

What to apply for

This analysis summarises key information on the size of ESRC grant submissions and awards.

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.

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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

Across ESRC, taken on its own the size of a grant has no effect on its chance of being funded. Although different schemes might attract differing sizes of grants and have differing success rates, for the most part size tends not to influence outcomes systematically.

In general, larger grants have become more common over the last six years, and they are used to allocate an increasing proportion of ESRC funding. Half of all ESRC funding is routed through grants which have a value of £1,000,000 or more.

Small grants have become increasingly uncommon. They account for a vanishingly small fraction of ESRC spending but consume a significant proportion of the total effort that goes into writing and assessing proposals.

Norms of proposal writing and principal investigator behaviour seem to reflect the rates at which grants spend more than the absolute value or duration of the grant.

Size of grants

For this analysis, ESRC research grant and Fellowship applications on which decisions have been made since the start of financial year 2011-12 will be categorised in six value bands:

A	£0 to £49,999
B	£50,000 to £99,999
C	£100,000 to £249,999
D	£250,000 to £499,999
E	£500,000 to £999,999
F	£1,000,000 or more

As might be expected, application sizes are not evenly distributed across the categories, and the distribution changes over time (Figure 1):

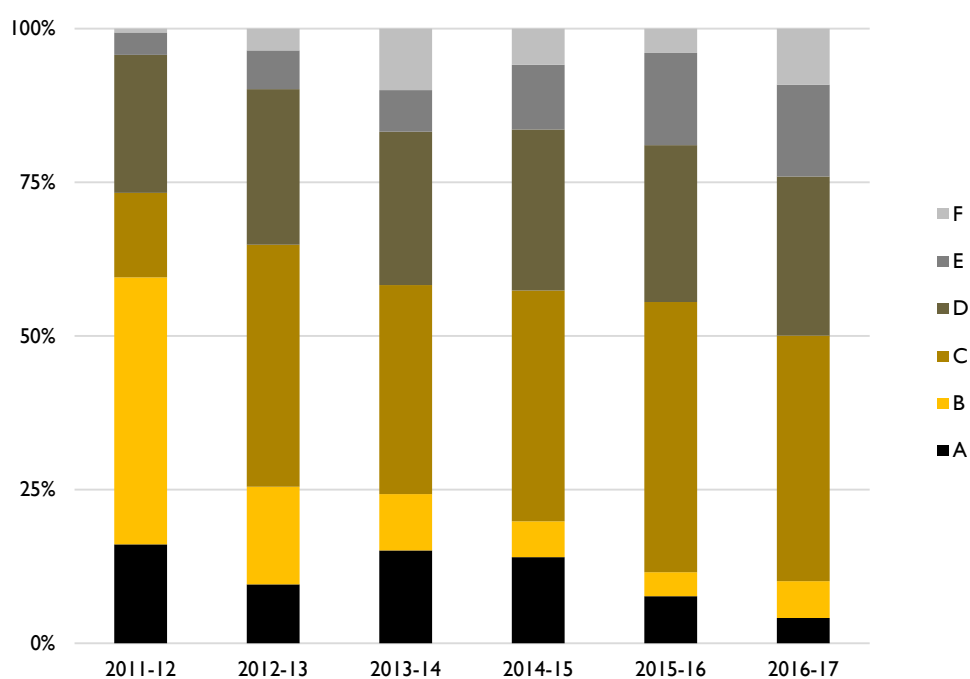


Figure 1: proportions of applications by size category for all research grant and fellowship applications on which decisions (whether funded or not funded) were made in financial years 2011-12 to 2016-17

Figure 2 gives an alternative representation of the same data:

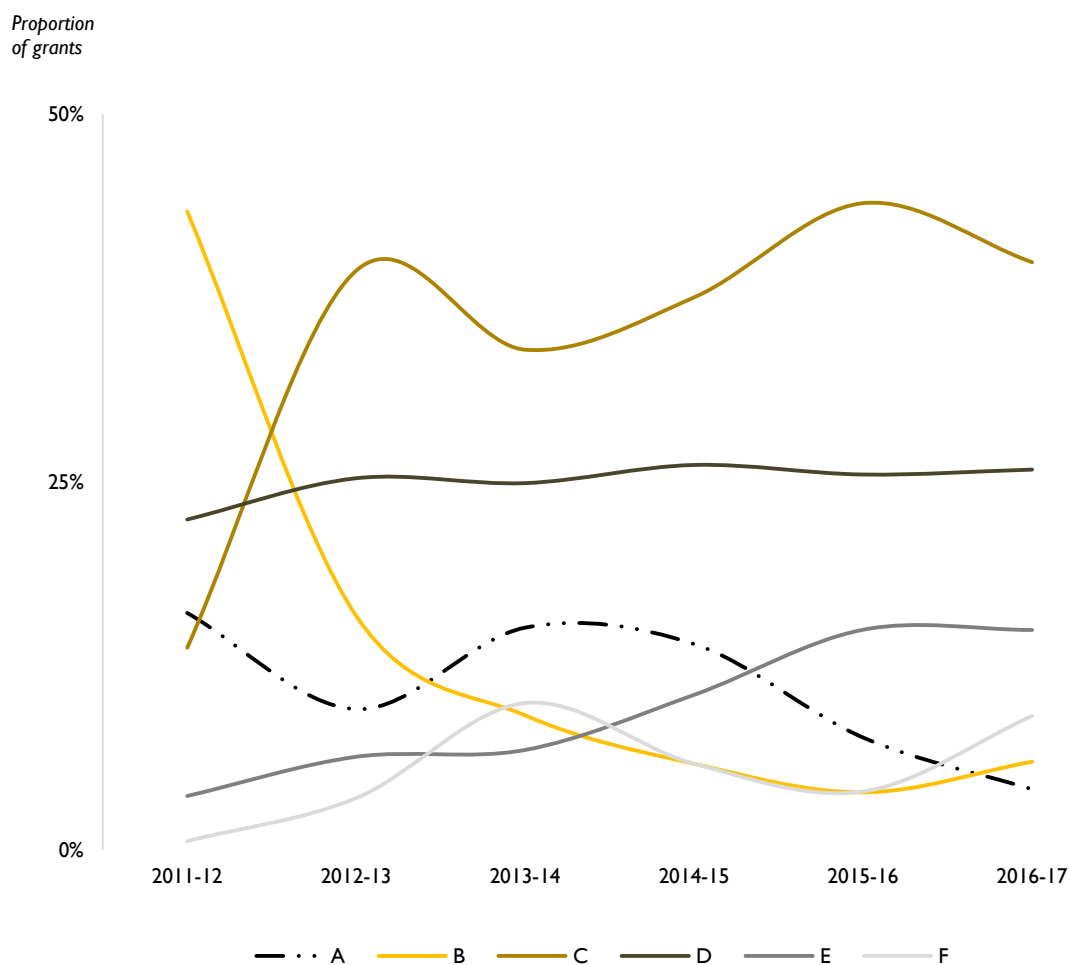


Figure 2: proportions of grants by size category for all research grant and fellowship applications on which decisions (whether funded or not funded) were made in financial years 2011-12 to 2016-17

The most significant change over the last six years has been the dramatic reduction in category B (£50,000 to £99,999.) This was primarily the result of a decision to discontinue several small grant schemes which were open before mid-2011.

Over the same period larger grants, that is categories E and F, have become much more common. About 25% of all applications now request at least £500,000.

Calls for proposals often specify the size of application allowed, so changes in grant size will be the net effect of ESRC policy choices and underlying behavioural patterns (should there be any). Responsive mode, and specifically the Open call, has fewer restrictions¹ on the nature of its applications and so may present a slightly cleaner picture of changes in behaviour (Figure 3).

