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Fairness in Higher Education Research and Innovation Funding in the UK

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Abstract: This research analysed the distribution of publicly awarded funding, by United Kingdom Research and Innovation (UKRI) to defined University Groups and compared it against the aim and objectives of UKRI's Equality, Diversity, and Inclusivity (EDI) strategy. Previous work has identified failures in the allocation of research awards, with some groups being under-represented in successful bids. UKRI have acknowledged that the situation needs to improve yet concern exists over whether change has been enacted. Publicly accessible information provided freely by UKRI was used in conducting a comprehensive analysis of the current position. The results showed that the marginalisation of groups applies at a University Group level, with over-representation of the elite universities of the Russell Group in successfully funded project bids. The data show how, both in total financial expenditure and in the number of projects financed, the awarding of research funding to the universities with the largest popular base, namely the group identified as Post-92 universities, is relatively very small. These universities, as identified by measurements such as social inclusion within university rankings, contribute to greater equality of opportunities for student populations and reduce the impact of economic discrimination. By greatly minoritising the Post-92 universities through funding, UKRI is effectively reducing access for their disadvantaged students.

Keywords: equality; funding; universities; UKRI; EDI

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1. Introduction

The University in which a person studies or bases their research activity is a crucial factor in the development of their professional career. Graduating from a prestigious university has historically led to a greater likelihood of obtaining more desirable jobs, higher earnings, and the potential to occupy key management positions in organizations (the last six UK Prime Ministers, for example, are all alumni of the University of Oxford). For research focused careers, collaborating with a renowned university represents the best opportunity for academics to secure funding for their work on a larger scale, particularly important as such income generation is now viewed as a fundamental aspect of the role [1]

The aim of the research undertaken for this paper was to analyse the distribution of publicly awarded funding by UK Research and Innovation (UKRI), and to compare it against UKRI's Equality, Diversity, and Inclusivity (EDI) strategy. UKRI is a public body that draws together Research England (an organisation supporting research at higher education institutions), Innovate UK (an innovation agency) and seven discipline-focused research councils (for example, the Economic and Social Research Council). According to UKRI [2] their roles are to provide investment and support for researchers, help researchers develop new skills, enable collaboration and engagement, and improve the capabilities across the research system. Creating and fulfilling EDI objectives is important in avoiding bias in the decisions made in carrying out these roles, and the significance of UKRI's remit lies in the knowledge that UK universities rely heavily on UK-originating research funding for this aspect of their work [1]). Therefore, it would be expected that funding would

follow an intent to improve EDI in access to research. Publicly accessible information via Gateway to Research (GtR) provided by UKRI has been used in this research. According to UKRI (reported to us via email by UKRI, when a freedom of Information Act request was sent to them to access UKRI Grant data), GtR was developed by the Research Councils to enable users to search and analyse information on publicly funded research. It includes information about projects supported by all seven Research Councils, UKRI, Innovate UK and NC3Rs and can be filtered by key terms, funder, start year, etc. The NC3Rs is a UK-based scientific organisation dedicated to helping the research community worldwide to identify, develop and use 3Rs (Replacement, Reduction and Refinement).

To achieve this aim, the paper will, first, identify different categories of institutions in the UK higher education sector and how they have been grouped both through their own collaboration and in common parlance. It will then analyse, in detail, how UKRI funding has been distributed amongst these institutional categories. In addition, this paper considers decisions between the requested and awarded amounts of funding for projects by institutions within these categories for these different institutions. Finally, the results will be compared against UKRI's commitment to EDI. Recommendations will finally be provided to maximise UKRI EDI strategy in distribution of funding.

2. UK Higher Education Institutions

The UK higher education institution (HEI) landscape is a product of centuries old founding of institutions, changing economic and social fortunes, and more modern government policies. The University of Oxford records teaching as far ago as 1096, the University of Liverpool was established in 1881, whereas the University of Suffolk was awarded university status in 2016. These developments, and how the institutions, particularly universities (rather than the smaller number of university colleges and other bodies), style themselves, in what is a competitive market for students and research work, has given rise to group identities (Table 1).

Table 1. Type of Institutions/Groups Receiving UKRI Funding.

Group	Number of Members
Russell Group universities	24
Plate glass universities	24
Post-92 universities	78
Other universities (non-member/independent/private)	29
Other Research/Knowledge Exchange (RKE) Institutions	1200–2000 *

* This is an estimated figure, as the number of research institutions fluctuates annually.

The 'Russell Group' is a membership body, formed in 1994. It includes some of the oldest and highly prestigious universities in the UK among its 24 members (www.russellgroup.ac.uk) (accessed on 17 January 2023), institutions such as the Universities of Oxford, Cambridge, and Edinburgh. Additionally, the Russell Group represents some universities formed in the wake of the industrial revolution, so-called 'red brick' organisations, for example the University of Nottingham and the University of Sheffield.

The 'Plate Glass' group, indicative of the architectural style of the time, is a term used to represent the universities founded between the 1960s and early 1990s (e.g., Lancaster). A description, rather than an interest-led working group, there are 27 organisations that have been given this moniker, although three 'Plate-Glass' universities are now within the Russell Group representation, the most recent of which reportedly paid a half a million-pound fee for the privilege [3]. To avoid duplication of results during this paper's funding analysis, the three universities (Warwick, York, and Newcastle) are only included in the Russell Group, thus, the 'Plate-Glass' group consist of only 24 members for the purpose of this study.

The third group are 'Post-92' universities—a reference to former polytechnics or colleges that were awarded university status in the year 1992. Post-92 is simply a descriptive

term rather than a body formed to represent their interests (although within the 'Post-92' universities there are member groups, such as Million Plus and the University Alliance). This group consists of 78 members.

Despite very different geographical locations, subject specialisms, and student population bases, the above three group terms are in widespread use in perceptions of UK universities and drive the little disputed notion that the UK has a differentiated university system [4]. There are other Research and Knowledge Exchange (RKE) institutions that do not easily fit within the above three classifications. For example, the University of St Andrews (currently the leading institution according to The Times rankings) is not a member of any of the identified groups, and the University of Buckingham is a private venture. It is easy to confirm if an organisation is an officially recognised higher education awarding body, as their registration is held by government and this can be readily checked on the Office for Students (OfS) online register. However, an organisation's non-alignment with, or difficulty being ascribed to, the three named groups has led to them being placed in the 'Other universities' category for the purposes of this research. Alternative listings of higher education institutes may disagree with some of these being classified as 'other', and so a comparable research exercise may differ slightly on the number of members. For example, Boliver [1] categorises universities/institutions in a different way based on a range of other factors, such as teaching and academic selectivity, that are not part of the focus of this paper. What can be confirmed is that none of the universities placed in this 'Other universities' group would be considered as members of any of the other named groups.

Defining the category of 'Other RKE Institutions' (Table 1) is challenging. These are institutions that undertake Research and Knowledge Exchange (RKE) activities and receive UKRI funding but are not necessarily classed as a university. They operate under their own authority, but many of these institutions are linked to universities, particularly, Russell Group Universities. For example, the High Value Manufacturing Catapult (HVMC) is categorised under 'Other RKE institutions'. The HVMC has seven centres in the UK and one of them (WMG) is an academic department at the University of Warwick. Not all these institutions can be identified easily, and some institutions may only exist for a specific RKE project rather than having the wider remit and longevity of universities. For this reason, there is a need to highlight that the number of members in the group 'Other RKE Institutions' fluctuates over time.

Finally, it is worth noting that identifying the total number of universities in the UK is a similarly difficult task. The Guardian newspaper [5] lists 122 universities in its league tables; the Times newspaper [6] lists 131 institutions as universities; and Universities UK [7], described as "the collective voice of universities in England, Scotland, Wales and Northern Ireland", names 142 institutions as universities in the UK. Possible reasons for discrepancy in figures could be due to organisational status and independence; for example, the University of London is a federation of 17 higher education organisations that may or not be counted individually. Notwithstanding the above, the total of 155 universities in Table 1 is based on the number of individual entries in the UKRI funding data. This includes 140 individual universities, 4 university colleges, and 11 institutions from the University of London.

