UCU EVIDENCE ON THE RESEARCH INCOME THRESHOLDS FOR PROJECT SHAPE'S 'RANK AND YANK' REDUNDANCY SELECTION.

The primary criteria in the University of Liverpool's Project Shape redundancy exercise is a threshold of research grant income. The threshold for each member of staff is calculated by cross referencing Higher Education Statistics Agency cost centre codes ('HESA codes') to the published average grant income across the sector.

In this paper, the UCU University of Liverpool Branch presents data and statistical analysis which shows:

- The University has used inappropriate grant income thresholds, which our models demonstrate >50% of Russell Group staff in matched areas do not meet.

- HESA cost centres are designed for HESA reporting purposes only, not for the purpose of setting redundancy thresholds.

- The University has committed a serious breach of mutual trust and confidence by ignoring its own assurances to staff in writing that those codes will be used for reporting purposes only

- The University has applied HESA codes in a completely inconsistent manner, using different thresholds for staff working in the same research field

- In one example, the threshold for some staff is 5 times lower than for others working in precisely the same research subject.

- Over half of those selected for redundancy have been measured by thresholds that were artificially inflated because inaccurate HESA cost centres were used.

The data and evidence set out in this paper exposes the lack of statistical integrity shown in the method for redundancy selection used by the University of Liverpool. The method is completely indefensible. As a result of the evidence we have presented here, UCU formally requests that the University of Liverpool withdraw the flawed redundancy selection criteria.

Introduction

 The University of Liverpool has revised its Project Shape redundancy criteria, reducing those at risk of redundancy from 47 to 32 by fundamentally changing the redundancy selection criteria.   The new methodology uses Higher Education Statistics Agency cost centre codes (hereafter, 'HESA codes') which are allocated to staff to inform national government statistics, to generate research income thresholds. This document sets out the evidence to show that those HESA codes are wholly inappropriate for measuring performance, and that the statistical calculations upon which the thresholds are based are fundamentally flawed.

The government's Independent Review of the Role of Metrics in Research Assessment and Management inquiry ('The Metric Tide') framed the problem of metrics initially as "the blunt use of metrics such as journal impact factors, h-indices and grant income targets."

Senior management at the University of Liverpool have failed to recognise that the tide has changed in the sector. It is not acceptable in the sector to select people for redundancy in this way. If any University is struggling to pick up research income, then it must look to its support infrastructure. It is time for the University of Liverpool to step away from these badly designed and counter-productive proposals that pose a serious threat to the University's research standing in the academic community and threaten to irreparably damage the University's research culture.

1. HESA Codes and Selection for Redundancy

Staff were initially selected for redundancy (before qualitative and mitigation elements were applied) using the following starting pool, all HLS T&R staff with appointment start date after 1/1/2017; promotion after 1/1/17; FTE ≤ 0.2. Then an average research income per annum threshold was applied for staff categorised into 8 HESA codes:

- Av. Research Income above 25th percentile for 101 Clinical Medicine £187,000 (£37,400 Lecturer & TTF)

- Av. Research Income above 25th percentile for 102 Clinical Dentistry £32,000 (£6,400 Lecturer & TTF)

- Av. Research Income above 25th percentile for 103 Nursing and AHP £35,000 (£7,000 Lecturer & TTF)

- Av. Research Income above 25th percentile for 104 Psychology & Behavioural Sciences £38,000 (£7,600 Lecturer & TTF)

- Av. Research Income above 25th percentile for 106 Anatomy & Physiology £26,000 (£5,200 Lecturer & TTF)

- Av. Research Income above 25th percentile for 107 Pharmacy & Pharmacology £89,000

(£17,800 Lecturer & TTF)

- Av. Research Income above 25th percentile for 109 Veterinary Sciences £88,400
  (£17,600 Lecturer & TTF)

- Av. Research Income above 25th percentile for 112 Biosciences £147,000
  (£29,400 Lecturer & TTF)

Anyone with those failing to meet the threshold for the HESA code assigned to them was kept in the pool for potential redundancy.

HESA cost centre codes are collected by the University to be reported back to HESA for the purposes of sector-wide data collection. The HESA data return includes the assignment of grant income to HESA codes as well as total staff counts.