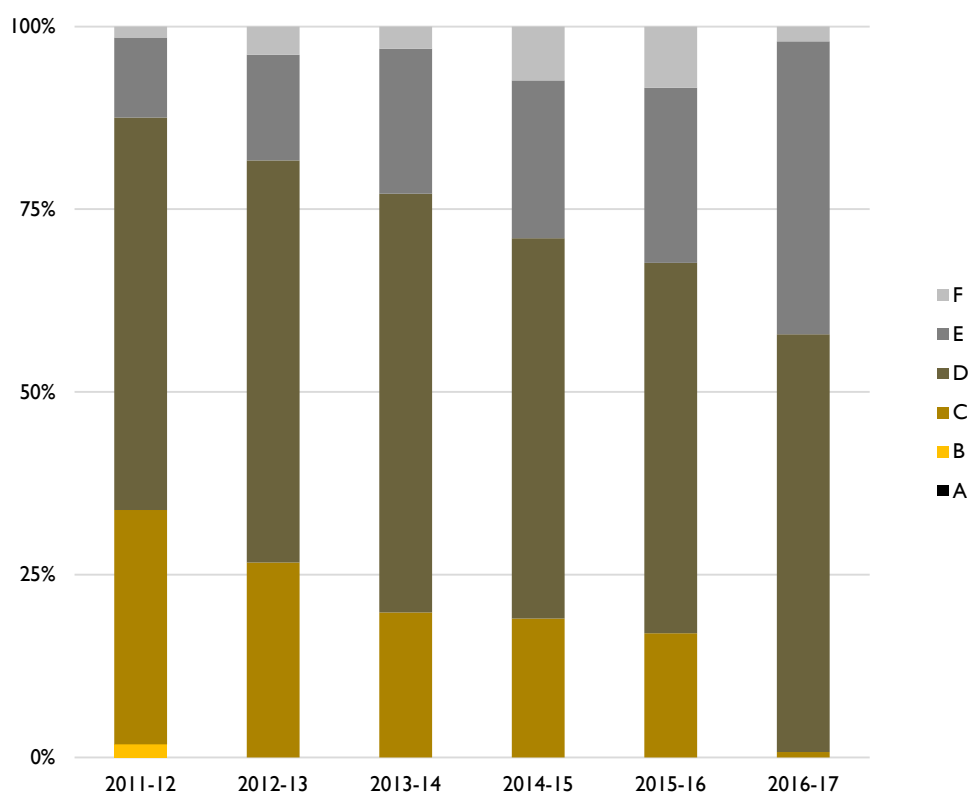


Figure 3: proportions of applications by size category for Open call proposals on which decisions (whether funded or not funded) were made in financial years 2011-12 to 2016-17.

The general trend towards larger grant sizes is still apparent.

¹ Current scheme limits, introduced in mid-2015, are £350,000 to £1,000,000 at 100% fEC, which translates into grants of £280,000 to £800,000. Categories A, B and C (and some category D grants) are no longer eligible for the Open call. This explains the sudden, almost complete, disappearance of the smaller grants in 2016-17. A few category F grants submitted before the scheme change had decisions made in 2016-17. We would not expect to see any Fs in subsequent years.

Across all schemes success rates vary slightly by size (Figure 4²) but not meaningfully so:

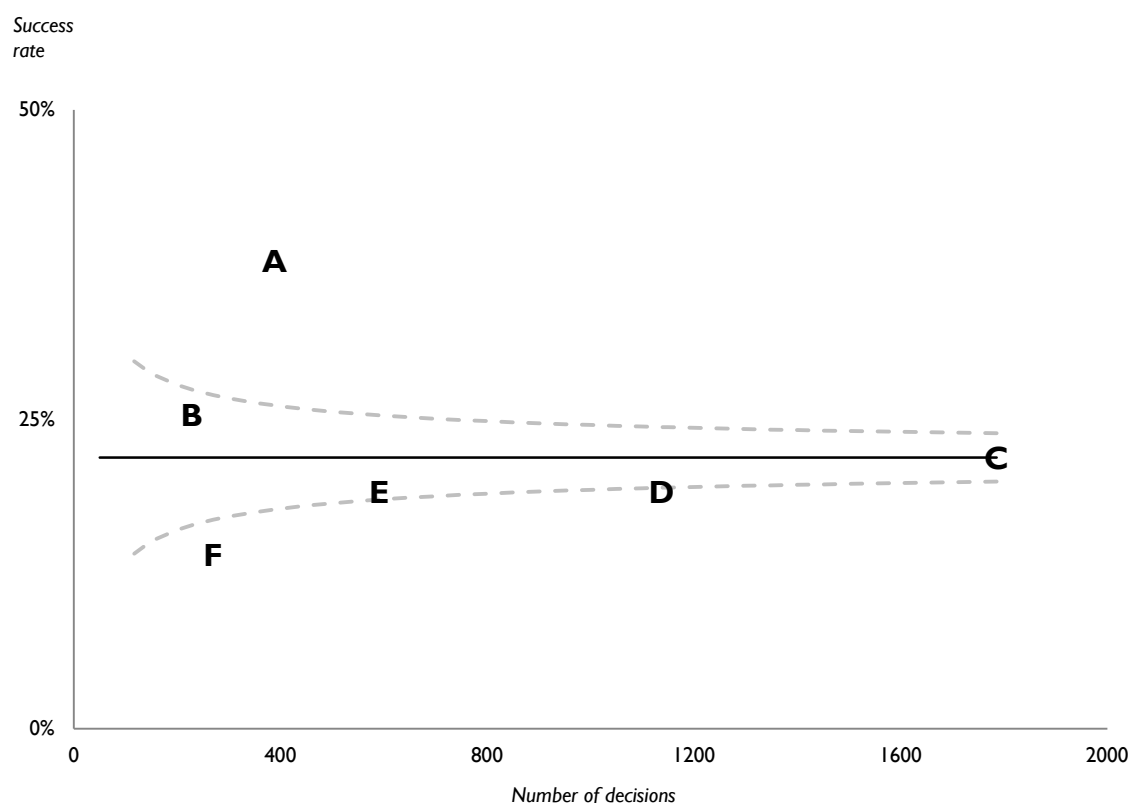


Figure 4: funnel plot of success rates by size for all research grant and fellowship applications on which a decision was made in financial years 2014-15 to 2016-17. Dashed lines indicate approximate 95% control limits.