3. UK Research and Innovation (UKRI)

In the Case for the Creation of UKRI, the Department for Business Innovation and Skills [8] argued that "multi or inter-disciplinary approaches and increased collaboration across traditional boundaries and organisations" is required (namely UKRI). Thus, UKRI was founded on 1 April 2018 by the Higher Education and Research Act (2017) to unify nine different previous research bodies under one lead organisation (Table 2). Those research bodies continue to exist and distribute funding, but now do so within the UKRI's overall strategy.

Table 2. Funding Bodies Overseen by UKRI.

Acronym	Funders
AHRC	Arts and Humanities Research Council
BBSRC	Biotechnology and Biological Sciences Research Council
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
Innovate UK	Innovate UK—national innovation agency
MRC	Medical Research Council
NC3Rs	National Centre for the Replacement, Refinement and Reduction of Animals in Research
NERC	Natural Environment Research Council
STFC	Science and Technology Facilities Council
UKRI	UK Research and Innovation

The UKRI allocates funding for collective programmes and to each of the different councils, which act as separate funders. UKRI finances researchers, businesses, universities, NHS bodies, charities, non-governmental organisations (NGOs) and other RKE institutions. A dual support model is used to allocate funds: grants for individual research projects across the UK (through the research councils) and block grants for research institutions in England (through Research England). UKRI restates the commitment to the Haldane Principle [9] of researchers, through peer review, being the arbiters of allocation of research funding, rather than government having this power. However, the subsequent creation of this overarching organisation and its appointment of Chair and Chief Executive with oversight of almost all publicly funded research, and the power to set priorities for such funded research, has been heavily criticised as leading to the abandonment of that Principle [10].

The funding process operates through initial peer review of applications across published criteria. Some of the reviewers can be nominated by the applicants. Bids then proceed to an independent panel where they are in competition with all the other applications for funding from that revenue stream. UKRI say their assessment is "designed to be sensitive to different needs and cultures in the academic community. It reflects the need to support different types of research" [11]. In support of this research culture, UKRI has published an EDI (equality, diversity and inclusivity) strategy. UKRI uses 'equality' within the term EDI rather than 'equity'. This is an important point, and not just semantics, as 'equity' recognises that individuals and groups are different and need to receive the level of resources that will help them achieve the same outcome. The strategy recognises "untapped talent and potential across the UK" [12] and the need to include a broader range of people in funded research. The aim is to "foster a research and innovation system by everyone, for everyone". The objectives to achieve this aim do not identify means of specifically improving the situation for any currently marginalised groups, but just that EDI in general needs to improve [12].

UKRI publishes funding data based on diversity of funding applicants and awardees (ethnicity/gender/age/disability), which is a good contribution to EDI strategy. However, there is an acceptance by UKRI that these data show that more work is needed to address underrepresentation of certain groups in awards. According to UKRI [13], they "are using these data, together with other evidence and engagement with the research and innovation community to help us identify and deliver actions to create a more equitable system", noting "the system needs fixing". UKRI also publishes data that identify geographical distribution of funding. In 2020–2021, more than half of all UKRI funding (54%) was allocated to the Greater South-East region [14] compared to other parts of the UK. This concentration of funding raises concerns about regional inequalities and the potential underfunding of research institutions in less affluent or rural areas (e.g., Northwest of England), which could impact their ability to contribute to the overall national research and innovation agenda.

4. Research Funding Distribution

Although UKRI's efforts towards EDI across all its funding streams are evident to some extent, and decisions over how to distribute finite levels of funding are always challenging, some critics argue that, despite policies in place, the funding allocations do not always reflect the intended goals. There are concerns about systemic barriers that hinder underrepresented groups' access to resources and opportunities, leading to disparities in funding distribution.

A study by Fransman et al. [15] relating to UK research funding policy and collaboration with the Global South, noted "approaches, systems and structures that undermine fair and equitable partnership". Within this study, evidence of hierarchies, and the question of who determines the value of potential research, were highlighted as areas in need of reform. Some five years later, Gladstone et al. [16], in their analysis of UK funding, identified schemes which meant that "marginalised groups face systemic barriers to securing research funding, that are created and controlled by funders and universities". These barriers specifically included "vulnerability to bias of both schemes and decision-making" and "failure to account for structural inequality in decision-making" [16]. Gladstone et al.'s [16] criticisms of the current funding system are many and highlight the need to minimise ambiguity in scoring bids, to rebalance the assessment of bids on past achievement in favour of potential to deliver outcomes, and the need for those in a decision-making capacity to recognise their own bias.

In highlighting inequality in the funding system, Gladstone et al. [16] refer particularly to researchers who are women, racially minoritised, LGBTQIA+, and disabled. Sarju [17] expands on one of these characteristics, noting the under-representation of scientists with a declared disability within UKRI applications. The UKRI's own work is cited in identifying that only 1% of applicants disclose a disability, perhaps wisely, when there are lower award rates for principal investigators with such a disclosure. Similarly, Jebsen et al. [18] spotlight the gender imbalance in both the number of funding awards the UKRI gives to teams led by women and, crucially, that the UKRI's data releases mask discrepancies in the sums and relative prestige of those awards. Certainly, the research for this paper found challenges relating to the format of the publicly available data, and some absences in the records of awards. Importantly, Jebsen et al. [18] draw attention to intersectionality, a consideration that Lia et al. [19] also highlight, in so far as compartmentalisation of the data across singular identities by UKRI ignores intersectional experiences. Lia et al. [19] additionally add socio-economic class to the factors by which someone may be marginalised in UK research funding. It is worth noting that, in the recent Times rankings of UK universities [6] 16 of the bottom 20 places assessed according to social inclusion are occupied by Russell Group universities. By this measurement, they are, by some considerable margin, the group least likely to offer opportunities to disadvantaged learners.

Other research suggests that the status of individuals and institutions, whether the applicant comes from the reviewer's community, and the applicant's previous success are sufficiently relevant to outcomes that suggest favouritism [20]. Lawson and Salter [20] use this knowledge to examine the likelihood of additional funding applications from an institution being awarded a grant by UKRI, if there is an overlapping award for the same institution in the same round of funding. They concluded that there is a 22.5% lower chance of receiving funding in such cases if the institution has already been awarded greater than 10% of the overall level of funding, and that panels may consider the diversity of successful institutions when making awards. However, they also find that peer review college membership, affiliation to one of the leading universities, and other personal characteristics, such as having a British-sounding name, do increase the chances of receiving funding, and that high status institutions may receive a greater degree of leniency [20]. Moreover, the findings suggest that, if there is a degree of institutional diversity within the existing funding awards already, the panels judging applications are less concerned with allocating the remaining funding to a widened range of applicants [20]. As useful as this analysis is, what it does not identify is whether the diversity of successful applications is coming from

a wide range of universities. Instead, it implies that a high-status university is less likely to receive further funding if it has already secured over 10% of the total funding (within the same round of funding). In such cases, another high-status university may be the next recipient. This pattern appears to be particularly true for the "most prestigious funding," which tends to "flow" predominantly to Russell Group universities [1].

Considering all current research relating to UKRI funding and the importance of EDI, a gap exists in identifying disparities (if any) in funding allocations to UK universities/institutional categories (as identified in Table 1), and the impact this has on UKRI EDI strategy. Although some universities are popularly ranked higher than others, do more research than others, and receive more funding than others, what is less clear is the extent to which that situation is being perpetuated by public funding. Moreover, if that public-funding commits to improving the number of awards going to currently marginalised groups, it is important to recognise how such groups may be impacted through the rejection of bids from institutions that have more diverse academic populations. An EDI strategy, one where the aim is to foster a system 'by everyone, for everyone', would be able to utilise analysis of the public-funding and the continued marginalisation of groups to aid the process of fixing what is perceived to be broken. This paper aims to fulfil that purpose.

5. Materials and Methods

The UKRI maintains records of all research projects that have been funded by different funding agencies, both prior to 2018 and after the creation of UKRI. These data are publicly accessible via their website and the previously mentioned Gateway to Research (GtR). For this research, funding data from 2005 to 2023 were analysed. For the years 2005 and 2023, full year data were not available. The reason for partial data for 2023 is because the research for this analysis started mid-year, and it is unclear why 2005 does not have full year data. The funding data provide information on the research project, name of funder, project code, lead institution (university or any other type of institution), department to which the funding is attached to, project category, the main researcher/s, funds awarded (<GBP100,000 GBP, 100,000 GBP–1 million GBP, 1 million GBP–10 million GBP, above 10 million GBP), and project status (active/closed). The funding data for the period of 2005–2023 were downloaded in CSV format. The downloaded files were then converted to suitable formats for processing. This was quite a lengthy exercise, as the data were not on a continuous dataset/datasheet. It took considerable efforts to compile an accurate list of funding awards in a format that was deemed satisfactory for analysis. This discourages scrutiny of funding awards.

