Funding distribution

This analysis summarises key information on the distributions of ESRC research applications and funding among Research Organisations (ROs).

We are sharing it externally to invite comment, discussion and further analysis. Our aim is to use its conclusions to help us to work effectively with Research Organisations on future demand management and research strategy.

If you have any questions or comments about this analysis please contact the head of ESRC's Insights team, alex.hulkes@esrc.ac.uk, or telephone 01793 413039.

Key findings

Most ROs apply for ESRC funding very infrequently, with the median number of applications per year in each of the last six years usually being two or three, and the mode one in all years.

In a typical year about half of applicant ROs receive an award, and we issue grants to between 60 and 100 ROs.

While more frequent applicant ROs are a small minority of all applicant ROs, they account for a substantial proportion of the total volume of proposals received, decisions made and funding awarded. Associated Gini coefficients confirm a high degree of funding concentration within ROs.

Each year about half the decisions made relate to around 20 ROs, though the composition of this group varies year on year. Only a few ROs are consistently in the top 10 applicant organisations. The composition of this top 10 also varies, and the top 30 sees a great deal of flux.

Overview[1]

Over the six financial years 2011-12 to 2016-17 ESRC made decisions on research and Fellowship grants which between them requested £3.4 billion of funding. We awarded grants totalling £880 million in that period. 428 unique ROs submitted grant applications as lead organisations, of which 141 (33%) received at least one award.

The median number of decisions per RO per year is usually either 2 or 3:

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Median number of decisions in year	2	3	2	2	5	3

The number of applicant ROs having decisions made on at least one proposal, and receiving at least one award, varies by year:

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Number of applicant ROs	214	155	165	221	153	157
Number of successful ROs	77	97	84	94	63	68

Figure 1 shows the proportion of applicant ROs having a decision made in each financial year that receive at least one award:

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[1] This analysis uses the data available at http://www.esrc.ac.uk/about-us/performance-information/application-and-award-data/

Each year about half of applicant ROs are successful at least once
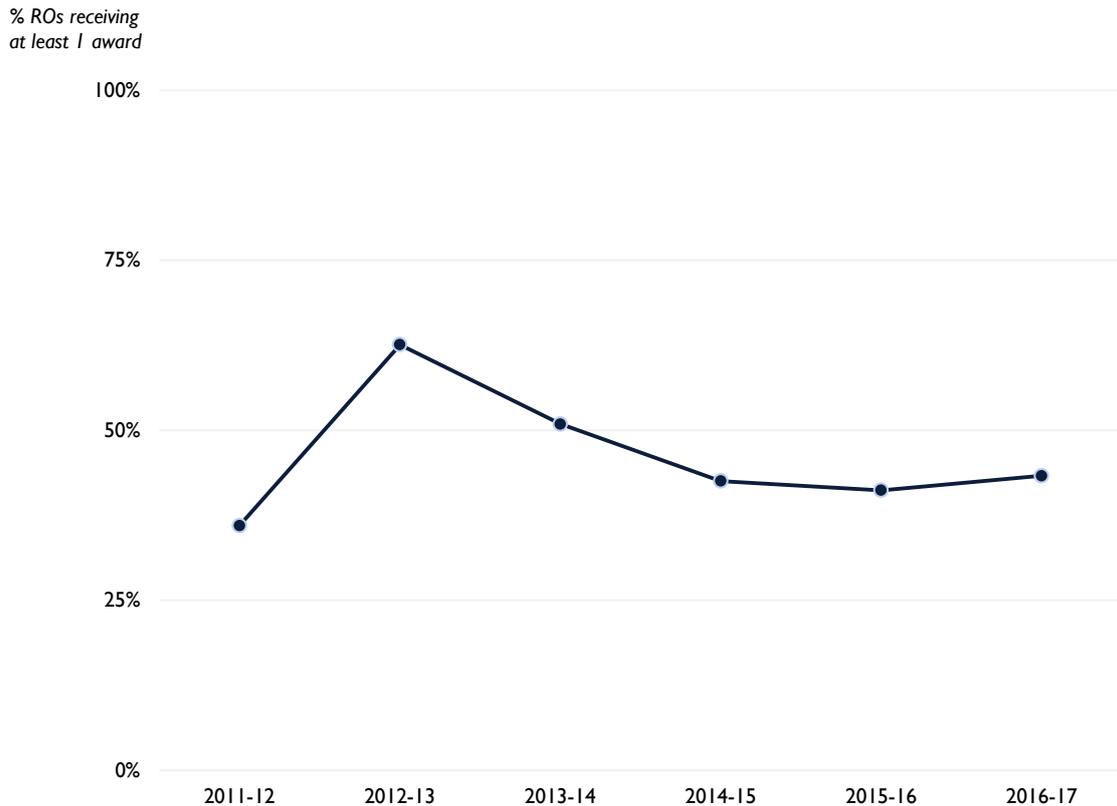
*% ROs receiving
at least 1 award*

Figure 1:   proportion of applicant organisations receiving at least one award in financial years 2011-12 to 2016-17.