The threshold figures are selected based on post-processing of HESA data by the Russell Group. Each Russell Group university has had calculated the total grant income (TGI) per year assigned to a given HESA code. In the calculations used by the University above, TGI has been divided by the T&R staff count assigned to that HESA code, to give a mean grant income (MGI) for each RG University, per HESA code. We shall return to the fundamental statistical errors made in the calculation of MGI per Russell Group in section 5. The following section describes the process of allocating HESA cost centre codes to each member of staff.

2. The Process of Allocating HESA Codes

It was confirmed by the University at a collective consultation meeting with UCU and the BMA on 19th May that the formal process of allocating HESA cost centre codes to members of staff is as follows:

1. On appointment, the HR business partner confers with the lead appointee to determine the code that will be allocated to a newly appointed member of staff.

2. That in order to prepare for annual returns to HESA, Heads of School and Heads of Department are asked to confirm HESA codes for each member of staff.

In practice, this process is highly inconsistent. Heads of Department have confirmed to UCU that the rigour with which this confirmation process is completed varies widely across Schools, Departments and Institutes. One has noted that in 15 appointments for which he was the Chair of the appointment panel, he was never asked to define a HESA code for any of those members of staff. Others who led appointment panels report no knowledge of HESA code allocation. Responsibility for submitting this data varies across the University; it may be a Head of Institute, School or Department who is asked to return this data. In some cases, this data is checked and returned by a member of professional services staff.

One former Head of Department noted to UCU that "the importance of this process was never impressed upon me and I only have the vaguest recollection of doing this." Another noted that it was a "tick box exercise" that they pay little attention to. A former Head of Department told us that they had never contemplated changing the codes. It is clear that line managers do not see HEAS code allocation as something that can have any significant consequences for their staff. As one former Head of Department reported to UCU "As long as the HESA returns are somewhere in the ballpark, this is all that is expected." In our discussions with members who have had responsibilities as line managers, this is typical.

The majority of our members report that they did not even know they have a personal HESA code allocation.   This makes sense, given that, as we note above, this is an exercise that normally carries no consequences for individuals.

In a minority of cases, managers pass this responsibility directly to members of staff themselves. Some members reported to UCU that they had been asked to complete the return form themselves.

To those points, we also note that staff can be categorised in more than one cost centre code (see appendix 1). This is most commonly because teaching and research subjects may be categorised differently, or because multiple research contracts are split across different projects or specialisms. This reason, in addition to the points raised above, means there is likely to be considerable slippage across the cost centre categories that are used to understand research specialisms.

In summary, we have provided evidence in this section to support three conclusions. First, the process of allocating 'HESA cost centre codes' to individual staff lacks consistency across the Faculty and across the University. Second. The process of allocating HESA codes to individual staff is not transparent. Third, most members of staff are unaware of their HESA cost centre code allocation, or how this is decided.

3. The Purpose of HESA Codes.

According to HESA, the purpose of its annual returns is to "ensure data collection and analysis about higher education in order to make possible consistent information provision about higher education throughout the UK, and to enable the universities and colleges and the funding councils to meet their obligations under relevant legislation." The University of Liverpool is using this data to do something that it was never designed to do.

Figure 1 on the following page provides a copy of the return form that is expected to be completed by individuals in the Institute of Systems, Molecular and Integrative Biology. This form expressly notes that: "The information you provide will be submitted to Central Finance and it will not be used for any other purpose other than to ensure our submission accurately reflects the areas our

staff contribute to and the percentage split."

Figure 1. Institute of Systems, Molecular and Integrative Biology HESA return form

Our members who have been asked to fill out this form report exactly the same sentiment as Head of Department: they don't pay much attention to it, since they know it is for reporting purposes, and don't expect it to be precise. Because of the express instructions given to them, they certainly do not expect it to be used to select them for redundancy.

Staff have been assured in writing that those codes will only be used for reporting purposes, and this carries very serious implications for the way that this process has proceeded without the consent of those staff.

Moreover, in this context, it is highly significant that the Institute which has the highest proportion of staff shortlisted by the research grant income/HESA code method is the the Institute of Systems, Molecular and Integrative Biology! Using those returns for redundancy purposes when staff were advised otherwise constitutes a very serious breach of trust.