In the second phase of the work, the compiled list of funding awards was refined. The UKRI data produced 134,955 records when downloading the complete database in one process. However, examination of the data showed that 3627 records (2.69%) contained errors that could not be resolved. These were a result of data not being correctly assigned to the appropriate field in the UKRI source. Therefore, these data were removed and a total of 131,328 records (97.31% of complete database) were taken for the final analysis.

In the third phase of analysis, the data were clustered according to previously identified institutional groups (Table 1). Data accessible from UKRI do not show this in their raw format; instead, each individual funding award must be manually linked to its recipient institution, and the institutions and award data must be grouped (as per Table 1) and collated accordingly. Herein, the existence of consortia in awarded projects should be noted. The data provided by UKRI identifies the lead participant in a project, but also lists the other participants and the funding they received for the same project. For example, in 2014/15 a project called *Tier2Tier* was led by the company "Viewpoint Construction", with the University of Northumbria a partner in the project. Further examples were checked to confirm that sums were not counted twice or allocated to the lead partner during the analysis, which could skew the findings and might lead to invalid conclusions. Therefore, careful consideration was given when analysing the data to the reducing of duplications, especially when the project was awarded to a consortium.

During the fourth phase, data from UKRI were analysed to identify the funding requested and awards in terms of the number and value of projects. As earlier analysis identifies no major annual differences, one year has been analysed in detail to represent data behaviour for the whole period. The analysis undertaken in this work is descriptive. This is deliberate, as this information is simply not presented in UKRI, academic, or media discussions. Others have carried out more specific analysis on selected groups, but no current work exists showing the scale and challenges inherent in UKRI funding awards. There is a need to present the headline results for the whole UK higher education sector and how they relate to the stated intentions, in being more equitable, diverse, and inclusive of their main public funding body.

To strengthen the analysis, a null hypothesis test was also undertaken. The null hypothesis is that 'there is no significant correlation/bias between UKRI funding allocations and type of University'. Testing this hypothesis by examining how funding is distributed helps determine whether the large share of funding going to Russell Group universities is because of their high performance, or if it is due to unfair advantages built into the system. To further evaluate the above, a comparative analysis using institutional rankings was also carried out against:

- The Guardian University Rankings: This ranks UK universities based on a variety of measures, including Student satisfaction (data from the National Student Survey-NSS on student satisfaction rates), Teaching (what students say about their teaching and feedback in the NSS), University entry standards, Value addition to students, Career prospects, and Expenditure per student [5].
- The Research Excellence Framework (REF): This framework evaluates research impact, quality of outputs and research environment across UK institutions and is the main system for assessing research excellence in UK universities [21].
- Times Higher Education (THE) Rankings: This is a global ranking system that evaluates universities across Teaching (learning environment), Research environment (volume, income, and reputation), Research quality (citation impact, research strength, research excellence, and research influence), International outlook (Staff, students, and research), and Industry (Income and patents). The rankings are based on 18 performance indicators and are updated annually. They are considered the gold standard for global higher education rankings and are trusted by students, parents, and academics [22].

The results comprise the following sections: Overall analysis of UKRI funding; UKRI funding allocation per university group; Funding allocation by each UKRI funder; Funding Success Rate; Null Hypothesis and Comparative Testing.

6. Results

6.1. Overall Analysis of UKRI Funding

The data from UKRI showed that total funding allocated to research and knowledge exchange projects in the period 2005–2023 (Figure 1—noting 2005 and 2023 as incomplete years and thus excluding them from this representation) was GBP55,202 million; and the total number of projects awarded during the period was 131,331. This gives an annual average of GBP2905 million in funding awarded for an average number of 6912 funded projects. The year 2018 had the highest amount of annual funding at GBP5221 million. The official launch of UKRI in April 2018 may be related to the surge in funding this year. The highest number of projects (13,439) were awarded in the year 2020. This rise in the number of projects could be due to the COVID-19 pandemic, which prompted governments worldwide to support many projects on different areas of research relating to the crisis. An average of GBP420,330 has been awarded per project, but this is across a very broad range of funding awards, with the highest single application receiving GBP652.1 million (High-Value Manufacturing Catapult project) and 435 other projects receiving GBP10 million or more.

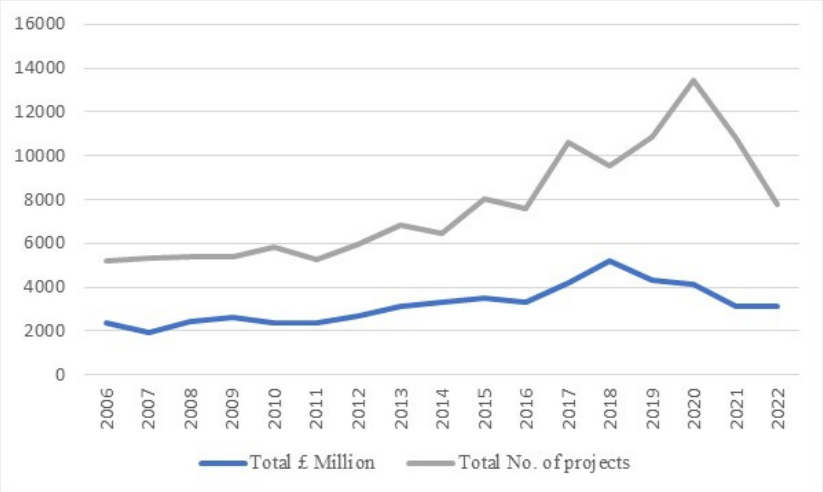

Figure 1. UKRI Total Funding and Number of Projects Funded (2006–2022).

6.2. UKRI Funding Allocation per University Group

As was expected from the findings of the literature review, the university group receiving the largest sum of funds from UKRI is the Russell Group. What was not as anticipated was the extent of the gap between those 24 universities and the other higher education institutions. The Russell Group received a total of GBP29,026 million (53% of total funding) across 71,892 projects (55% of total projects) between 2005 and 2023 (Figures 2 and 3). The second largest group receiving UKRI funding is the 'Other RKE Institutions' group, awarded a total of GBP18,654 million (33% of total funding) for 30,940 projects (24% of total projects). The Plate Glass group of universities received GBP4439 million (8% of total funding) across 14,720 projects (11% of total projects). In fourth place is the Other universities group, which received GBP2213 million (4% of total funding) for 7794 projects (6% of total projects). The Post-92 group, despite being the group with the largest number of universities (n = 78), representing 50.3% of all funded universities in the UK, received the lowest amount of funding over the period analysed, with GBP969 million (2% of total funding) for 5982 projects (4% of total projects). These figures are striking, especially considering that 16 out of the 20 least socially inclusive universities belong to the Russell Group (The Times, 2024), with around 67% of its members accounting for 80% of the positions that highlight shortcomings in their EDI strategies. Due to the ambiguity surrounding the membership and fluctuating numbers of the 'other RKE institutions', they were excluded from further analysis (in some instances). When focusing only on university groups (Figures 4 and 5), the disparity in funding allocation is even more apparent. UKRI has allocated a funding amount of GBP36,548 million to a total number of 100,338 projects to Universities in the UK from 2005–2023. Of that, Russell Group universities received 79% of total funding compared to 12% funding allocated to Plate Glass universities, 6% to Other universities, and only 3% to the Post-92 universities. In terms of number of projects, the analysis highlights a similar dominance by Russell group universities; they have been awarded 71% of the funded projects over the period considered, whilst the Plate Glass group was awarded 15% of projects, Other universities 8% of projects, and with just 6% of total funded projects going to Post-92 Universities. These percentages suggest that Post-92 universities may be receiving numerous small grant projects but may be failing in obtaining large grants.

