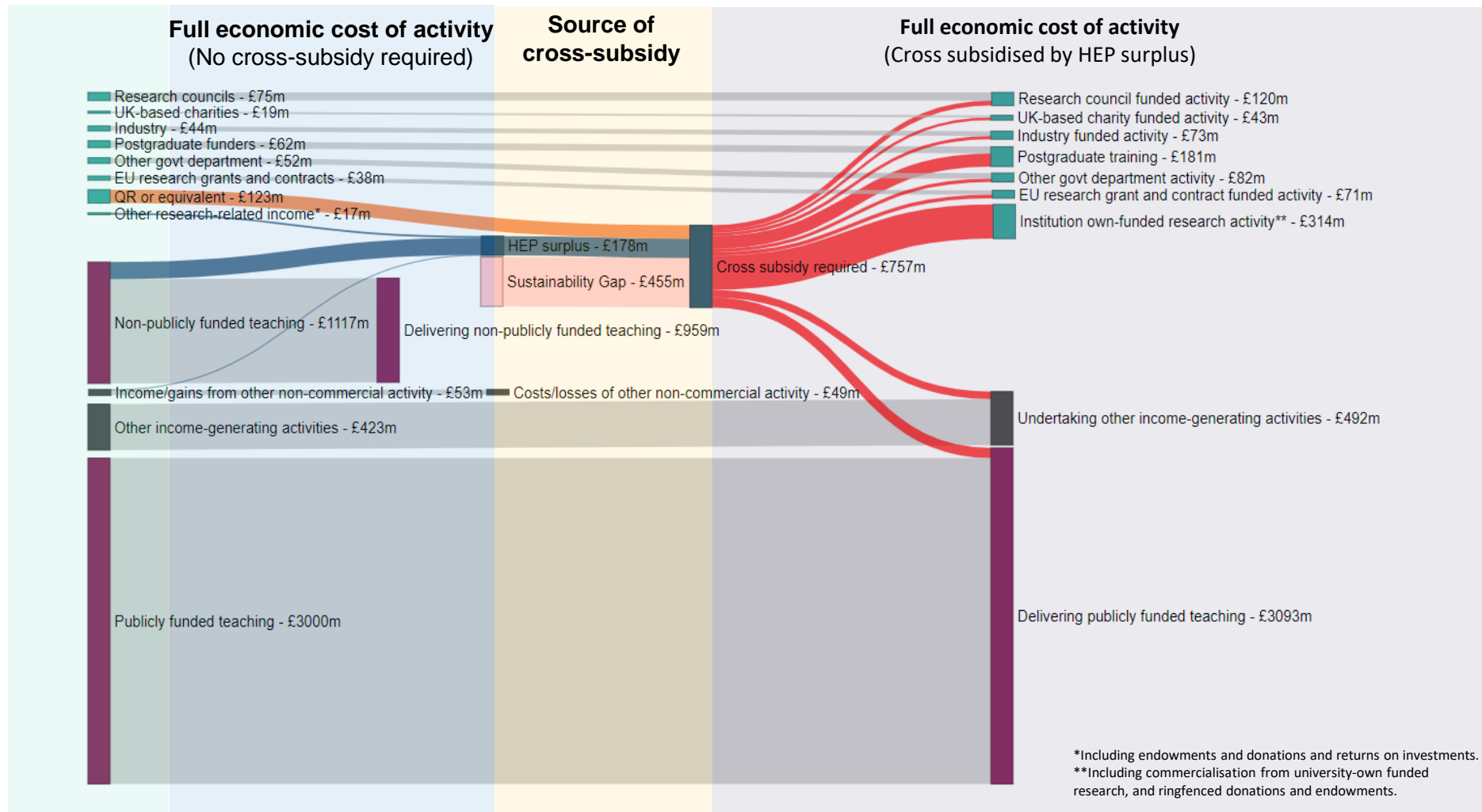
Sankey diagram of funding flows in TRAC group B universities (AY2021/22)



- TRAC B peer group universities are all other institutions with research income of 15 per cent or more of total income. TRAC B institutions are research-intensive universities.
- Similar to the group of TRAC A universities, at an aggregate level, TRAC B institutions generate significant income surplus from delivering non-publicly funded teaching.
- This surplus, along with 'QR or equivalent' funding, is spent on universities' research activities and training students.
- In contrast to TRAC group A, TRAC group B, as a collective, earns more of its income from delivering publicly funded teaching (35 per cent of all income compared to 21 per cent for TRAC A).

NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.
Source: 2021/22 TRAC data for 21 UK TRAC B universities.