Indeed, the University of Liverpool has used those codes to do something that they were never designed for. This point will become much clearer in the following section.

4. Misleading HESA codes

Table 1 demonstrates the distribution of HLS staff to HESA codes. Almost half of HLS staff have been assigned to Clinical medicine 101, and thus have been assessed against the highest GI threshold (<£187K) per year. The next highest category is biosciences, who have been assessed against the second highest GI threshold (<£147K). As we demonstrate in the section that follows, these "benchmarks" are extraordinarily high and most Russell Group (RG) staff assigned to these HESA codes do not meet them.

Table 1, Assignment of HESA codes across all T&R staff in HLS.

HESA Code	Count of School/Institute
101	179
102	2
103	6
104	43
106	29
107	30
109	51
112	61
202	1

We have assessed the work of the group selected for redundancy, and asked 28 of the 32 which code their research maps most closely to. We asked this precisely because of the inconsistencies in allocating HESA cost centres (noted above) and the lack of precision that this exercise implies (also noted above).

Our analysis of this data found that 15 of the group of 28 were allocated to costs centre codes that were significantly higher than equivalent thresholds of their most appropriate subject fit.

A total of 11 of the group of 28 were being measured at a threshold that multiplied their research grant income target at between 4 and 7 times the equivalent thresholds of their most appropriate subject fit.

We can see the clear inconsistency in the use of these assignments for applying research thresholds from the case study in Table 2. This table highlights one (anonymised) Department in Health and Life Sciences.

Table 2. A current HLS department, analysed by all T&R staff counts, those in the pool (i.e. >3 years in post or since last promotion, with research grant thresholds applied.

HESA Code	Total T&R staff	Total T&R in pool	GI threshold	Staff at risk of redundancy	Percent of HESA code at risk
106	19	16	£26K	0	0%
107	1	0	£89K	0	0%
112	7	3	£147K	3	100%

This Department is a new one, brought together under Project Shape Phase 1 precisely because it sought to bring together those staff with close research specialisms. Indeed, this Department succeeded in consolidating those staff within a very similar scientific discipline, in a preclinical subject area. In other words, there is absolutely no reason for those staff to be assigned different HESA codes. This is merely a function of the slippage in the process of assigning those codes.

We can see the gross distortion produced by the difference in HESA code assignments. All staff assigned to HESA 112 in the pool are at risk of redundancy. No staff assigned to HESA 106 are at risk of redundancy, since the benchmark applied to them is more than 5 times lower.

5. A Statistically Flawed Measure of Research Income

We turn, in this section, to demonstrate the most significant finding in our analysis: that the University of Liverpool is not measuring what it thinks it is measuring.
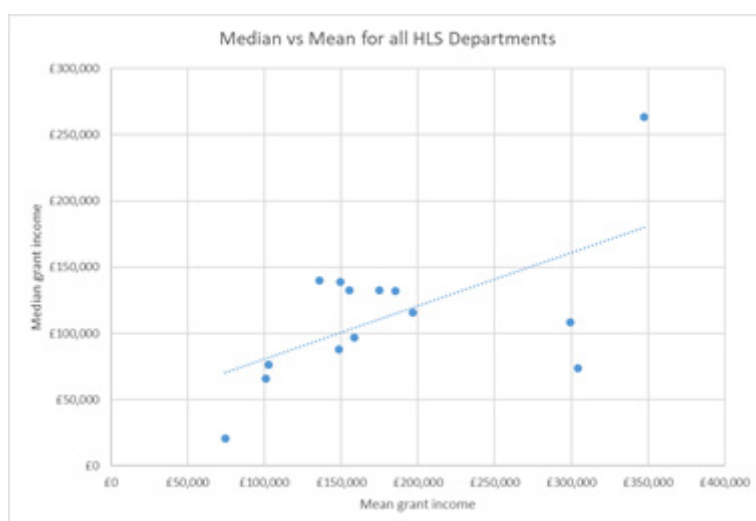
As noted above, the thresholds used are set as the 25th percentile of MGI across the Russell Group. Remember, MGI = mean grant income. This distortion in measurement occurs because any figure of average income across an institution or institute disproportionately reflects the earning capacity of a small number of researchers: those who capture very large Centre or institutional-level grants, such as Biomedical Research Centres worth 10s of millions of pounds. This means that applying an average research income figure to reflect the contribution of a School or Institute will always distort the overall contribution of researchers very significantly indeed. As this section shows, the target for research income in the redundancy selection for Project Shape has been set so high – well above the Russell Group average - that it brings the vast majority of staff in any given School or Institute into the redundancy pool.

