Assessment of ESRC funding outcomes

Key findings

- There are three funding outcomes for proposals; funded, fundable and unfundable. There are three rates associated with these outcomes; the fundability, conversion and success rates.
- Just over half of applications are unfundable. This results from a rigorous funding process, as well as being a reflection of proposal quality.
- The share of proposals that are unfundable has fallen in the past three years, in line with the fall in volume of proposals.
- Nearly two thirds of decisions are made at the meeting stage, and just under a third of applications that reach this stage are funded.
- 56% of unfundable decisions are made before the meeting stage – rising to 65% in the last financial year.
- Research Grants (Open Call) results in more rejected but fundable proposals than other calls and has a lower than average success rate. The majority of open call proposals are now funded or fundable.
- Large ROs are more likely to be successful in their application for funding than small ROs, and are even more likely to submit a proposal deemed fundable.
- Nearly all ROs have a higher fundable rate for Research Grants (Open Call) than for other calls.

Introduction

When a decision is made on a funding application, there are three possible outcomes. One outcome is that the application is funded. The other two outcomes are a result of a proposal not being funded – it is either because the application was 'fundable' or 'unfundable'. Fundable means that the proposal was of high enough quality to be funded, but there was not enough money allocated to the scheme to fund it. Funded and fundable proposals can therefore be considered eligible for funding. Unfundable means that the proposal wasn't of high enough quality to fund, even if the money was available. Generally, we define fundable as a final meeting score of 7 or higher. Applications rejected before this stage, whether at office check, review or sift stage, are unfundable, as are applications that score lower than 7 at the meeting stage.

There are a number of 'rates' which will be helpful in understanding funding outcomes. It is common to think of the success rate, which is the number of proposals funded out of all applications submitted. However, also of interest is the fundability rate, which is the proportion of all applications that are eligible for funding (they are either fundable or funded). There is also the conversion rate, which is the proportion of fundable and funded applications that are funded. These rates can be useful in a number of ways, for example a low fundability rate may suggest an RO needs support developing internal sift processes, whereas conversion rates are useful when thinking about funding allocations to calls.
This analysis looks at all decisions made for research grants between 2015/16 and 2017/18. It only includes full proposals for research grants. It does not consider expressions of interest, outline proposals or anything funded or administered outside of the normal funding process. For a small number of calls, some decisions will be spread across more than one financial year, and so this data may not capture all decisions. This only affects a small number of proposals and taking three financial years into account should mitigate the effect of this. A small number of calls did not follow a standard process (for example there was no review or meeting stage) and these will be excluded when discussing the different

processing stages.

There is one final caveat that must be considered, and that is that the definition of 'fundable' is very much subjective and ambiguous. To classify something as 'fundable' is a judgement call made by different people at different times, influenced by a variety of factors, not least the funding allocation to a call, the quality of other proposals to the call, and an assessor's perception of what is 'good enough' to fund. This is to say, 'fundable' is not an absolute measure, and will vary in definition from case to case. Despite this, it offers an approximate indication of the number of high quality proposals we receive that are not funded.
This analysis will begin by assessing the three types of funding outcomes. It will identify when during the funding process these decisions are made. Following this, it will compare the funding outcomes by call and by research organisation.

Funding outcomes

The majority of applications to ESRC are unfundable, around 60% in the past three financial years (see Figure 1). This may seem high, but it is partly a result of the thorough sifting process that takes place before the meeting stage, as well as reflecting the quality of the proposals. There is little difference in funding outcomes when measured by volume of decisions or the funding value of applications.