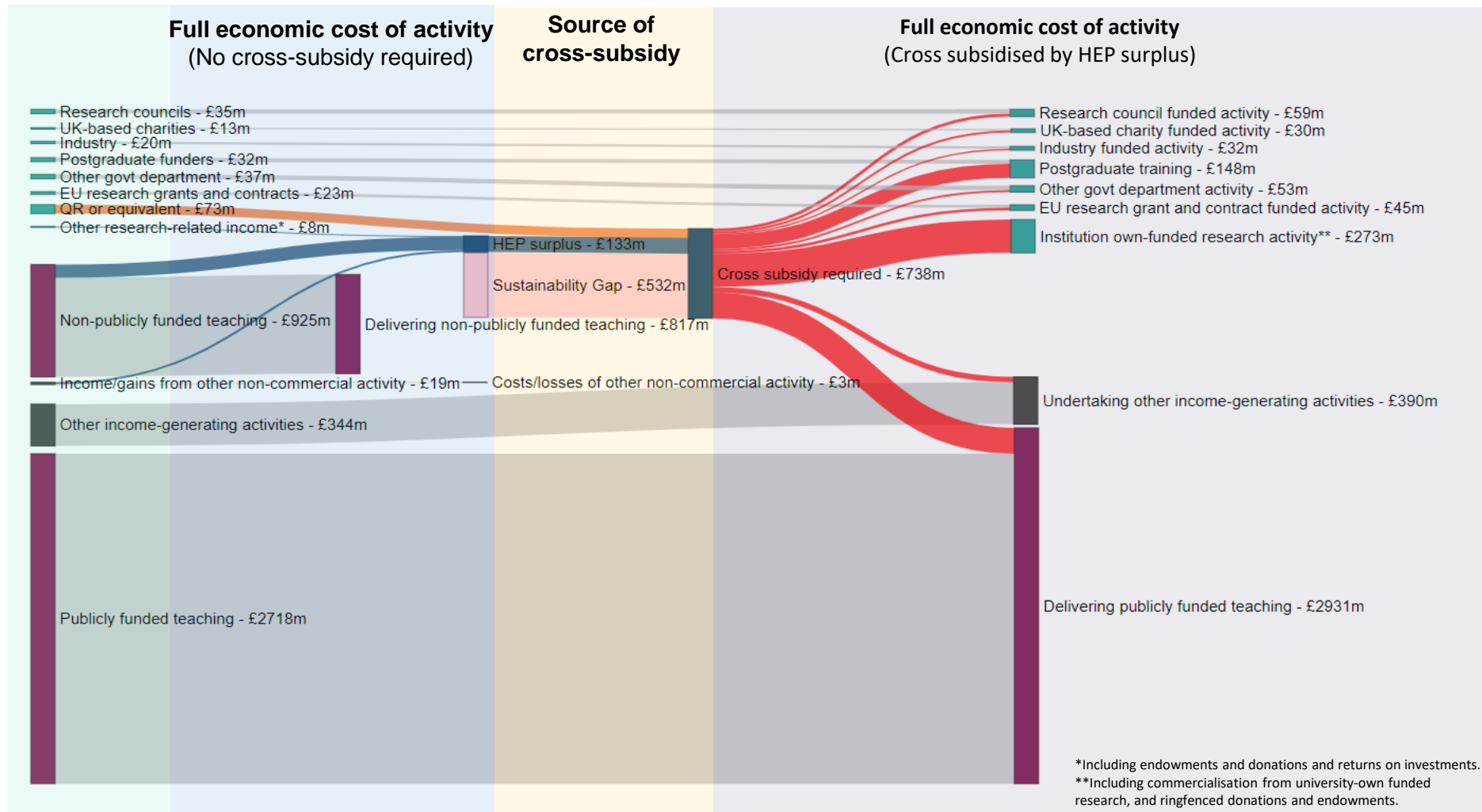
Sankey diagram of funding flows in TRAC group C universities (AY2021/22)



- TRAC C peer group universities are institutions with a research income of between 5 and 15 per cent of total income.
- TRAC group C is more focused on teaching than TRAC groups A and B, exemplified by 'Non-publicly funded teaching' and 'Publicly-funded teaching' accounting for 82 per cent of the TRAC group's income.
- Quality-related research funding and the income surplus ('HEP surplus') helps to fund the delivery of institutions' own-funded research activities, which accounts for 35 per cent of the total full economic cost of research activities for this TRAC group.

NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.
Source: 2021/22 TRAC data for 22 UK TRAC C universities.