The most significant departure from the mean success rate of 22% in this period was for category A grants, of which 38% were funded. Their apparent high success rate reflects the route through which the majority of them were funded rather than inherent exceptional fundability.

About 250 of the total of nearly 400 category A grants were submitted to Seminars competitions, so category A's rate is strongly influenced by the success rate for proposals submitted through those calls. A further 53 category A grants were awarded for Global Challenges Research Fund (GCRF) Impact Acceleration Accounts and GCRF Postdoctoral Fellowships, both schemes having a reported 100% success rate.

² Funnel plots are a simple way of interpreting success rate data. For example see <http://qualitysafety.bmj.com/content/11/4/390.2.full.pdf+html> or <http://www.apfo.org.uk/resource/item.aspx?RID=39445>.

Across all grants, categories D and E have below-average success rates and fall just on the control limit. In both cases this is again likely to be more an artefact of submission patterns that vary by grant size than of any inherent size bias. In particular, as Figure 5 shows, category D and E grants are particularly common in responsive mode and more precisely in the Open call.

Category	% of grants in this category that were submitted to the Open call
A	0%
B	0%
C	9%
D	58%
E	59%
F	28%

Figure 5: % of decisions made in relation to grants submitted to the Open call by size category, 2014-15 to 2016-17.

While overall around 30% of all proposals received by ESRC are submitted to the Open call, more than half of category D and E grants on which decisions were made in the last three years went through that route. As the Open call has a relatively low success rate, this over-representation of the Open call in category D and E drags down their success rate enough to explain why they appear on the control limit in Figure 4³.

The cause of the low overall rate of category F grants is less straightforward. About a quarter of them were submitted to the open call, the rest being in response to a diverse range of 23 other calls. Of these, the 2016-17 Large Grants and GCRF Grow calls accounted for a further 25% of decisions and, at the time of data collection, only rejection decisions had been recorded. This will artificially depress the category F success rate and is probably sufficient to account for its low observed value.

³ It's also worth noting that the overall average rate is boosted slightly by the category A grants. If A grants had no effect, the limits themselves would be lower, making it less reasonable to conclude that categories D and E have success rates that are meaningfully lower than average.

To confirm the non-unusual nature of C, D, E and F grants: when looking at the Open call only, these apparent size effects disappear and in fact, category D grants have a higher than expected success rate (Figure 6):