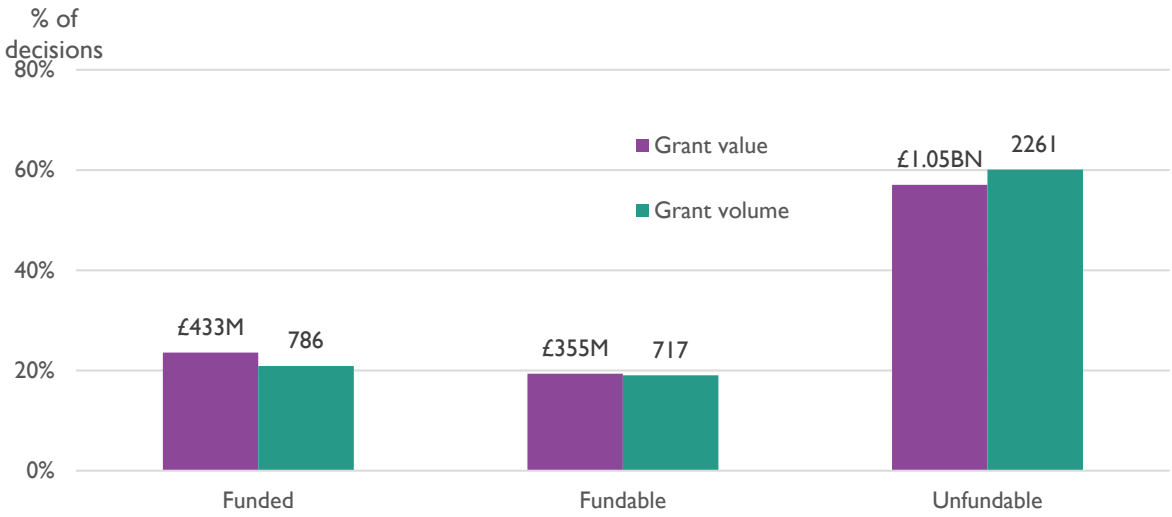

Figure 1. Percentage of grants by funding outcome, decisions made 2015/16-2017/18. Labelled with number of decisions and value of applications.

Over the past three years, the number of decisions made has fallen by a third (Figure 2). This has resulted in a slight rise in the proportion of applications that are funded, from 17% to 25%. The fundable rate has generally remained static, while the unfundable rate has dropped 10%. This suggests the fall in volume has had a positive, but modest, impact on the proportion of applications that are eligible for funding.

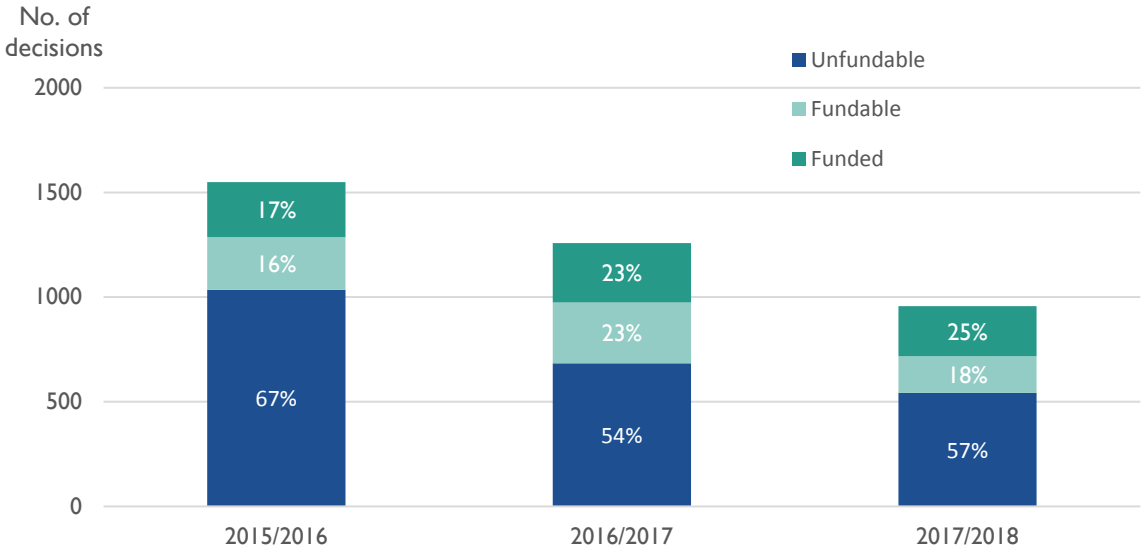

Figure 2. Funding outcome of grants over the past three financial years, by volume

By application value, the trend is unclear (Figure 3), but in 2017/18 the majority of proposals were eligible for funding for the first time, with only 40% of proposals deemed unfundable. It should be noted that rejections at the sift stage of the GCRF Growing Capabilities call accounted for the increase in unfundable rates by value in 2016/17, a reminder that individual initiatives can have significant impact on the data.