Sankey diagram of funding flows in TRAC group D universities (AY2021/22)

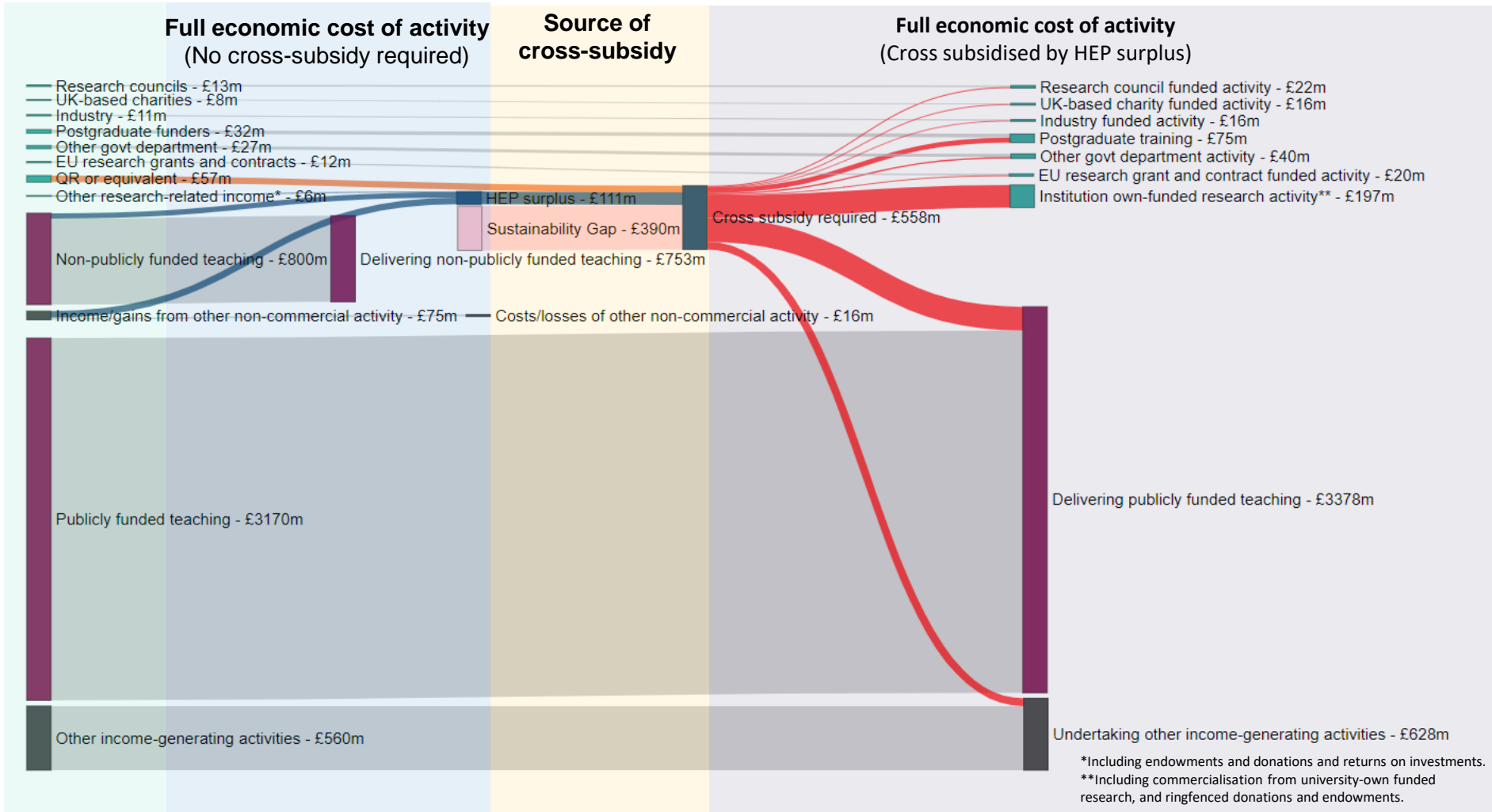


- TRAC D peer group universities are institutions with a research income less than 5 per cent of total income, and total income greater than £150 million.
- TRAC group D is similar to TRAC group C, in that there is more of a focus on teaching than research. In this case, 'Non-publicly funded teaching' and 'Publicly-funded teaching' account for 86 per cent of TRAC group D's income.
- Again, similar to TRAC group C, 'QR or equivalent' is used to support the delivery of research activities – specifically institutions' own-funded research activities.
- The surplus derived from income-generating activities is utilised to support the delivery of publicly-funded teaching.

NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.

Source: 2021/22 TRAC data for 15 UK TRAC D universities.