Over the last six financial years around half of all applicant ROs in a given year will have received at least one award, though in recent years this figure has stabilised at something closer to 40%.

Across the 428 ROs who applied at least once in the six-year period, there were 1065 application years (that is, years in which an RO submitted one or more applications.)

In that period, the most common pattern of application behaviour was for an RO to apply just once in a year (Figure 2):

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The most common number of decisions per year for any RO is 1
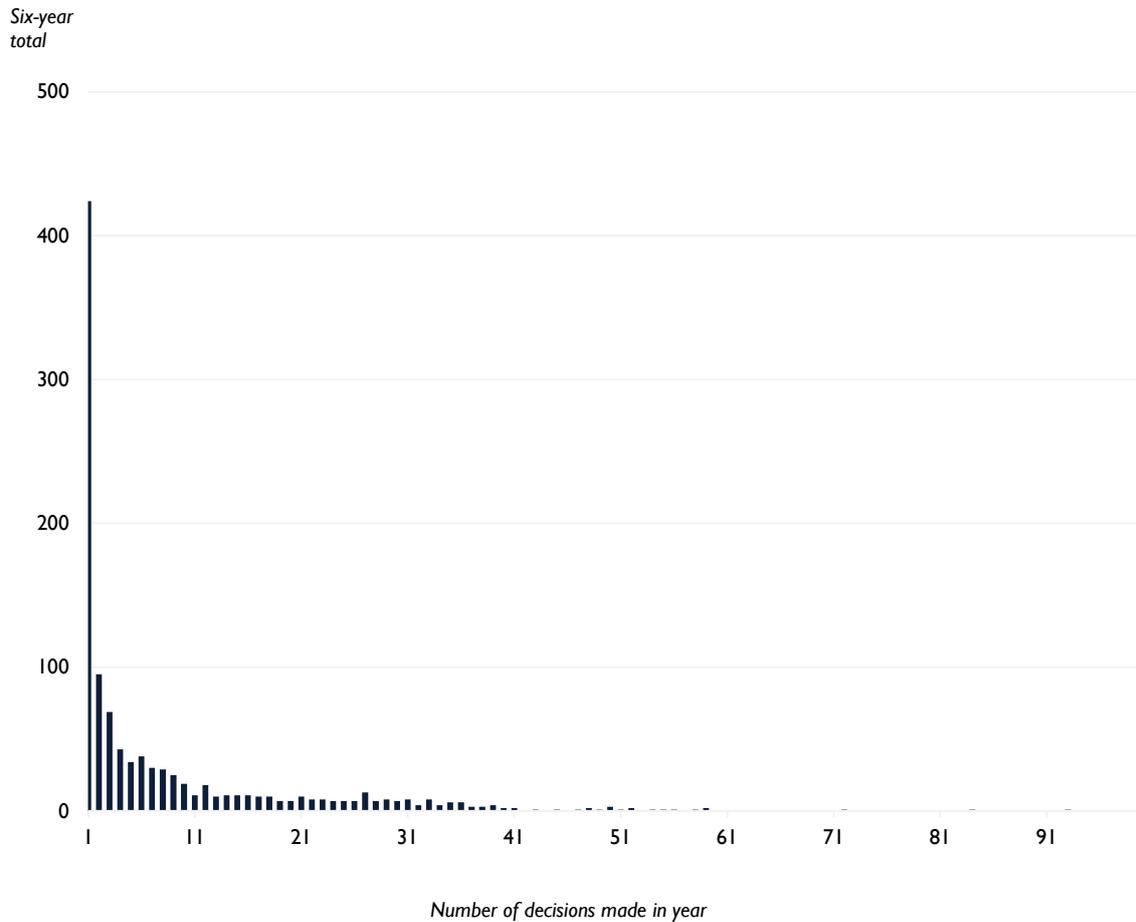
Six-year total

Figure 2: distribution of applications per application year across all ROs applying in financial years 2011/2012 to 2016/2017.

There were more than 400 RO application years where the RO applied just once, while the maximum number of applications in any one year was 93. It is unusual to find any RO applying more than 40 times in any one year. More frequent applicant ROs are very much in the minority.