A good example here is HESA 101. This cost centre has the largest return for the University of Liverpool. As can be seen in Figure 3 below, there are a large number of Russell Group universities with relatively similar mean grant income. Most staff in those Universities would not hope to achieve £187K grant income per year.

When MGI is applied in this context, it loses any meaning for understanding the research income earned by individuals unless the underlying distributions are normally distributed. This is because it is commonly understood by statisticians that the MGI for a given "Department" (here indicated by HESA cost centre) is significantly right skewed. This means that any distribution of grant income will have a long tail to the right, with a small number of very large grants held by only a few individuals. This is especially the case in a cost centre like HESA 101 (Clinical Medicine) in which a minority of extremely large grants involving clinical trials overshadow other types of research. In other words, the mean figure of income across an institution or Department disproportionately reflects the earning capacity of a small number of researchers: those who capture the largest grants. This means that applying MGI to reflect the contribution of a School or Institute will always distort the overall contribution of researchers.

This distortive effect is clear in the data that has been provided to UCU as part of the consultation process. Our analysis of the data provided to us during collective consultation demonstrated that mean figures for each University of Liverpool Department are considerably higher than medians. Indeed, means are on average 80% higher than medians, and sometimes as much as 4 times higher, as Figure 2 below demonstrates.

Figure 2. Mean grant income (x-axis) vs median grant income (y-axis) for all HLS departments.

The data that the University of Liverpool has used does not tell us what those using it claim it tells us. MGI compares those selected for redundancy against the mean for a given institution, it does not compare those selected for redundancy against other individual researchers in Russell Group institutions.

We can adjust for this statistical effect by re-modelling the distribution of grants across staff. The assignment of grants to staff is not provided explicitly by HESA – we can only get grant income per HESA code and staff counts. However, we have modelled a range of data distribution models obtained from every Department at the University of Liverpool as a plausible method of assigning grant income to individuals. This modelling also uses published HESA data that shows the MGI and total T&R staff counts for each Russell Group university. This produces a plausible accurate assessment of where researchers at the University of Liverpool stand in relation to their counterparts in other Russell Group institutions.