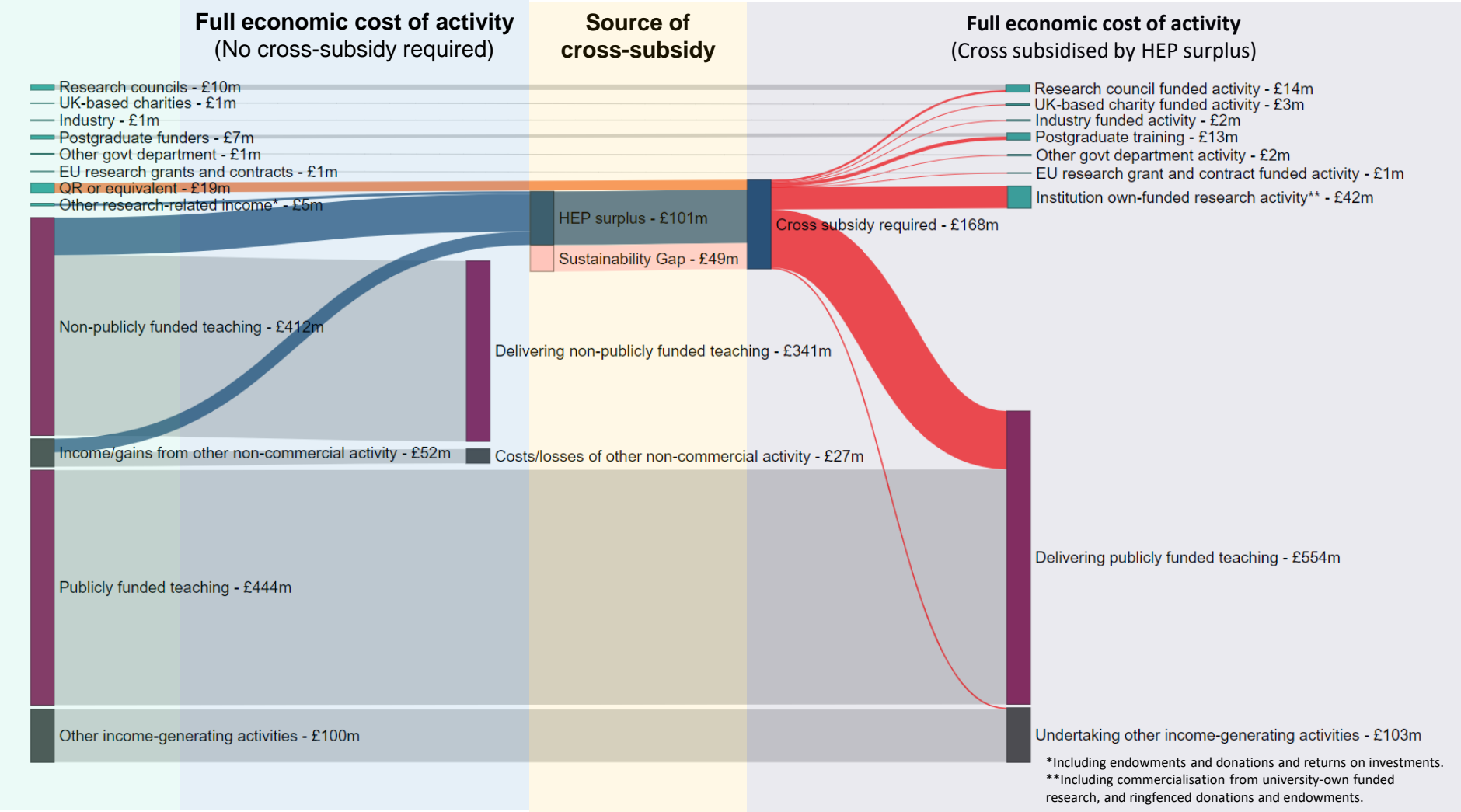
Sankey diagram of funding flows in TRAC group E universities (AY2021/22)



- TRAC E peer group universities are institutions with a research income less than 5 per cent of total income, and total income less than or equal to £150 million.
- TRAC E institutions are some of the least research-intensive universities. Over 50 per cent of the full economic cost of research activities is concerned with institutions' own-funded activity.
- Delivering publicly-funded teaching requires the largest cross-subsidy for this TRAC group.

NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.
Source: 2021/22 TRAC data for 44 UK TRAC E universities.

Sankey diagram of funding flows in TRAC group F universities (AY2021/22)



- TRAC F peer group universities are specialist music/arts teaching institutions.
- TRAC F institutions deliver relatively low amounts of research, with more than half (55 per cent) of the research carried out being funded by the institutions themselves.
- Similar to TRAC group E, the largest cross-subsidy is required for delivering publicly-funded teaching. This accounts for 50 per cent of the total full economic cost of all activities.

NB: This diagram represents an approximation of how income streams are mapped to costs; in practice this will be different for individual universities. Full Economic Costs include a Margin for Sustainable Investment (MSI) - a measure of the funding required to sustain future plans for investment.
Source: 2021/22 TRAC data for 19 UK TRAC F universities.