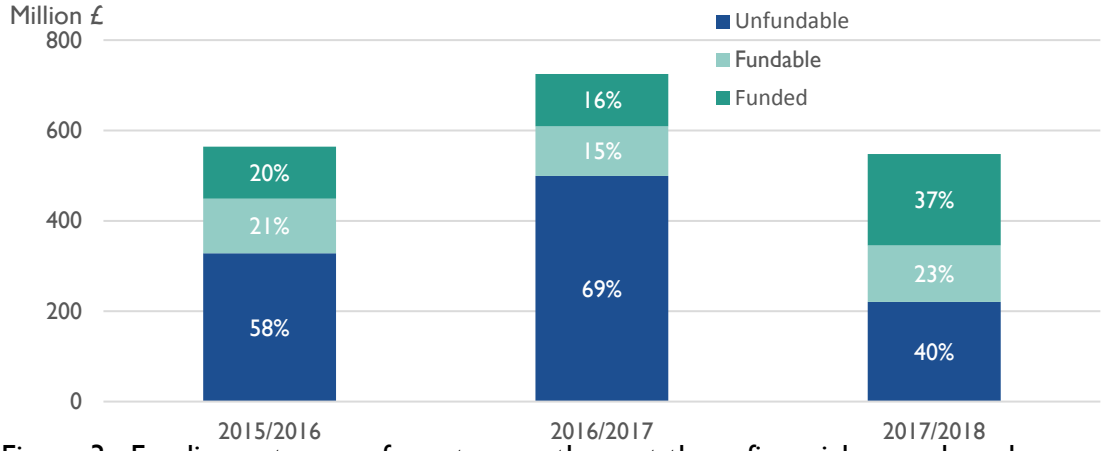

Figure 3. Funding outcome of grants over the past three financial years, by value

Decision stages

There are a number of stages at which funding decisions can be made. The unfundable decision can be made at the office check, review, sift and meeting stages. The fundable outcome can only occur at the meeting stage. This is mostly true for the funded outcome, although 8% of funded proposals (1% by value) were funded without a meeting taking place. Around two thirds of decisions are made at the meeting stage, a fifth at the sifting stage, a tenth at the review stage, and very few at the office checking stage (Figure 4).

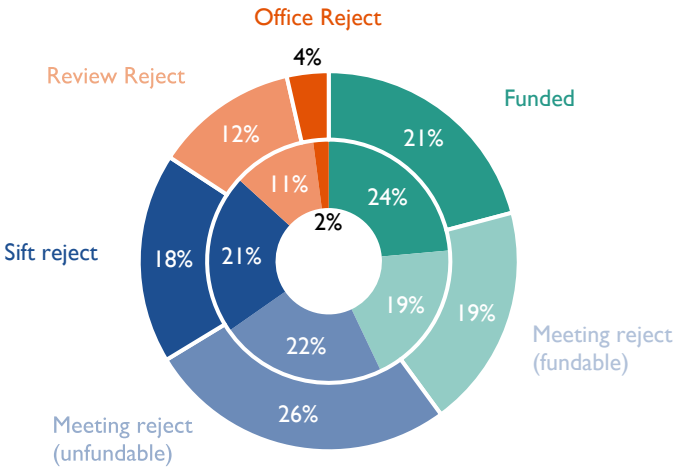

Figure 4. Funding outcome and stage decision made. Inner circle by value, outer circle by volume

This information is visualised as a Sankey diagram in Figure 5 in order to demonstrate the number of applications processed, and the number of decisions made, at each stage of the grant funding process. To keep things simple, it excludes proposals that did not have a review or meeting stage (so excludes non-competitive calls, as well as a few others).

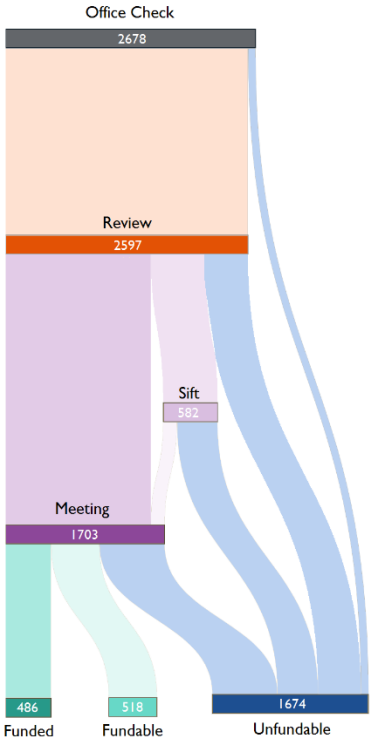

Figure 5. Sankey diagram showing the grant decision making process

When measured by application value, decisions at the meeting stage are fairly evenly split between the three possible funding outcomes, with funded the most common outcome (Figure 6). By volume of decisions, unfundable is the most common outcome, with a relatively even number of funded and fundable decisions made. This is probably a reflection of the level of funding available, rather than of a relationship between the quality and size of proposals.