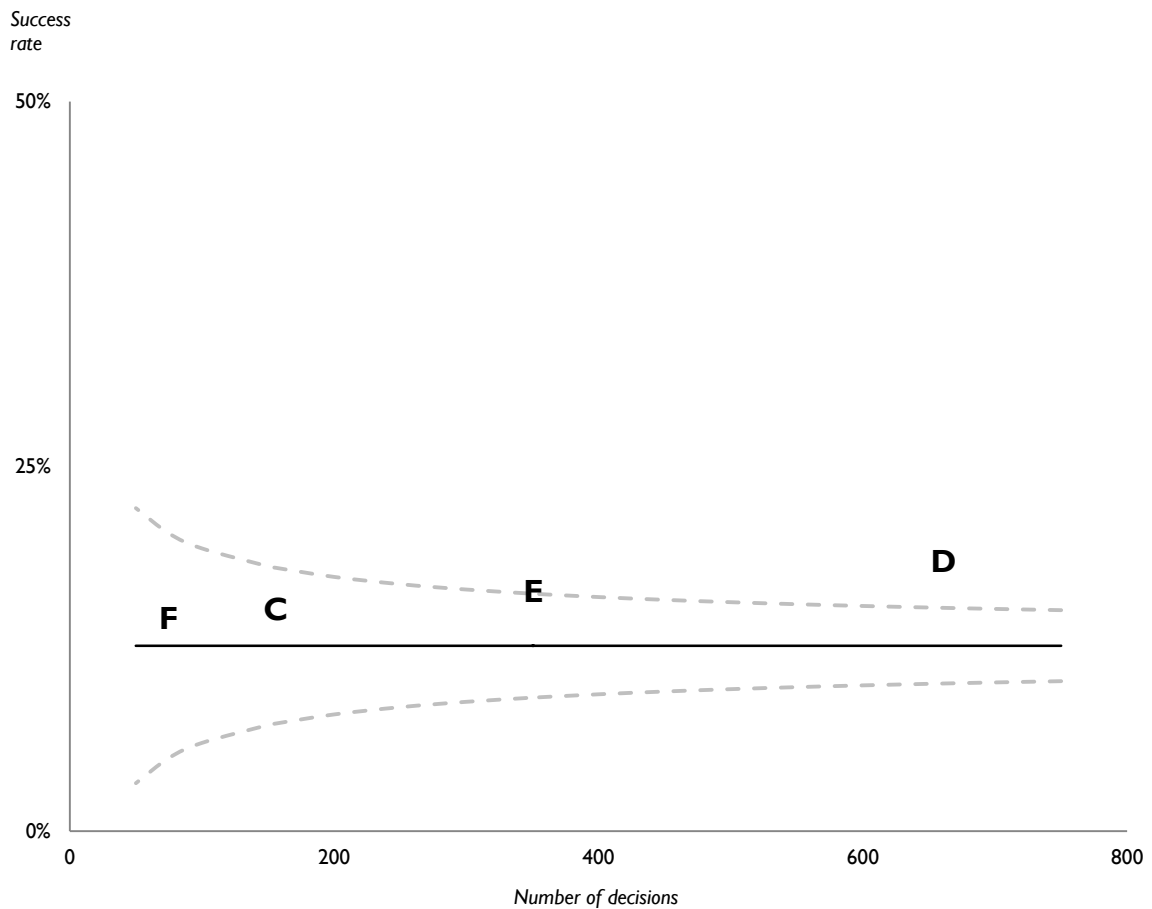


Figure 6: funnel plot of success rates for Open call grants on which a decision was made in financial years 2014-15 to 2016-17. Dashed lines indicate approximate 95% control limits.

It is not obvious why category D grants should, in the Open call, have a meaningfully higher success rate, with category E being not far behind. It may to some extent be down to the fact that in 2016-17 the Open call success rate rose and the majority of proposals in that year were D, but that is likely to be only a partial explanation. The strong correlation between the number of decisions and the success rate leaves open the possibility that proposals which differ from the norm in terms of their size have lower success rates simply because they differ from the norm.

Grant size distribution

As already shown, ESRC funding is not distributed through grants of the same size. Figure 7 shows the relationship between the cumulative value of the grants issued across financial years 2011-12 to 2016-17 and their size:

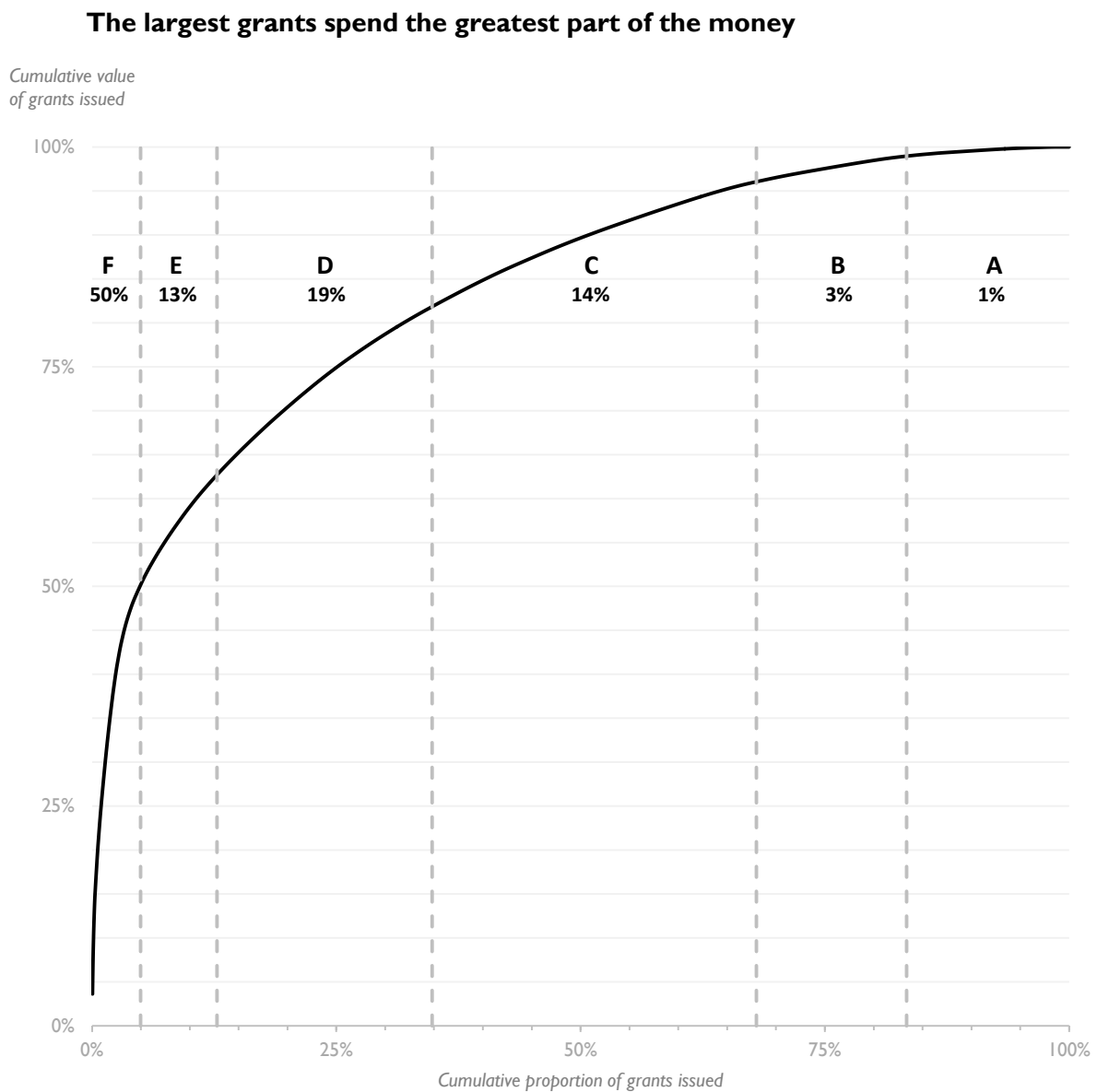


Figure 7: cumulative value of grants issued over financial years 2011-12 to 2016-17 (y axis) when grants are ordered according to size, largest to smallest (x axis). Boundaries between size categories are indicated with dashed vertical lines. % figures indicate proportion of total grant value issued which is in each size category. Gini coefficient for these data is 0.68

Half of all grant funding awarded was in category F, although this category made up only 5% of the total number of grants issued. A further 13% of the total value was committed through category E grants, although these grants made up only 9% of awards.

Between them, categories C and D accounted for more than half of all funded grants, but only about a third of the total funding awarded. By number, smaller grants – those in categories A and B – accounted for nearly a third of funded applications but less than 4% of the total funding awarded.

The concentration of funding in larger grants is reflected in the overall Gini coefficient for the data of 0.68. A great deal of effort is expended on preparing and assessing proposals that between them distribute only a tiny fraction of ESRC funding.

Rates of spending

Dividing the value of a grant by its duration gives an approximate rate of spend for that grant⁴. These rates vary widely, from just £17 per day to just over £17,000 per day. The logarithms of these rates are distributed relatively narrowly and suggest some underlying structure in the ESRC grant portfolio (Figure 8):