This pattern of behaviour leads to a stable pattern in the distribution of demand in any given year. If the number of applications from an RO in each year is n, then up to about $n = 30$ the cumulative proportion of demand in that year is proportional to n (Figure 3):
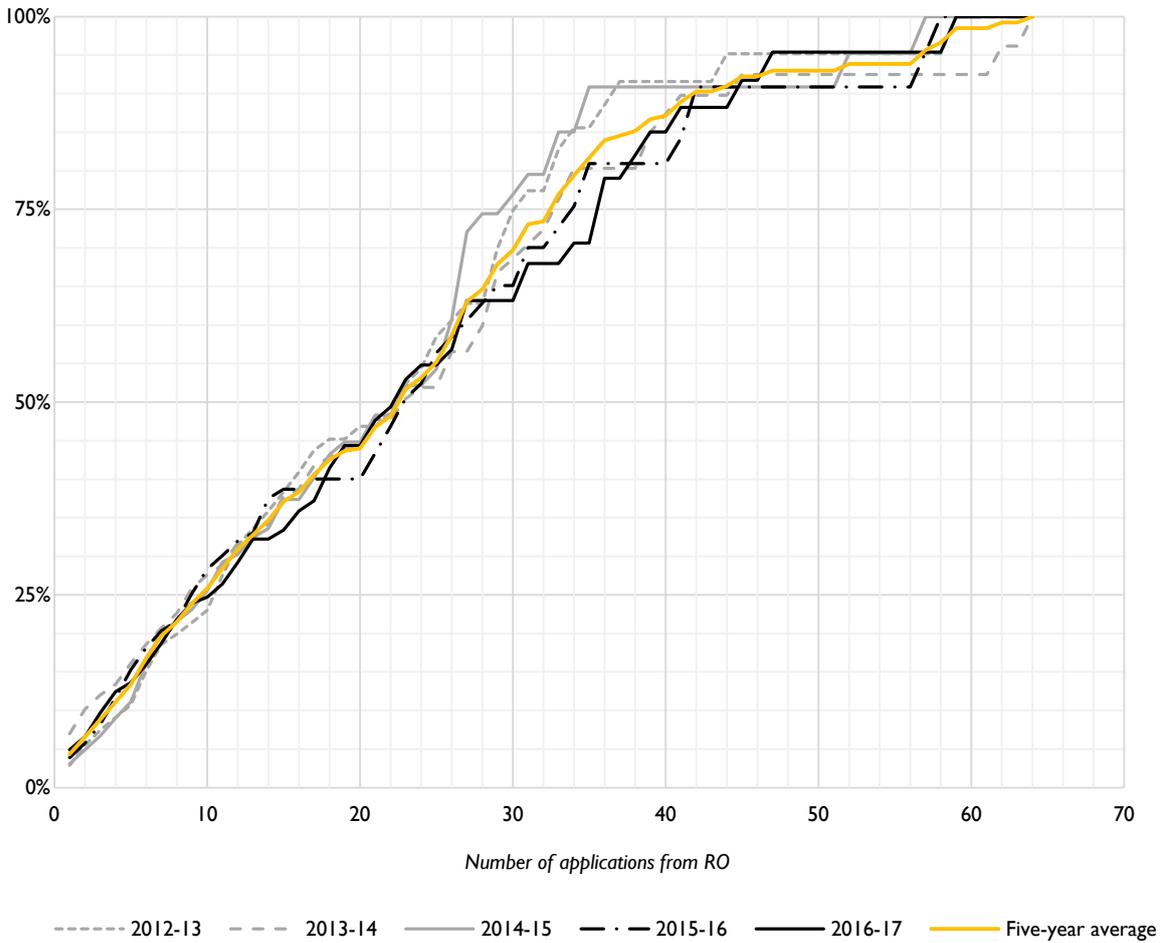
Figure 3:   relationship between number of applications, *n* and the cumulative demand arising from ROs making up to *n* applications in financial years 2012-13 to 2016-17. The average of the last five years' figures is also shown (yellow).

On average, in any given year ROs applying between once and ten times a year account for around 25% of decisions; those applying between 11 and 20 times account for around an additional 25% of decisions; and those applying between 21 and 30 times account for a further 25% of decisions. The remaining ROs, applying more than about 30 times a year, will be the subject of the remaining 25% of decisions.

To look at it another way: about half of all demand for ESRC funding comes from ROs applying up to 20 times per year, and half comes from those applying more than 20 times a year. The actual identities of these ROs will change year to year.