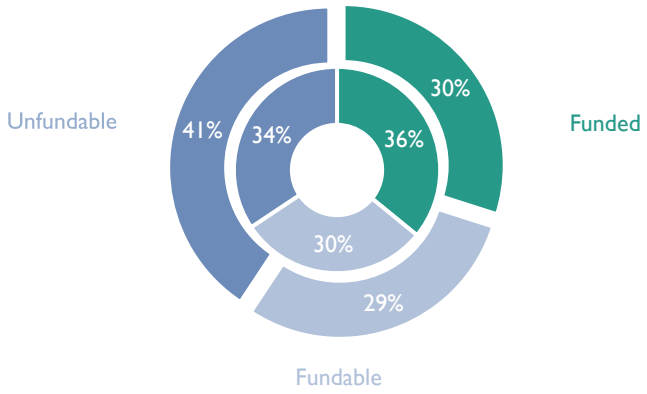

Figure 6. Funding outcomes at proposal meeting stage. Inner circle by value, outer circle by volume. Excludes funded proposals that did not have a meeting.

The unfundable outcome can occur at any stage of the funding process. More than half of unfundable decisions are made before the meeting stage, and a quarter are made before the sift stage (Figure 7).

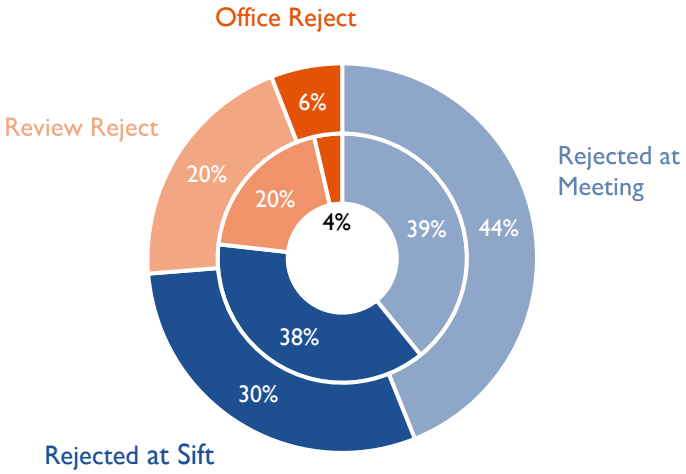

Figure 7. Rejection stage for unfundable applications. Inner circle by value, outer circle by volume.

A higher proportion of unfundable decisions are now being made before the sift stage. In 2015/16 this was only 15%, but by 2017/18 this had risen to 40% (Figure 8). By application value, there is a similar shift of 18% to 42% (Figure 9). There has also been a corresponding drop in the proportion of unfundable decisions being made at the meeting stage – down 6% by volume and 13% by value. This is encouraging, more unfundable decisions are being made earlier in the process, meaning fewer resources are spent on reaching these decisions.