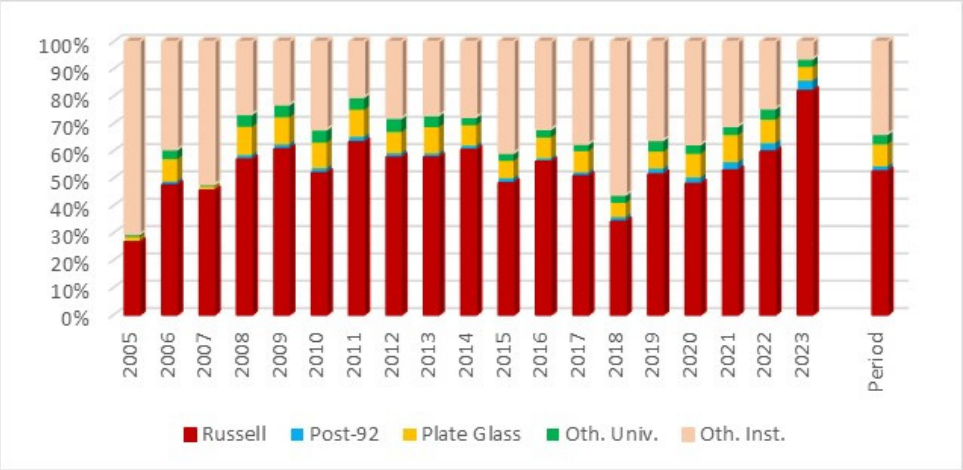

Figure 2. UKRI Funding Allocation (%) per University Group (2005–2023).

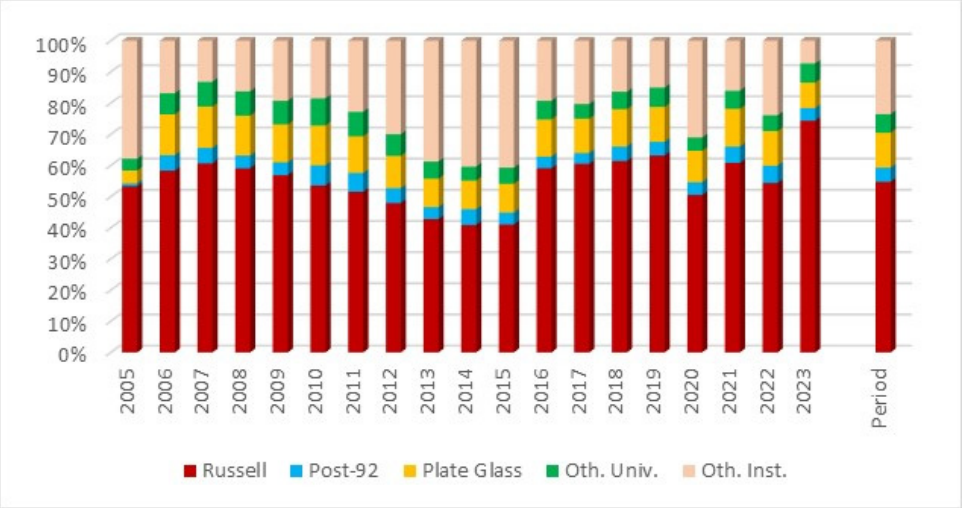

Figure 3. UKRI Number of Projects Funded (%) per University Group (2005–2023).

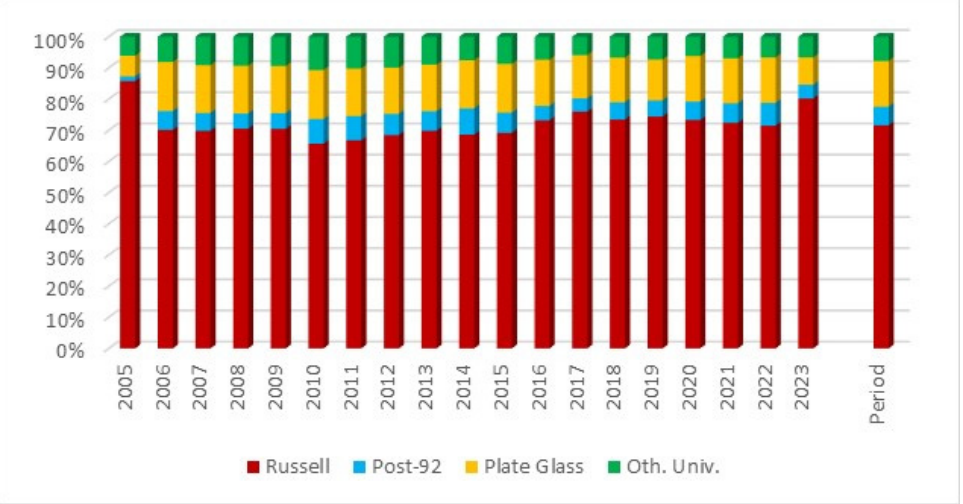

Figure 4. UKRI Funding Allocation (%) per University Group (2005–2023) Excluding 'Other RKE Institutions'.

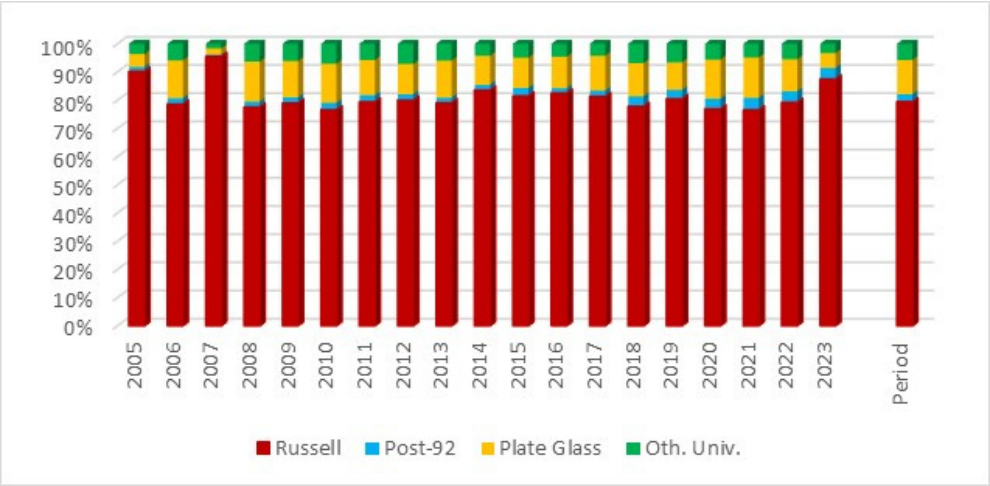

Figure 5. UKRI Number of Projects Funded (%) per University Group (2005–2023) Excluding 'Other RKE Institutions'.

6.3. Funding Allocation by Each UKRI Funder

UKRI oversee nine funding bodies; and their data can be analysed separately to examine how funding is distributed by them among different university groups (Table 3). In addition to the nine funders, there is a UKRI funder category that have awarded fellowship grants and joint research grants. These are identified under the category of 'UKRI other funds' within the analysis. Between 2005 and 2023, the largest funders within UKRI are EPSRC (15,652 million GBP representing 28% of the total UKRI funding) and Innovate UK (12,235 million GBP at 22%), while AHRC and NC3Rs' spend less than 5% of the total UKRI funding. The differences between funding amounts given to funding bodies by UKRI may be due to UK Government's view of certain areas as strategically important for the country's long-term development. Funders that align with these strategic priorities may receive increased funding (Department for Science, Innovation and Technology, 2023). Given that EPSRC's focus is on advances in Engineering and physical sciences, they support research that leads, for example, to the development of new technologies, innovations, and engineering solutions. Conducting this type of research can be costly compared to other types of research. Similarly, Innovate UK's emphasis on commercialisation of projects and industry collaboration may also need increased funding to drive innovation and support businesses (especially SMEs—Small and Medium Enterprises) in the UK. Perhaps due to this reason, Innovate UK has allocated more funding to 'Other RKE institutions' (22% of overall funding). According to 'Innovate UK: Impact Report' [23], Rolls-Royce PLC claims 7% of all Innovate UK funding; and four of the five top entities they fund are research and technology organisations (RTOs) and Catapults (innovation centres). This further emphasises the importance of excluding 'Other RKE institutions' from some of the further analysis, as including entities like Rolls Royce is not appropriate when examining fairness in higher education funding.