The results summarised in Table 3 use this modelling to show the proportion of staff in Russell Group institutions that do not meet the primary threshold (i.e. for senior lecturer and above) used in the Project Shape redundancy exercise.
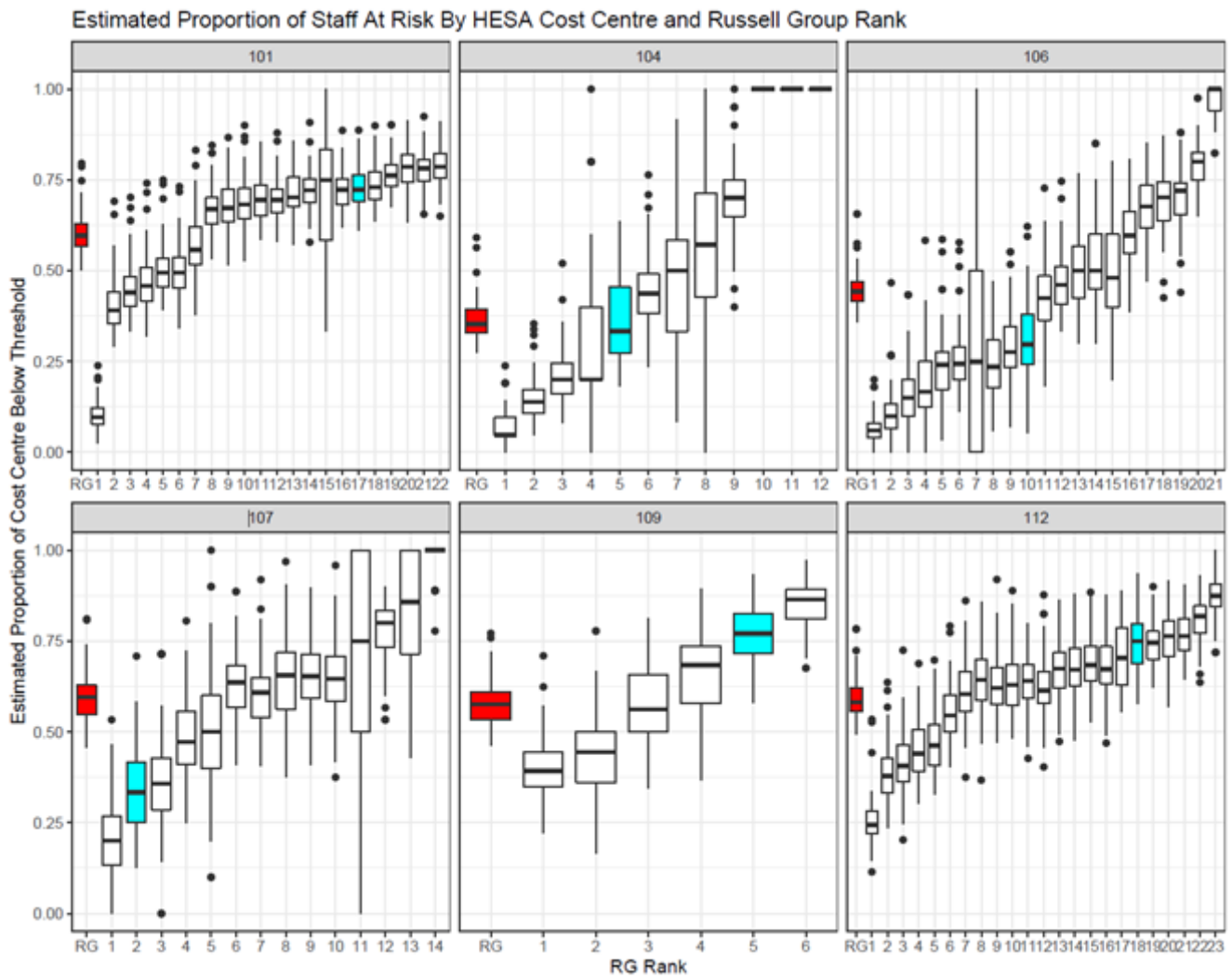
Table 3. Modelled proportion of staff in the Russell Group at each quartile position that would not pass the primary threshold for GI used by the University of Liverpool.

HESA Code	Russell Group Staff not meeting threshold
101	60%
104	35%
106	44%
107	60%
109	58%
112	58%

This data shows that between 35% and 60% of T&R staff in all Russell Group institutions would not meet the research grant income threshold applied by the University of Liverpool. The average across all cost centres is 55%. In other words, the majority of Russell Group staff would fail to meet the thresholds used by the University of Liverpool.

To test that the model is robust, we independently analysed HESA data and the estimates for Liverpool HESA cost centres agree well with the actual counts of staff in each HESA cost centre that do not meet the thresholds. The detailed modelling outcome is in Figure 3 below, which includes the Liverpool position in the ranked RG set for benchmarking. The blue box is the University of Liverpool position, and the red box is total RG distribution. The variable number of boxes per HESA code is due to some RG members not reporting any staff in a given HESA code.

Figure 3. Estimated percentages of T&R staff not meeting the UoL applied thresholds, x-axis is rank order, by mean grant income per Russell Group institution per HESA cost centre.

Conclusion

We assume that University management has used HESA code-based grant income thresholds, since it is working under the assumption that there really are major field-based differences in grant income, and that HESA codes accurately reflect these differences. We have shown this assumption to be entirely false.

The data and evidence set out in this paper exposes fundamental flaws in the quality of the data used by the University of Liverpool to select staff for redundancy. It further exposes a basic statistical error in the application of this flawed data to the point that the method is indefensible. We have presented evidence here to demonstrate an overwhelming case that the selection criteria lack integrity. UCU therefore formally requests that the University of Liverpool withdraw this redundancy selection criteria immediately.