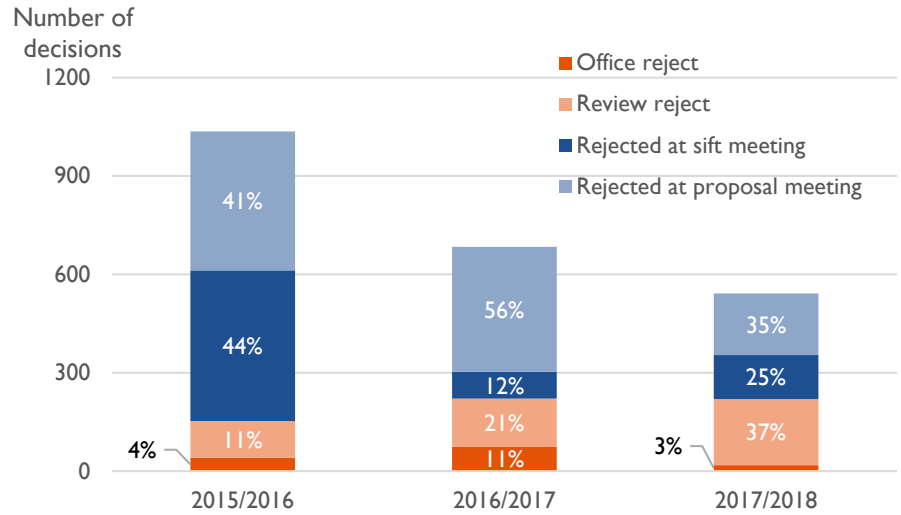

Figure 8. Stage at which unfundable decisions are made, by volume

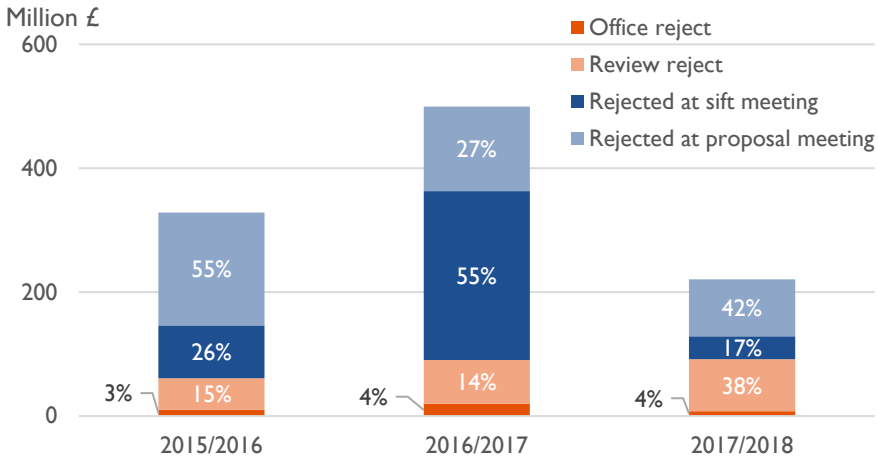

Figure 9. Stage at which unfundable decisions are made, by value

Funding Outcomes by Call

We had 47 competitive calls between 2015/16 and 2017/18.[1] Few had a funded or fundable rate of 40% or more, and half had an unfundable rate of 60% or higher. Figure 10 highlights four schemes that have some element of responsiveness, depending on how this is defined. There is no clear similarity across these calls - their funded rates are similar, but only that they are between 10% and 30%, which is true for the majority of medium and large sized calls. Future Research Leaders has a lower success rate than the other 'responsive' calls, while SDAI has the highest. It is notable that Research Grants (Open Call) has a much higher fundable rate than most other calls, and in this respect is very different to other responsive mode calls.

[1] Calls that resulted in at least one funded and at least one fundable or unfundable outcome. For the rest of the calls, 19 had a success rates of 100%, while five calls had no funded decisions made in this period. This is the result of some calls not being competitive and some having decisions made outside of the three financial years considered

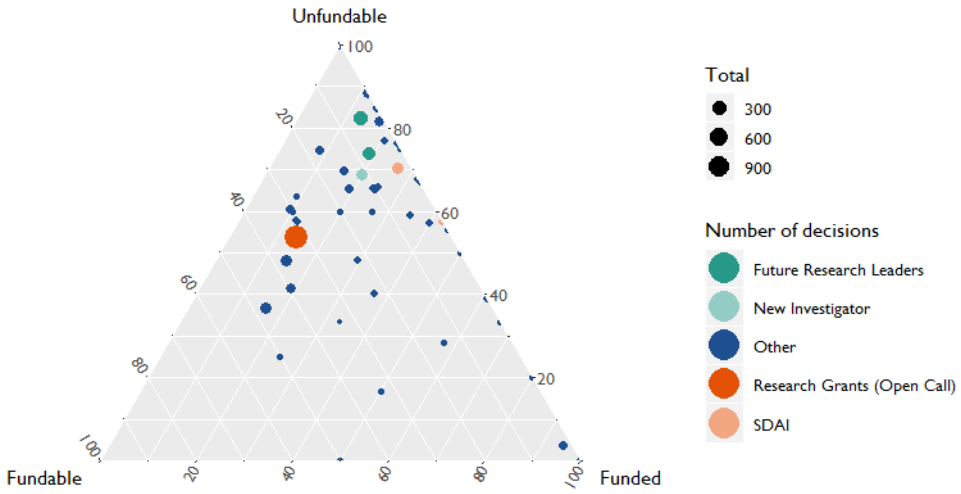

Figure 10. Funding outcome rates by individual call

There has been a slow but steady growth in the proportion of Open Call applications that are deemed fundable or are funded, meaning that in 2017/18 the majority of applications were considered eligible for funding (Figure 11). The conversion rate for Open Call is just 30%, which is less than half the average for other calls. There are a large number of high quality proposals to the Open Call that do not get funded. It should be noted that the difference between Open Call and other calls may well reflect different approaches and emphasises when defining 'quality' for responsive versus non responsive calls.