While Table 3 presents values of funding given by each funding body to each university group, along with the total percentage of UKRI funding allocated to each group, it is also important to understand how each funding body distributes its allocations. This information would help funding applicants understand the past success rates of bids from the university group their institution belongs to. Figure 6 shows the percentage of each funding body's awards distributed by monetary value, while Figure 7 shows the distribution based on the number of funded projects. Figures 8 and 9 present similar calculations but exclude the 'Other RKE institutions' group.

Table 3. Funding Allocation by Each UKRI funder (2005–2023).

Funder	Russell Group		Plate Glass		Post-92		Other Universities		Other RKE Institutions		Total of UKRI Funding/ Projects
	Funding GBPm and %	Projects No. and %	Funding GBPm and %	Projects No. and %	Funding GBPm and %	Projects No. and %	Funding GBPm and %	Projects No. and %	Funding GBPm and %	Projects No. and %	%
EPSRC	11,692 (21.2)	25,300 (19.3)	2159 (3.9)	5888 (4.5)	281 (0.5)	1049 (0.8)	601 (1.1)	1757 (1.3)	920 (1.7)	583 (0.4)	28.4/26.3
Innovate UK	603 (1.1)	1238 (0.9)	132 (0.2)	780 (0.6)	138 (0.2)	1198 (0.9)	73 (0.1)	368 (0.3)	11,290 (20.5)	22,063 (16.8)	22.2/19.5
MRC	5838 (10.6)	8759 (6.7)	314 (0.6)	578 (0.4)	34 (0.1)	75 (0.1)	247 (0.4)	475 (0.4)	2657 (4.8)	1570 (1.2)	16.5/8.7
BBSRC	3503 (6.3)	11346 (8.6)	380 (0.7)	1734 (1.3)	66 (0.1)	343 (0.3)	384 (0.7)	1390 (1.1)	1462 (2.6)	3216 (2.4)	10.5/13.7
NERC	1757 (3.2)	6236 (4.7)	300 (0.5)	1345 (1.0)	68 (0.1)	445 (0.3)	324 (0.6)	1350 (1.0)	1745 (3.2)	1857 (1.4)	7.6/8.6
ESRC	2354 (4.3)	7618 (5.8)	695 (1.3)	1986 (1.5)	115 (0.2)	823 (0.6)	164 (0.3)	806 (0.6)	301 (0.5)	670 (0.5)	6.6/9.1
STFC	1896 (3.4)	5004 (3.8)	209 (0.4)	934 (0.7)	89 (0.2)	438 (0.3)	157 (0.3)	506 (0.4)	74 (0.1)	316 (0.2)	4.4/5.5
AHRC	713 (1.3)	5360 (4.1)	170 (0.3)	1342 (1.0)	155 (0.3)	1559 (1.2)	126 (0.2)	1066 (0.8)	114 (0.2)	539 (0.4)	2.3/7.5
UKRI Other	606 (1.1)	670 (0.5)	71 (0.1)	83 (0.1)	21 (0)	33 (0)	32 (0.1)	45 (0)	85 (0.2)	94 (0.1)	1.5/0.7
NC3Rs	65 (0.1)	361 (0.3)	8 (0)	50 (0)	3 (0)	19 (0)	4 (0)	31 (0)	7 (0)	32 (0)	0.2/0.4
Total per Funder	29,027 (52.6)	71,892 (54.7)	4438 (8.0)	14,720 (11.2)	970 (1.8)	5982 (4.6)	2112 (3.8)	7794 (5.9)	18,655 (33.8)	30,940 (23.6)	100/100

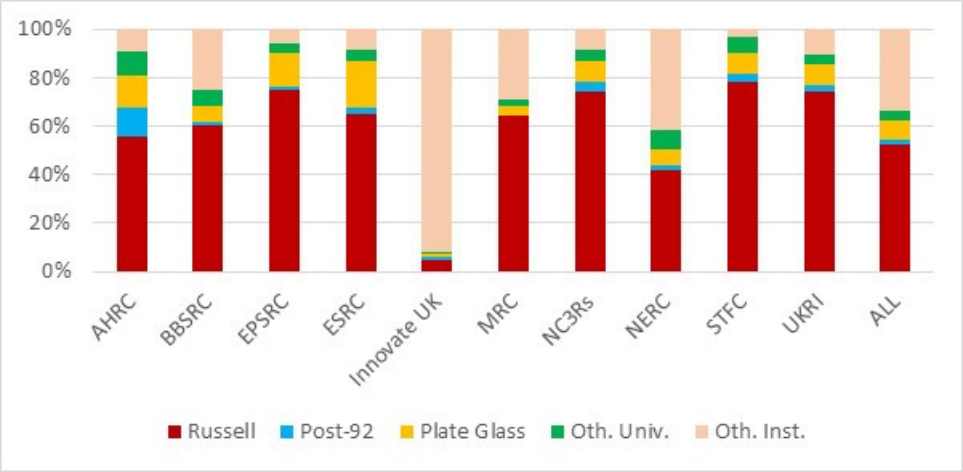

Figure 6. Funding Allocation (%) by UKRI Funding Body per University Group.

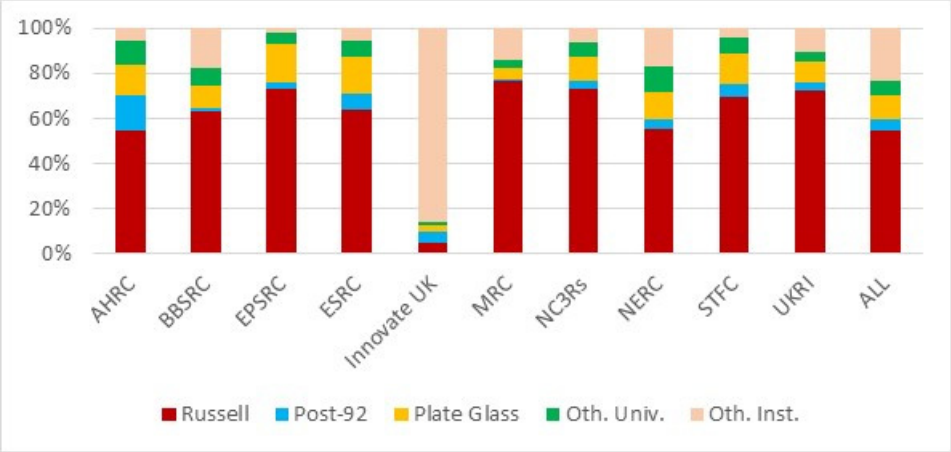

Figure 7. Number of Projects Funded (%) by UKRI Funding Body per University Group.

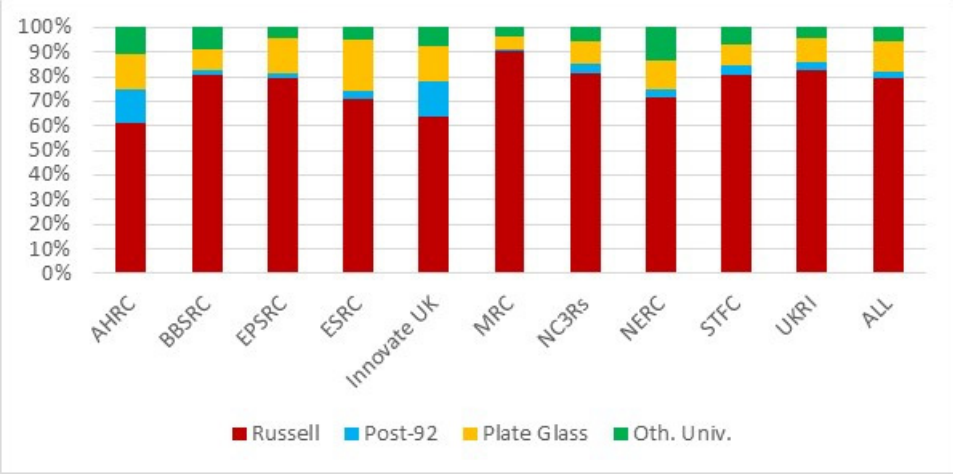

Figure 8. Funding Allocation (%) by UKRI Funding Body per University Group Excluding Other RKE Institutions.