Distribution of funding requests and awards

Figure 4 shows the distribution of requests for funding, by total value for each RO, in each of the last six financial years:

Funding requests to ESRC are quite concentrated

% of all funding requested (y-axis)

% of all ROs requesting funding (x-axis)

Legend:
- 2011-12, 0.58
- 2012-13, 0.72
- 2013-14, 0.79
- 2014-15, 0.68
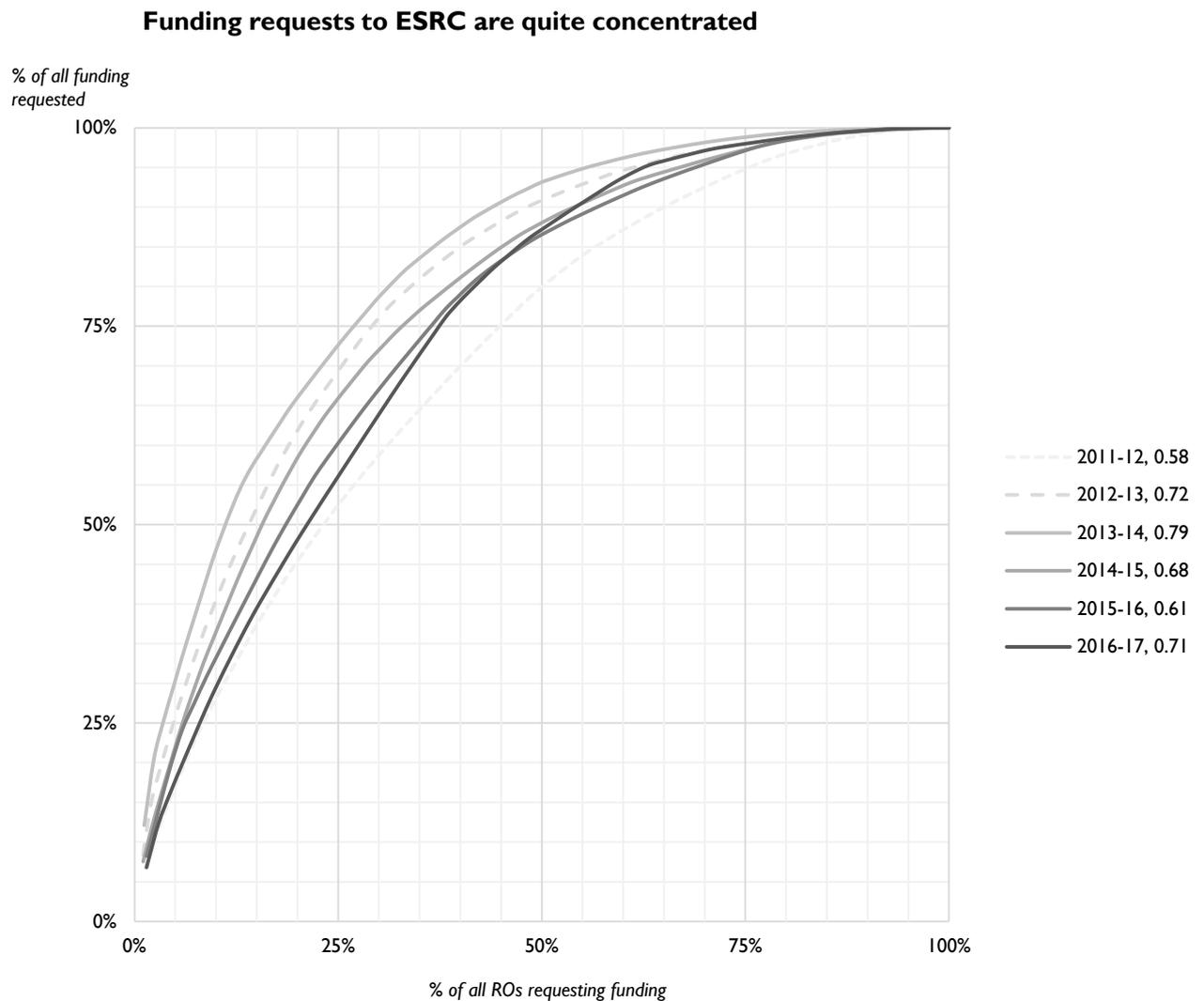- 2015-16, 0.61
- 2016-17, 0.71

Figure 4: distribution of funding requests to ESRC, 2011-12 to 2016-17. x-axis shows ROs ranked by total size of funding requested in each year, highest to lowest. Gini coefficients for each year are in the legend.

Gini coefficients provide a simple summary of the concentration of, or inequality in, requests for funding each year. Coefficients are quite high, ranging from 0.58 to 0.79.