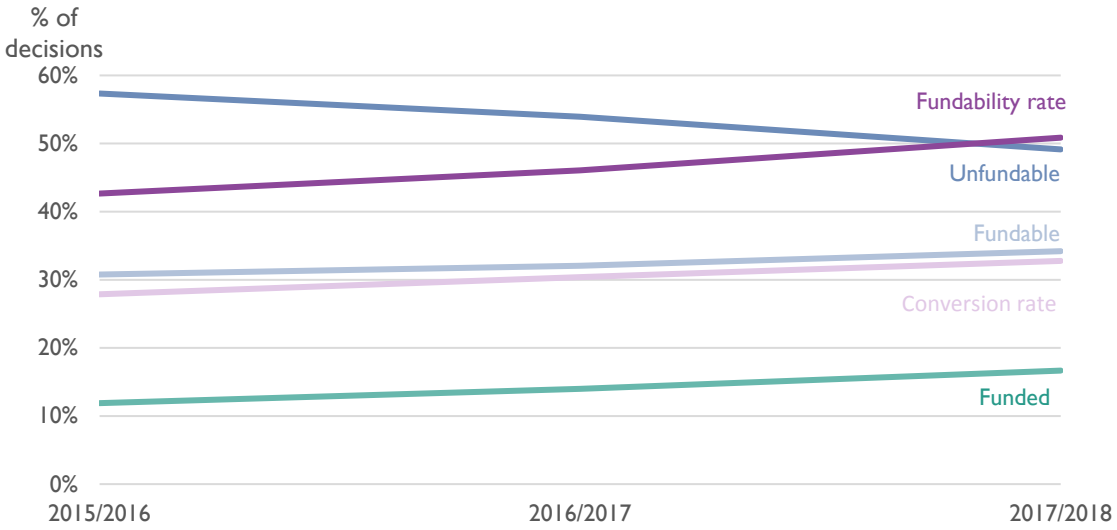

Figure 11. Funding outcomes for Research Grants (Open Call)

There is no clear trend for other calls, with the majority of applications still considered unfundable, although there has been an increase in the share of applications that are funded, which has also resulted in a rise in the conversion rate (Figure 12).

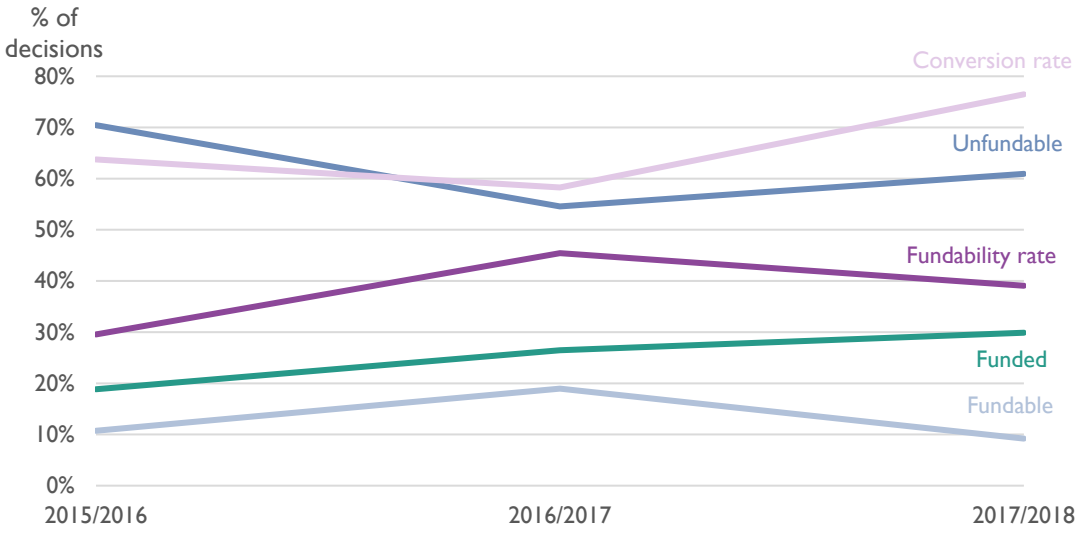

Figure 12. Funding outcomes for calls other than Research Grants (Open Call)

Only eight ESRC calls used a sifting stage in the past three financial years,[2] including Future Research Leaders and the Transformative calls. The reason for doing so is clear – these calls had on average 116 applications, compared to 45 for calls without a sifting stage, or 27 if Open Call is excluded. The use of a sifting stage has an impact on the funding outcome for a call, with 81% of applications deemed unfundable, as fewer applications reach the final meeting stage (Figure 13). Half of these calls used a sifting stage rather than a review stage, the other four included both.