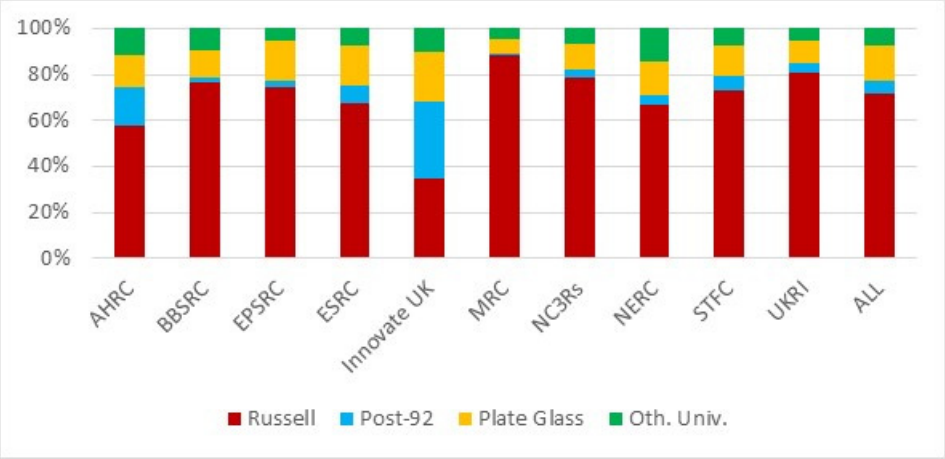

Figure 9. Number of Projects Funded (%) by UKRI Funding Body per University Group Excluding Other RKE Institutions.

The data in Table 3 and Figures 6–9 identify that the Russell Group universities dominate awards from all funders, except Innovate UK. Taking the largest UKRI funder by awards, ESPRC, they have granted a total of GBP 15,652 million for 34,577 projects. Russell group universities have received GBP 11,692 million (75% of ESPRC's funding) of this, for 25,300 projects (73% of all ESPRC's funded projects). Post-92 Universities have received just GBP 115 million (1.8%) for 823 projects (3%). For the MRC's funding awards of GBP 9090 million to a total of 11,457 projects, the Russell group has received GBP 5838 million (64%) for 8759 projects (77%). Post-92 universities have been funded GBP 34 million and have only been awarded 75 projects across a period of 18 years (2005–2023). This pattern is replicated across all nine funders, and it is not restricted just to the Russell Group achieving the highest sums and Post-92 group receiving the least. Despite having the same number of members as the Russell Group (n = 24), the Plate Glass group of universities also receive comparatively lower proportions of funding; GBP 300 million (7%) for 1345 projects (8%) by the NERC, and GBP 380 million or 6.5% of the BBSRC's awards. This suggests that Russell Group universities are disproportionately favoured for funding across all funding bodies. This is a trend that appears to stem from a previously identified flawed process, and this is despite there only being 24 universities in that group compared to 131 non-Russell Group universities, and many hundreds more 'other RKE institutions'.

6.4. Funding Success Rate

To provide context to the decision-making, it is important to consider success rates of UKRI research project applications. One might assume that the Russell Group universities receive more funding because they are more research-intensive and submit a higher volume of applications compared to other groups, leading to larger absolute values in the analysis. This results in generating higher absolute values within the analysis. Therefore, a further analysis was carried out for the period 2015 to 2023 to identify number and value of projects applied for and success ratios (Table 4). Data are obtained from different UKRI databases, and the data are available only from 2015, not 2005. While annual figures varied slightly, the differences were not significant. Therefore, the 2020–2021 funding year, which is representative of average funding levels during the period, was selected for closer examination. As Table 4 shows, in 2020–2021, for example, 21% of Research and Innovation Grant projects that were applied for were successful. This 21% of the total number of projects proposed represented 28% of the 'value of total funding requested'. This compares with a 26–30% average for 2015–2023. There were many more applications for Research and Innovation grants than Fellowship awards, so they have been categorized separately, although success rates do not differ greatly.

Table 4. Award rates (number and value %) of UKRI funded research by category (2015–2023).

	2015–2023 (%)		2020–2021 (%)	
	Successful Project Bids	**Value of Total Funding Requested That Was Awarded**	**Successful Project Bids**	**Value of Total Funding Requested That Was Awarded**
Research and Innovation Grant	26	30	21	28
Fellowship	23	19	22	21
Total	25	28	21	27

The individual funders were also analysed for the period 2020–2021 (Table 5).

Table 5. Award rates (number and value) of UKRI funded research by funder (2020–2021).

Funder	2020–2021 (%)	
	Successful Project Bids	**Value of Total Funding Requested That Was Awarded**
EPSRC	36	37
Innovate UK	14	25
MRC	17	20
BBSRC	31	30
NERC	21	19
ESRC	19	21
STFC	72	54
AHRC	26	26
UKRI Other	32	23
NC3Rs *	n/a	n/a

* NC3Rs value of awards only 0.2% of all UKRI funding.

Further analysis was carried out to correlate application success rates against their relevant University group (Table 6).

Table 6. Research and Innovation Grant Success by Group (2020–2021).

Group	2020–2021 (%)	
	Successful Project Bids	**Value of Total Funding Requested That Was Awarded**
Russell Group	31	31
Plate Glass	28	27
Post-92	17	15
Other Universities	26	34
Other Institutions	26	27

As Table 6 shows, the Russell Group achieved more than double the success rate for the value of their funding applications (31%) compared to Post-92 universities (15%). The success rates for other groups are also consistently lower than those of the Russell Group, except the "Other universities" category. However, as highlighted in Table 3, "Other Universities" account for only 3.8% of UKRI funding, a stark contrast to the 52.6% received by the Russell Group. While the Russell Group might be more research-intensive, submit more applications, and have more (economic and human) resources to support bids (especially larger bids), they receive more positive outcomes for their bids from UKRI.

The results highlight a clear dominance of Russell Group universities in securing research funding. All top 20 institutions receiving funding for the highest number of projects are members of the Russell Group. Furthermore, when considering the total value of funding awarded, only one institution outside the Russell Group appears in the top 20. This indicates the group's strong position in both the volume and value of funded projects.

6.5. Funding Relative to EDI

There are means by which UKRI can measure EDI within their funding, approached in a calculated and systematic way. Work has been published [24] that includes tools and metrics to measure the content of an EDI strategy. Regarding equality, Hao and Naiman [25] propose measurement via Probability Density Functions (PDF), Cumulative Distribution Function (CDF), quartile function, and Lorenz Curves. Percentile shares have become a popular approach for analysing distributional inequalities. For examples, Piketty [26] and Jann [27] have developed the analysis of percentile shares using STADA software. Arcia et al. [28] have developed ADePT software that can be applied to education EDI indicators, such as education expenditures or school progression, which can be adapted for UKRI funding. Other work by Broer et al. [29] examined changes in inequality of education outcomes over a 20-year period, analysing trends in different socioeconomic groups. In addition, several authors have used Lorenz curves and Gini Index to measure inequalities in education systems. Thomas [30], in policy research for the World Bank, has proposed two methods (direct and indirect) for calculating an education Gini index that is currently applied to 85 countries. Digdowiseiso [31] used the direct method focused on estimating the Gini coefficients and the indirect method applied to formulating Lorenz curves; whilst Wörner [32] measures performance within Chile's unbalanced university system, providing insights into systemic disparities. More importantly, it is observed in its own report [33] that ESRC (effectively UKRI itself) use Gini coefficients to internally analyse "key information on the distributions of research applications and funding among Research Organisations (ROs)" during the period 2011–2017.

The Lorenz curve and the Gini Index are widely used to measure wealth inequalities in countries or regions, but their application can also be used to specific groups such as companies, organisations, and institutions. In such cases, the economic unit is usually the worker, and the defining variable is the salary measured in monetary units. This approach can be extended to other entities, such as individual universities or groups of universities that exist in a country, using their budgets as the defining variable. In the context of this paper, these units represent the groups of universities, with the defining variable being the research funding received by each university. By applying this approach, it becomes possible to analyse funding inequalities both within and across university groups, offering a broader perspective on the disparities existing in allocation of UKRI research funding.

For considerations of diversity, Budescu and Budescu [34] review three popular approaches; one, based on a simplistic majority-minority; two, using multiple categories variants; and three, a generalised variance and an entropy statistic approach. Other proposals for measuring diversity are found in a handbook of workplace diversity by Harrison and Sin [35] and a conceptual guide published by Roswell et al. [36]. This work also uses Gini coefficients to analyse diversity.