The majority of demand comes from a relatively small fraction of ROs. As a rule of thumb, in any one year the top 15% to 20% (by value) of ROs applying in that year will request around 50% of the funding between them. 80% of funding will be requested by 30% to 40% of ROs and the most resource-hungry 50% of applicant ROs will request around 90% of the total.

The minimum number of ROs required to account for at least half of all funding decisions may be declining each year (Figure 5):
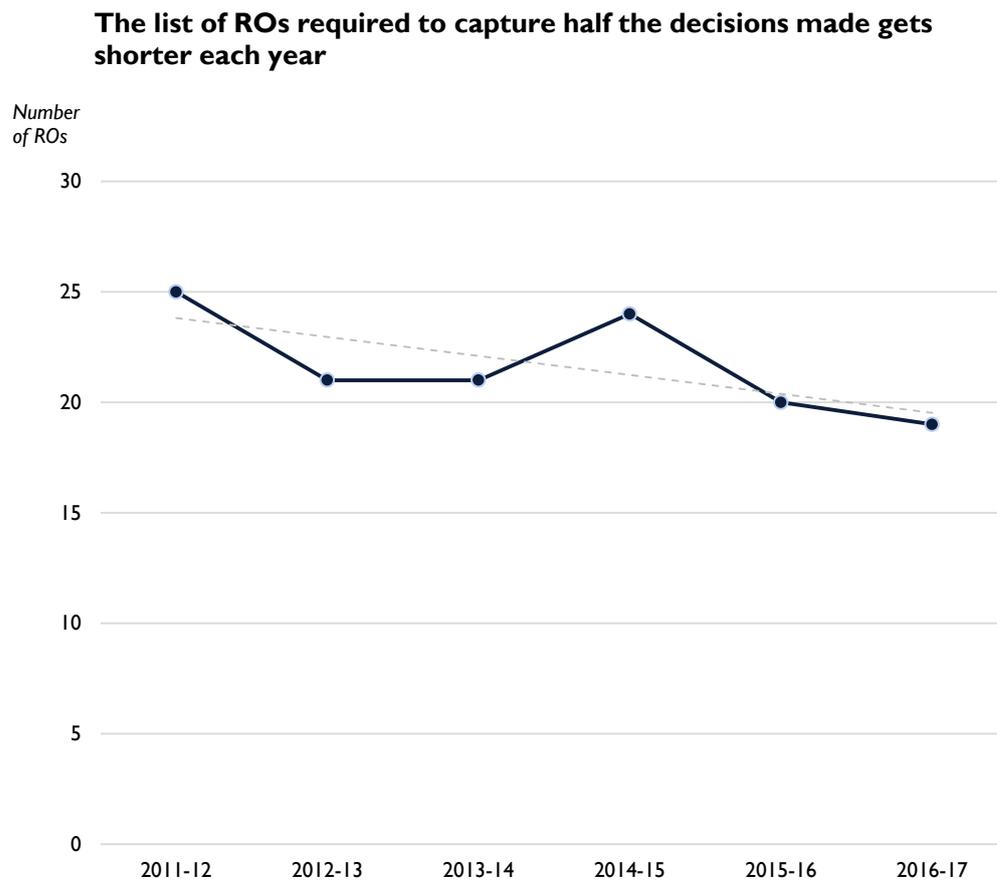
The list of ROs required to capture half the decisions made gets shorter each year

Figure 5:   minimum number of ROs required to capture at least half of the funding decisions made in financial years 2011-12 to 2016-17. R^2 = 0.47, slope = -0.85 (95% CI is -2.1 to 0.4, p = .13)

While there appears to be a trend, with a decrease of nearly one RO per year in the '50% list' over the last six years, it is not certain that this is real. The shortening of the list is best viewed as an observed fact rather than a meaningful pattern at this stage.

Figure 6 is similar to Figure 4 but shows the distribution of awards actually made across ROs:

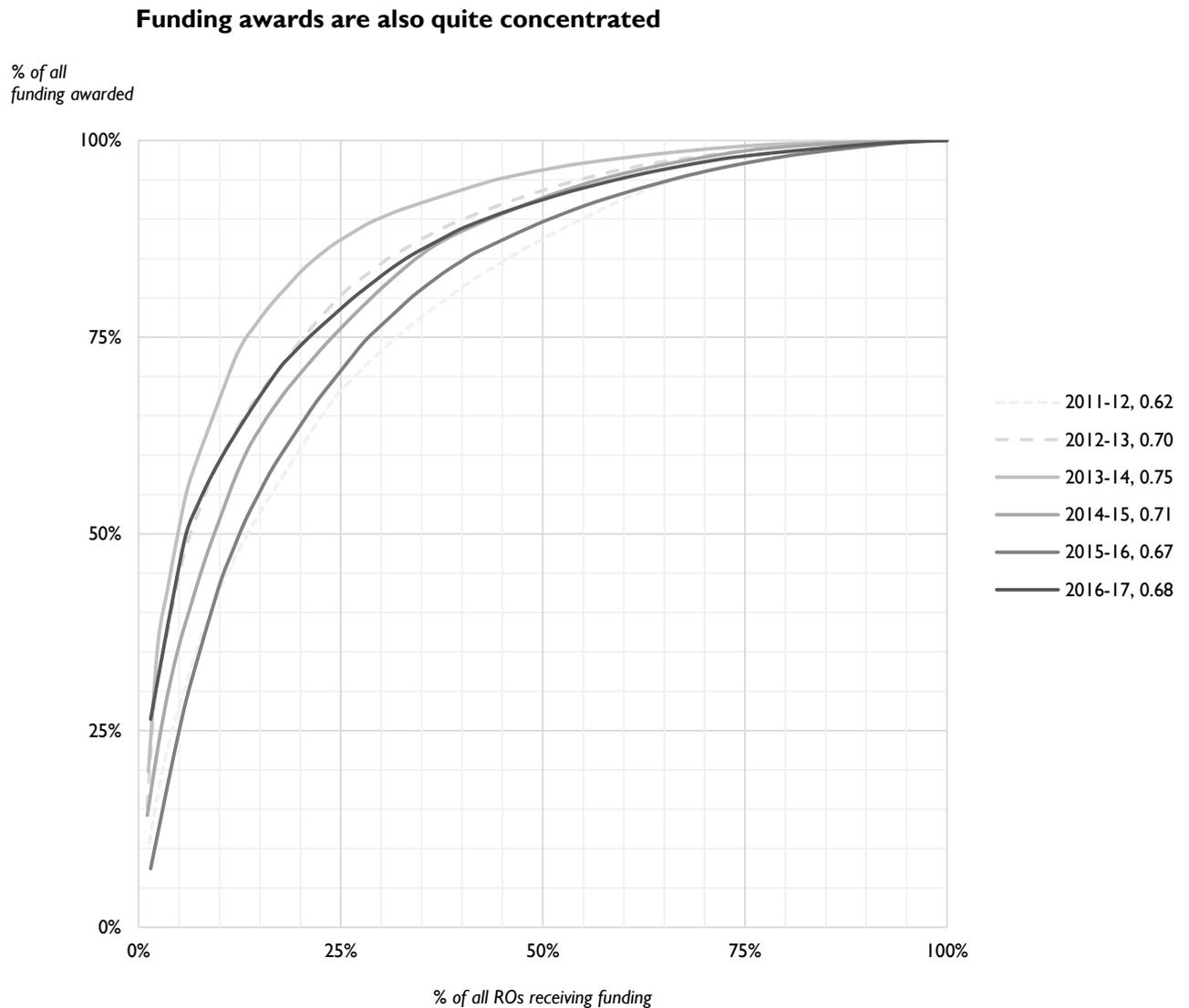**Funding awards are also quite concentrated**

Figure 6:　distribution of funding awards by ESRC, 2011-12 to 2016-17. x-axis shows ROs ranked by total size of funding awarded in each year, highest to lowest. Gini coefficients for each year are in the legend.

Based on their annual Gini coefficients, awards made are as concentrated as the applications which lead to them, though with some year-on-year variability. We see something like a 10%-50%, 75%-20%, 90%-50% 'rule' for funding across ROs. A small minority of ROs receive the majority of funding.

The top 10

The following two figures show the ranks, in the five financial years 2011-12 to 2016-17, of those organisations which made up the top 10 applicant organisations in 2016-17, by both number (Figure 7) and value (Figure 8) of proposals.