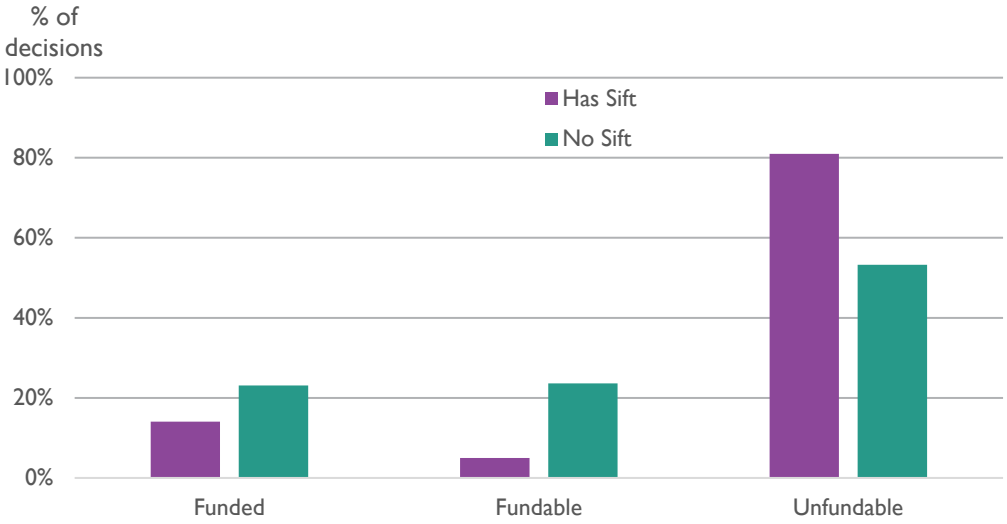

Figure 13. Funding outcomes for calls that had a sifting stage and for those that do not

Funding Outcomes by Research Organisation

Figures 14 shows that the majority of ROs have success rate of less than 20%, with only a tenth having a rate higher than 30%. In comparison, Figures 15 indicates that the majority of ROs have a fundability rate of 30% or more. Fundability rates are more diverse than success rates, which tend to cluster between 0% and 30%.

[2] Excluding 'pre Je-S' sifts

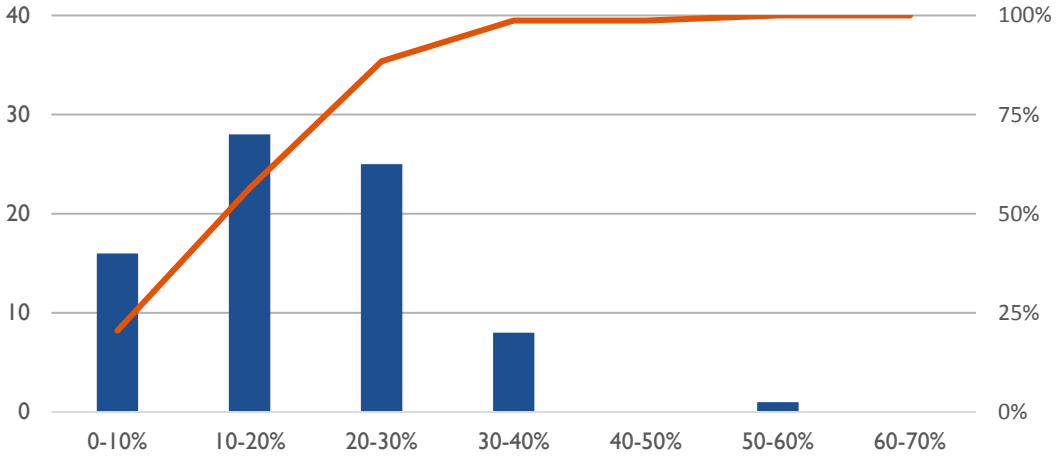

Figure 14. Frequency and cumulative percentage of overall success rates for ROs with 10 or more decisions between 2015/16 and 2017/18. Bin size is 10%.