The analysis of inclusion is more difficult as it relies on information that may not be readily available or easy to obtain. To measure inclusion, there are indicators focused on social dimensions. As proposed by Atkinson et al. [37], inclusion can be measured in terms of progress over time. More recently, Jaegler [38] has proposed a new tool, which generates a rating that measures the level of inclusion of all stakeholders in higher education.

After carefully considering the different measures and reasons mentioned above, this paper has adapted the Gini index for equality and diversity. To measure levels of 'inclusivity', the authors have calculated the number of institutions that have been funded (i.e., considered/included for funding). According to Hasell [39], the Gini Index (GI) measures inequality as a percentage from 0 to 100%. A value of 0 indicates perfect equality, where everyone has the same income. A value of 100 indicates perfect inequality, where one person receives all the income, and everyone else receives nothing. The results of this analysis are presented in Table 7, with the results sorted in order of the funding body that has met EDI most effectively using these metrics. So, for example, AHRC has a GI of 29.52, which is the closest score (out of all) to perfect equality rating of 0, and MRC has a GI rating of 52.91 for diversity which is closest to the most unequal outcome of 100.

Table 7. Measurement of EDI for Funding Bodies Based on Award of Funding for Projects (2005–2023).

Funder	Equality: By Everyone, for Everyone Gini INDEX (GI) GBP	Diversity: Through Funding Gini Index (GI) (No. of Projects)	Inclusion: Valued Participation, and Contribution No. of Institutions Funded
Innovate UK	30.72	2.97	1224
AHRC	29.52	25.04	118
NERC	41.2	37.05	121
ESRC	43.58	38.4	88
STFC	46.54	41.05	64
NC3Rs	47.24	45.34	28
BBSRC	47.57	45.03	79
EPSRC	48.58	45.23	88
UKRI Other	49.1	46.91	73
MRC	54.34	52.91	74

The results show that Innovate UK is the funding body which better performs in terms of Diversity and Inclusion. In terms of the latter, they show wider distribution of funding across institutions, but this may possibly be because this fund focusses more on companies. Due to this reason, if Innovate UK is excluded, the findings show that AHRC performs slightly better in terms of all components of EDI principles, due to their lower equality and diversity scores and higher inclusivity score. MRC scores the lowest in both equality and diversity. Thus, they have more to do in terms of achieving UKRI's EDI strategy. Having said that, all the others show only marginally better equality and diversity scores, indicating that significant improvement is needed across all funding bodies (and overall UKRI). Furthermore, given that there are 155 universities (Table 1), and the inclusion figures in Table 7 additionally consider many hundreds of 'Other RKE institutions', all funders face a substantial challenge in enhancing the level of inclusivity within their funding decisions.

6.6. Null Hypothesis and Comparative Testing

The UKRI data analysis from 2005 to 2023 shows very clearly that Russell Group universities received a disproportionate amount of research funding: 53% of the total funding and 55% of the awarded projects (Table 3). In contrast, Post-92 universities, despite making up over half of all universities in the dataset, have received only 2% of the total funding and 4% of the projects (Table 3). This immediately suggests that funding does not appear evenly distributed across all groups. Thus, a null hypothesis testing was carried out to check whether there is 'no significant correlation/bias between UKRI funding allocations and type of University'. A *t*-test paired comparison was performed on the datasets given in Table 3. The results are given in Table 8.

Table 8. Null Hypothesis testing.

Variable 1 Funding/Projects Allocated to Type of University	*t*-Test Paired Comparison (*p*-Value)	
	Variable 2: Overall Funding	Variable 2: Overall Projects
Russell Group	0.03554	0.03363
Plate Glass	0.17917	0.1684
Post-92	0.10616	0.088

For the Russell Group, because the *p*-values are less than the standard significance level of 0.05, the null hypothesis is rejected. This means that there is a significant correlation/bias between UKRI funding allocation and Russell Group universities. On the other hand, the null hypothesis is accepted for Post-92 and Plate Glass universities, indicating that there is no significant correlation/bias between UKRI funding allocation to these universities.

During the comparative analysis, when aligning funding allocation patterns with other performance indicators, it is evident that the Russell Group's funding success through its

research intensity and historical reputation justifies its standing at the top of national and global University rankings (Table 9).

Table 9. Type of Universities in the Top positions in The Guardian, REF and THE Rankings.

University Type	Guardian		REF		THE	
	No.	%	No.	%	No.	%
Top 20:						
Russell Group	13	65%	16	80%	19	95%
Plate Glass	5	25%	1	5%	1	5%
Post-92	1	5%	0	0%	0	0
Other	1	5%	3	15%	0	0
Top 10:						
Russell Group	7	70%	9	90%	10	100%
Plate Glass	2	20%	0	0%	0	0%
Post-92	0	0%	0	0%	0	0
Other	1	10%	1	10%	0	0

Research funding significantly influences these rankings as highlighted below:

- Expenditure per student (Guardian rankings) is directly impacted by availability of funds. Institutions with higher research income can provide better facilities, technologies and learning resources. This, in turn, increases spending, whilst increasing student satisfaction.
- Career prospects and value addition (Guardian rankings) indirectly link to an institution's prestige and the opportunities that a well-funded institution provides. Graduates from elite/prestigious universities from the Russell Group inherit strong networks, receive better career advice and wider connections with employers.
- For REF rankings, research income has a direct correlation to conducting high-quality research, improving research infrastructure, and creating better research environments that produce world-leading, high impact outputs.
- For THE Rankings, research volume and funding correlate with research strength and influence. The higher funding allocations for Russell Group universities attract top academic talents, and allow them to invest in better research infrastructure, and improve citation impacts.

These show that research funding heavily influences various aspects of a university's performance, rankings and reputation. The above comparative analysis and Russell Group's significantly higher funding success rate (i.e., approximately double that of Post-92 universities) suggest that Russell Group institutions are far more likely to receive financial support from UKRI. Since these universities already have significant resources, this pattern of funding allocation continues to benefit them disproportionately, giving them more advantages. Our analysis resonates with evidence from others. Jerrim and de Vries [40] have identified bias in the peer-review system, particularly through the ability for bidders to nominate reviewers, in their examination of ESRC funding proposals. There is inconsistency between these nominated reviews (59% give the highest score available) and independent reviews (17% give the highest score available). These reviewer scores impact likelihood of funding. Jerrim and de Vries [40] use publicly available ESRC data to show that for the Russell Group universities–the probability of funding based on the score awarded by the nominated reviewer is higher (0.93) than for any other university group. For what they call the 'new universities' [40], the score is 0.34. There is additional evidence to suggest a 'halo effect' in Russell Group research impact submissions [41], impact being a key consideration in funding bid assessment.

This is a situation that supports the belief that the Matthew Effect [42] is operating, where those already advantaged accrue more advantage, leading to the perpetuation of the same winners and losers in the current UKRI funding system. Those who are not already successful appear to have a limited chance for future success. As Boeren [1] identifies, in a study of research income and research excellence measured for the UK Research Excellence Framework (REF) 2021, there are "notions of vicious circles that are difficult to break".

All the above thus suggest that there is some bias in favor of Russell Group universities in UKRI funding distribution.

7. Discussion

UKRI Funding Allocations: Redressing the EDI Gaps

The analysis shows, in multiple ways, that a bigger proportion of the funding goes to Russell Group Universities. The data consistently highlights that there is lack of EDI both in terms of funding allocation and number of projects awarded across university groups, and especially in the case of Post-92 Universities. These universities, as identified by measurements such as social inclusion within university rankings [6], contribute to greater equality of opportunities for student populations and reduce the impact of economic discrimination. Reduced UKRI funding can create a challenging situation for Post-92 universities in securing external funding from other sources, as potential collaborators and funders consider a University's track record in attracting grants as evidence of experience and suitability, creating a vicious catch-22 situation of limited funding opportunities. Further, if post-92 universities keep on struggling to secure funding, they may fail to attract and retain research-focused academics, which will make it difficult to build and sustain a research profile.

Notwithstanding the above, UKRI has created a working group to implement a plan to align the institutions with their EDI strategy. The UKRI Workforce Equality, Diversity and Inclusion Plan 2022 to 2026 [43] identifies "how we will build a more inclusive culture at UKRI, to offer opportunity for all, and to develop the diversity of people and thought we need to be a world-class organisation". This is a positive development, and they note how their plan meets and exceeds the legislative requirement of their Public Sector Equality Duty. Despite this, when analysing the priorities of the UKRI working group43]), there is still a lack of planning to address the under-representation of some groups within their funding allocation.