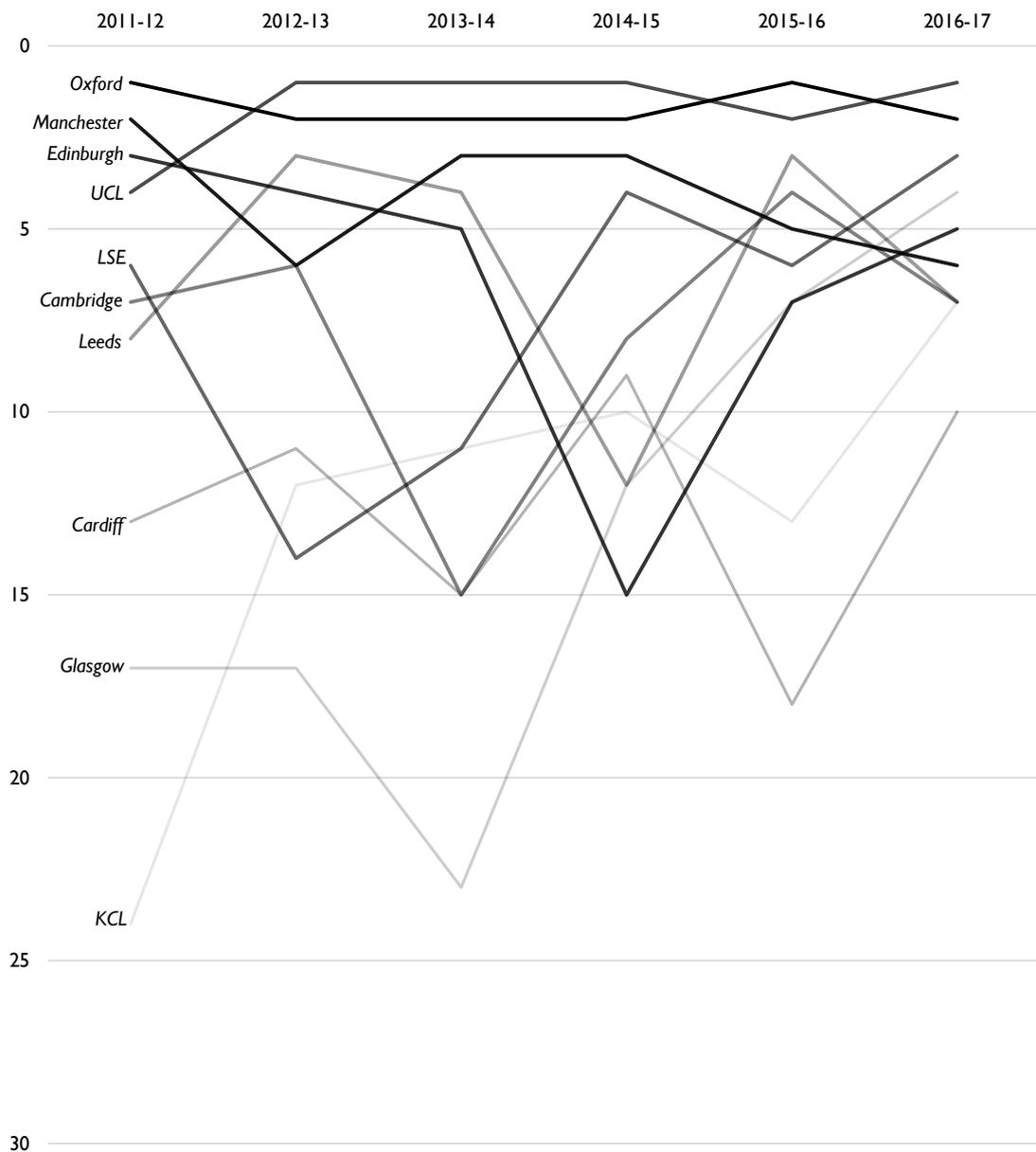**The 'top 10 applicant organisations by number' changes every year**

Figure 7: 2011-12 to 2016-17 rankings of the top 10 applicant organisations by number, for those ROs in the top 10 in 2016-17