Similar ESRC grants spend money at similar rates

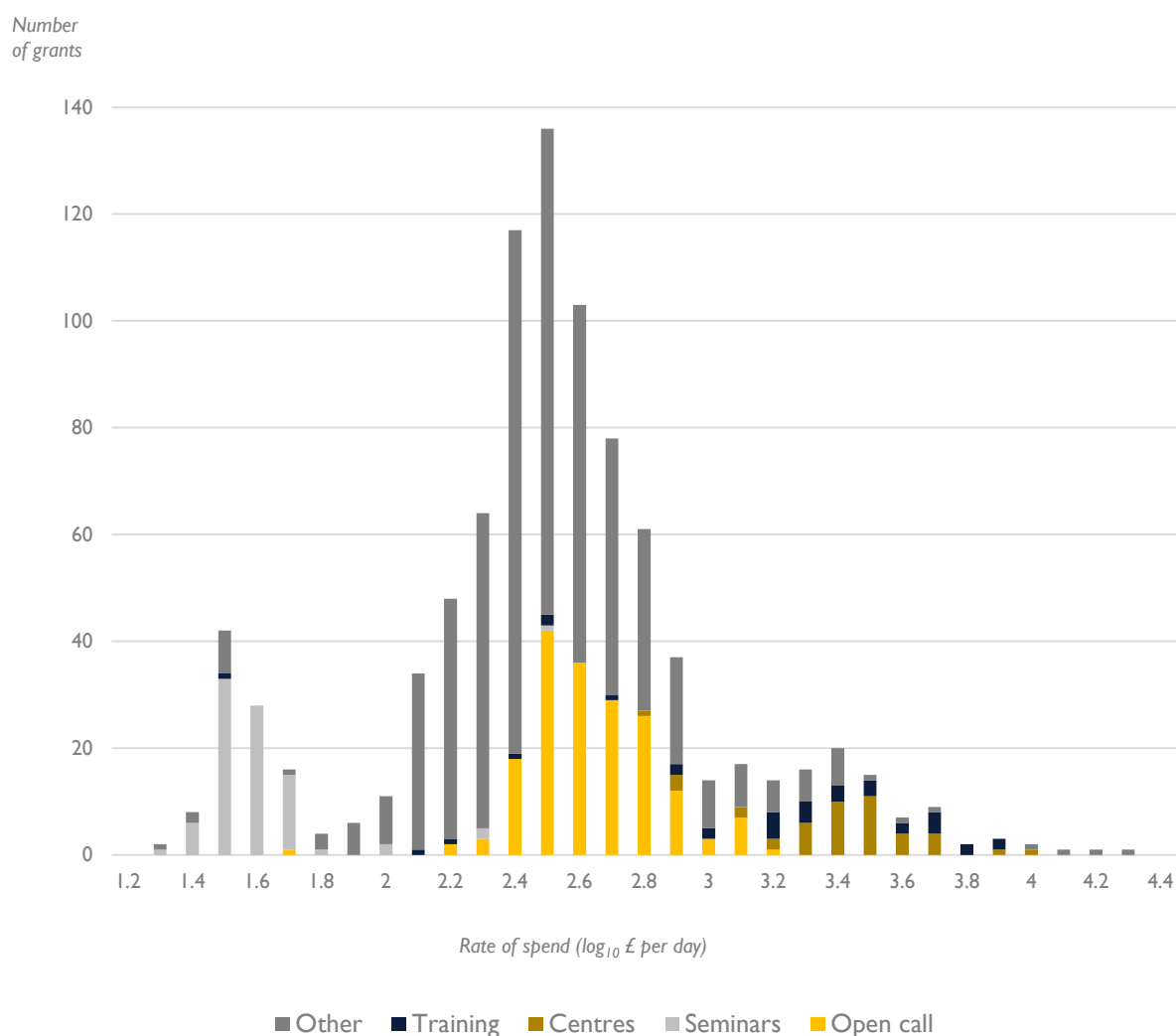


Figure 8: frequency of rates of spend for ESRC grants live in early 2016

⁴ In reality grant payments tend to be made quarterly based on tailored spend profiles.

In terms of their rate of spend, Seminars (low rates) and Centres and Training Grants (high rates of spend) are outliers. The bulk of research grants and Fellowships spend at rates of between £250 and £500 per day⁵.

When it comes to ‘normal’ research and fellowship grants, those funded through the Open call tend to spend a little faster than other types (Figure 9). There are very few outliers as a result of the scheme limits and, presumably, beliefs about ‘acceptable’ grant durations.