On another note, the UKRI Strategies Priorities Fund [44] aims to increase high-quality multidisciplinary and interdisciplinary research and innovation; and ensure UKRI investment links up effectively with government research and innovation priorities. It is evident that there is a mismatch between current UKRI funding allocation under these aims and their EDI strategy of 'by everyone, for everyone'. There are no specific priorities and measures aimed at redressing the restrictions placed on research, through a lack of funding, for the research communities within Post-92 universities.

8. Conclusions and Recommendations

The analysis carried out in this paper shows a clear disparity in UKRI funding allocations. Since the funding analysis was carried out for the period of 2005–2023 (18 years), it is also evident that the differences in funding allocation have not significantly changed over the last decades. If this trend continues, the poorer resource settings (i.e., Post-92 universities) will always remain poor. Lower research income will have a cascading effect on various aspects of university operations, potentially impacting on the Research Excellence Framework (REF) ranking and position in other national/global league tables, which will in turn have a damaging effect on attracting high-calibre students and academics to their research and teaching programmes (Figure 10).

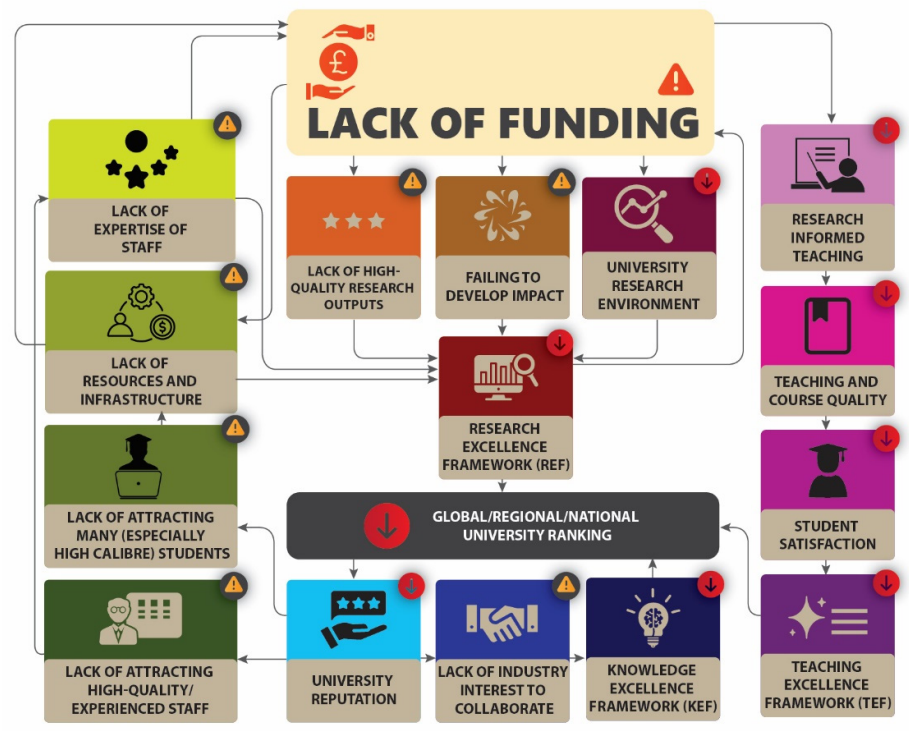

Figure 10. Cascading effect of lack of funding.

There are a number of other challenges in not attracting sufficient research funding: in engaging in or conducting impactful research (one of the criteria for REF assessment); in producing high quality outputs that have a significant knowledge contribution (another criteria for REF assessment); and in recruiting and retaining high-calibre academics/researchers, which will impact on research environment (another criteria for REF assessment). Less funding leads to issues for teaching quality, resources, and overall student experience (criteria in Guardian rankings). In underfunded institutions, there is a diminishing visibility of academics and consequently, the overall reputation of the university falls. This will also lead to reduced interdisciplinary collaborations, international partnerships and as a result, reducing the university's ability to engage in research at a global scale (which impacts on QS or THE rankings). There will be a lack of investment in research infrastructure and facilities, which can hinder the ability to perform cutting-edge research. Similarly, a lack of funding will hinder a university's ability to engage in knowledge transfer activities and contribute to innovation.

Although UKRI have a robust EDI strategy, the analysis of this paper showed that all the funding bodies that come under UKRI have considerable opportunity for improvement in achieving equality, diversity, and inclusivity within their funding programmes. As of now, the majority of the funding goes to Russell group universities (with the exception of 'Innovate UK'). This is not remarkable given their long-standing status in research. They attract high-quality staff/researchers; they have a good reputation, which attracts more collaborations; they have better laboratories and facilities; they have more resources to support research bid writing, thus, it is not surprising that their track record of winning research grants is high compared to groups such as the Post-92 universities. Boliver [4] notes that many of the older and Russell Group universities position themselves as 'research-intensive', whereas Post-92 institutions have used terms such as 'teaching-led' when describing their activities. Thus, UKRI could, and should, be doing more to address this situation, and give more opportunities to a more diverse group of organisations and the people within them.

As Degl'Innocenti et al. [45] highlight, universities are heterogeneous bodies, with differing strengths, assets, and institutional compositions. Yet the results of this research

show a clear pattern in the resources/funding allocations to one relatively small group of elite institutions. Overall, if UK universities and their related teaching and research activities are to be sustained and to withstand and respond to global challenges, the other groups of Universities need to exist and evolve (as research-intensive). Since UKRI is a public entity that coordinates research and innovation activities across various sectors, including higher education in the UK, they have a key role in achieving the above. UKRI was heavily criticised by Woolston [46] in the wake of Brexit amidst changes to established funding programmes that suggested the "UKRI funding scheme is being made up as we go along". Thus, it is high time that UK government and UKRI had a look at their funding strategies to make it more equal to all, and to stand by UKRI's broader EDI aim [12], to "foster a research and innovation system by everyone, for everyone".

Based on the evidence collected and the knowledge that measures to potentially redress the inequalities of funding are currently limited in use or not employed at all by UKRI, this paper puts forward the following recommendations to address the key challenges and gaps existing in the current funding environment:

(1) Changing UKRI Equality, Diversity and Inclusion strategy to Equity, Diversity and Inclusion strategy, according to University College London's 'Our understanding of EDI' [47];

Equality and Equity are both concepts that relate to fairness, but they are different. Equality assumes the objective is to treat everyone the same regardless of their starting point or their needs. A key shortcoming of this approach is that it can be blind to the historical and structural disadvantages of different members in our communities and in doing so can perpetuate disparities. Equity on the other hand gives strong consideration to the different starting points for different individuals and therefore aims to achieve fairness by providing resources according to need. Equity acknowledges the historical, systemic and structural disadvantages that different cultural and social groups may have been subjected to and strives to reduce barriers.

(2) Equity is, therefore, what UKRI should include if they are to give strong consideration to different standards of proposals, by considering different starting points from different universities/groups.
(3) Development of a fairer scoring criteria that is transparent and reflects the aforementioned equity principles. Transparency will help Universities in understanding what is expected in different funding calls and how decisions are made when allocating funding (especially large grants).
(4) Development of targeted support funding programmes for less-resource intensive Universities, e.g., specific grants aimed for these universities.
(5) Diverse representation in decision-making (when allocating funding) within UKRI to ensure variety of perspectives and experiences.
(6) Development of different funding models to accommodate diverse needs and strengths of less-resource intensive Universities, e.g., flexible funding structures adopted by EU funding bodies; allowing mandatory collaborations between Russell group and less-resource intensive Universities. Regarding the former, there is an emphasis on inclusivity across various EU funding programs, aiming to support researchers from diverse backgrounds and regions. Efforts are made to ensure a fair distribution of funding across member states and to support research excellence irrespective of geographic location.
(7) Ensure sustained, long-term commitment to promote equity in funding, which will result in lasting change and systemic inequalities, in the long run.
(8) Establish mechanisms; to understand less resource intensive university challenges; and to provide in-depth feedback when they fail in funding.
(9) Consider an element of randomisation funding. Not only would this remove potential unconscious bias in funding decisions and increase diversity among winning bids, but would reduce the time and cost of assessing funding applications, and encourage greater innovation over more conservative, previously successful strategies [48].

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