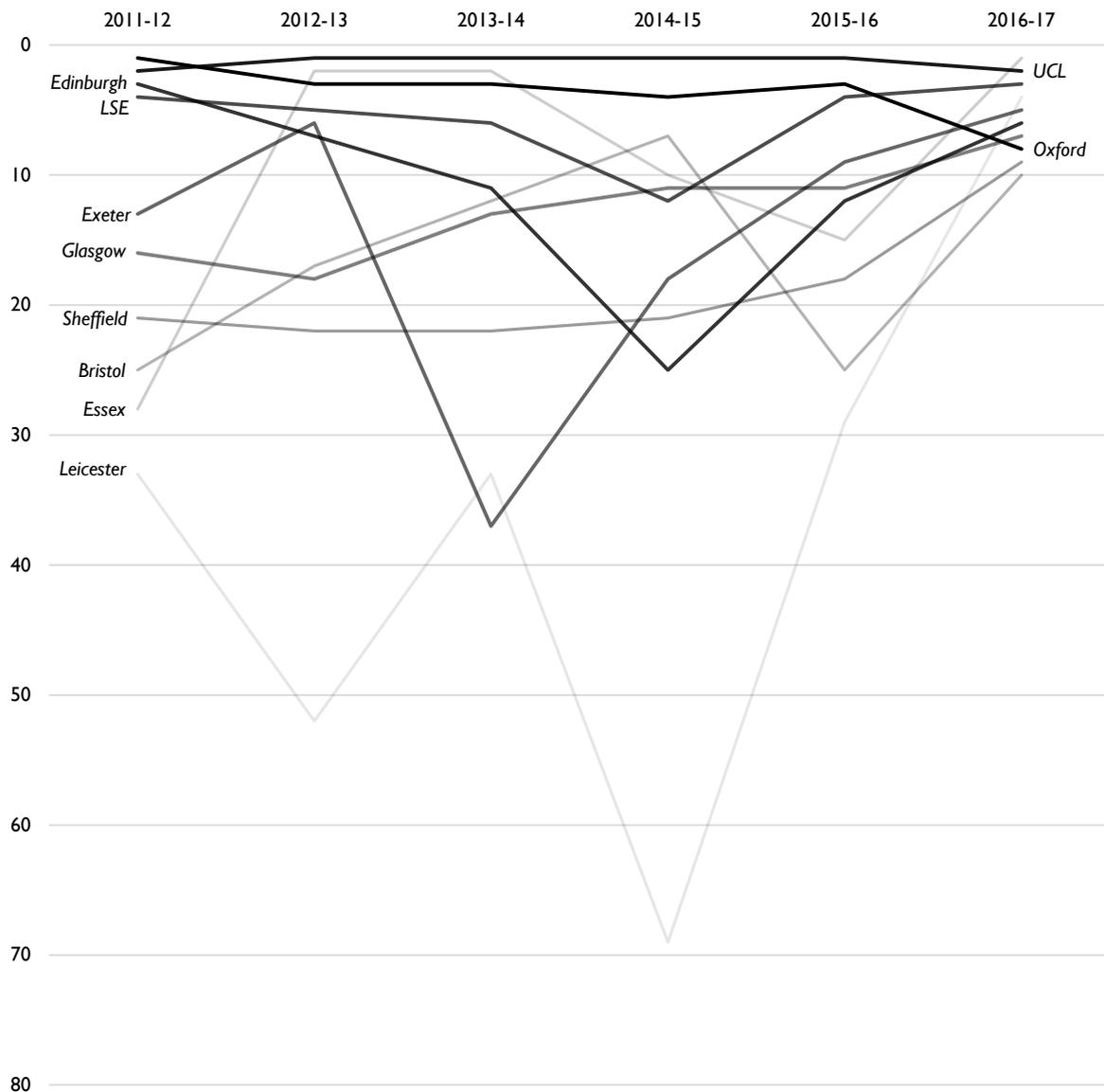**The 'top 10 applicant organisations by value' changes every year**

Figure 8:   2011-12 to 2016-17 rankings of the top 10 applicant organisations by value, for those ROs in the top 10 in 2016-17

While a handful of ROs have a consistently high ranking, in general the orderings change considerably across the years. There is no such thing as *the* most frequent applicant, but there are some ROs which tend to apply for funding more frequently than others, and there are some ROs that tend to ask for more funding than others.

Conclusions

The availability of ESRC funding provokes a wide range of application behaviours. Many ROs apply intermittently, perhaps just a couple of times per year and then not every year. Some are more frequent fliers, but even then there is not much stability in the rankings of the most frequent applicants or most resource-hungry ROs.

Despite the fact that for most ROs the relationship with ESRC is more transactional than strategic there is regularity in the picture. Less frequent applicants are more numerous and account for the same proportion of proposals as do (much more rare) frequent applicants. And it looks like ROs applying more than 30 times a year or so are unusual in this respect – ultra-rare and ultra-concentrating.

In any one year, around half the ROs which submit an application will receive funding. Few of those that apply more than once go away empty handed and up to 100 ROs will receive an ESRC grant each year. While there is some selection, it's clearly not 'nature red in tooth and claw' out there either. There is a degree of social mobility.

Continuing that line of thought, Gini coefficients are a simple way of summarising funding distributions. ESRC's Gini coefficients for funding requested and awarded are around 0.70. According to World Bank figures[2], if UK ROs were households, ESRCland would have greater income inequality than any country on earth.

But of course ROs aren't households, and they vary in size so much that it's not safe to transfer an understanding based on household incomes to the matter of funding distribution. The useful comparison isn't between our Gini and that of, for example, Denmark. It's between our Gini coefficient and what our Gini coefficient should be.

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[2] https://ourworldindata.org/income-inequality/