Responsive and strategic grants spend in similar ways

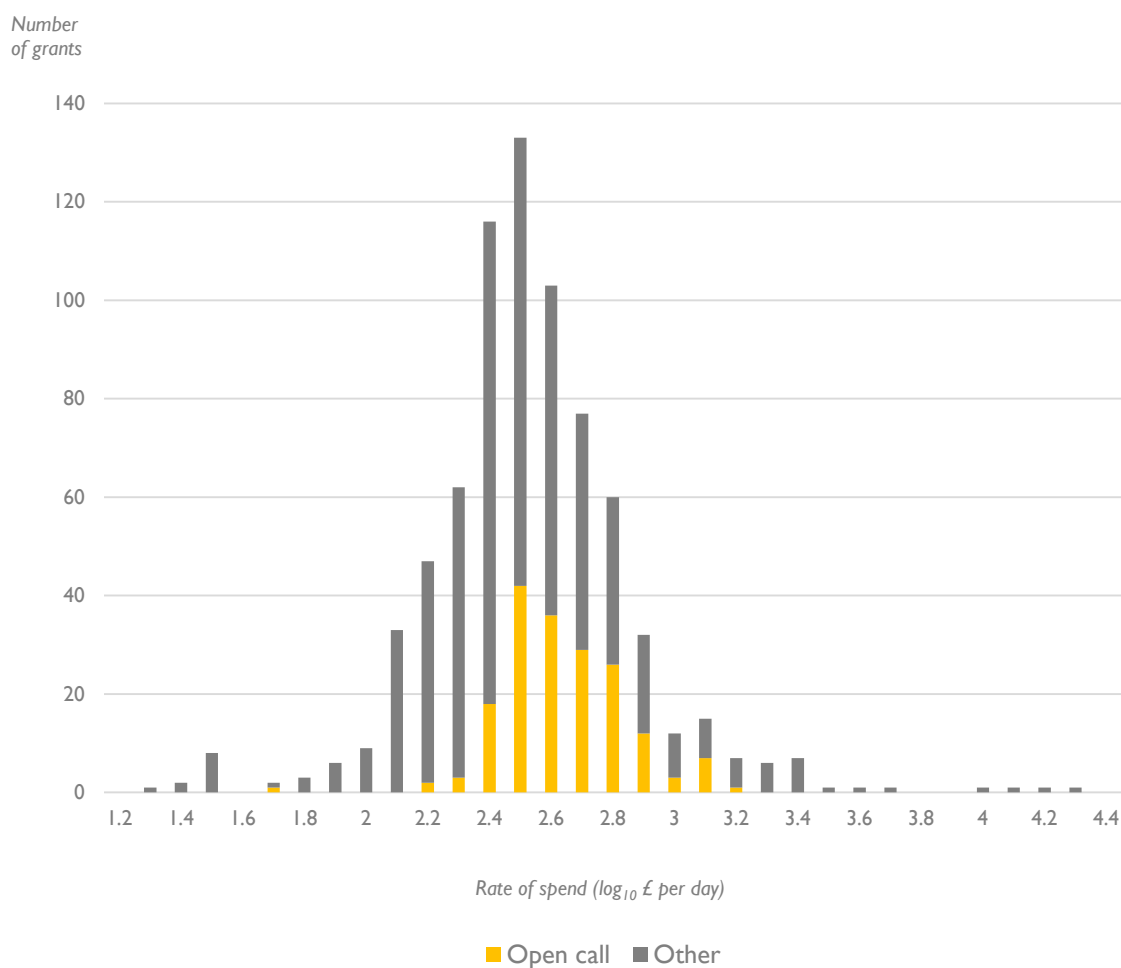


Figure 9: frequency of rates of spend for ESRC grants live in early 2016, excluding Seminars, Centres and Training

⁵ Visually, and also in principle as it is based on a ratio measure, the best fit for the sorts of (log) spend rate distributions we find is the Cauchy distribution, though it's probably not stretching it too far to think of them as being distributed approximately log-normally. The actual overall distribution is a superposition of many constituent distributions, based on different grant types. Figure 9 removes some of the clutter.

Neither the means nor the variances of the log rates of spend across all grants differ significantly between funded and unfunded grants. The same is true when looking at and within the Open call only. Peer review does not seem to prefer or select for or against any particular rate of spend.

Conclusions

ESRC grants come in a huge range of sizes. The smallest are only just over £10,000, the largest distribute tens of millions of pounds. This range reflects the broad nature of ESRC's role as a funder of social science research and training.

Cost increases and changes in policy have meant that smaller grants have become less common. In financial year 2016-17 only just over 10% of applications related to projects requesting less than £50,000. We currently have only about a dozen live grants of less than £25,000 that result from standard processes. This may not be a bad thing as the cost of preparing and assessing a grant has been estimated at around £10,000⁶ and clearly it doesn't make much sense to spend as much awarding a grant as the grant itself allocates.

Half of ESRC funding is routed through projects of £1,000,000 or more, even though they make up just 5% of the portfolio by number. At the other end of the spectrum, grants of less than £50,000 comprise 17% of the total by number, but channel only 1% of the funding. Most responsive mode projects are found in the middle ground, and much of the middle ground is made up of responsive projects.

In itself, a grant's size does not have any noticeable effect on its chances of being funded. Success rates do vary by size, but this variation is down to the confounding factor of the mechanism through which a grant is funded. Where grant size appears to have an effect on success rate, it's probably the case that grants of that size are focused on a particular scheme, with the scheme success rate determining the success rate for those grants.

The question of how much funding to request in a grant is a common one, with the subtext being an unspoken version: 'how much is it safe to request?' The only reasonable answer is: ask for as much as you need to do the project you describe, and no more.

Grant sizes and durations vary across a wide range, but this all cancels out to produce a relatively narrow range of rates of spending. This rate reflects a balance of manageability, ambition and feasibility, as judged jointly (but presumably implicitly) by ESRC and applicants.

Sometimes particularly rapid or more measured rates are warranted by the circumstances of the scheme or call, but often PIs end up in a mid-range. Perhaps this is simply how much the average PI can manage effectively? Whatever the case, it's a reasonable place to start when planning a project. But it doesn't seem to be a factor in funding decisions.

⁶ <http://www.rcuk.ac.uk/documents/documents/rcukprreport-pdf/> - and this figure was calculated ten years ago.