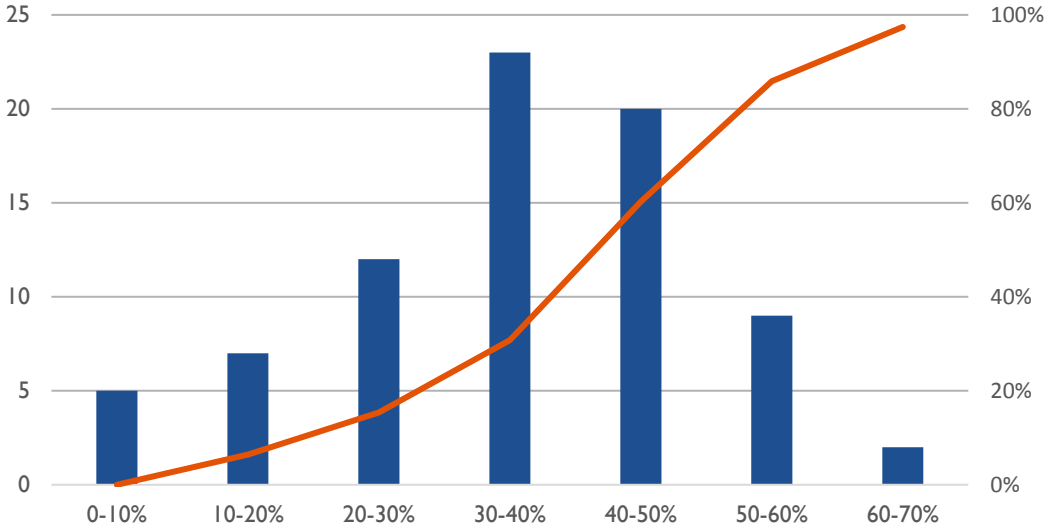

Figure 15. Frequency and cumulative percentage of fundability rates for ROs with 10 or more decisions between 2015/16 and 2017/18. Bin size is 10%.

The average RO has a conversion rate of about 50%, meaning that around half of their applications that are good enough to be funded are funded. The conversion rate varies a lot across ROs, and there are a significant number that convert less than 10% of eligible applications (see Figures 16).

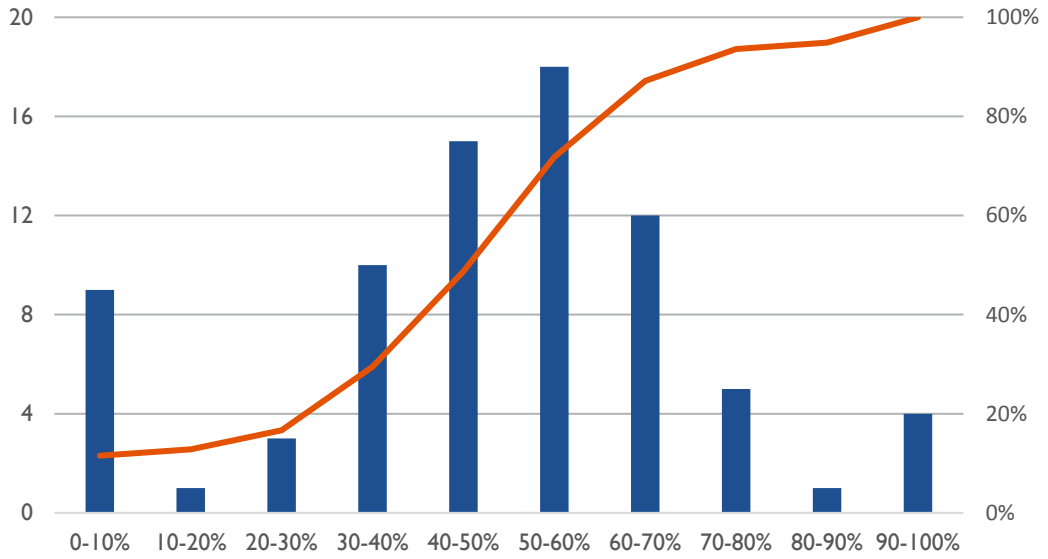

Figure 16. Frequency and cumulative percentage of overall conversion rates for ROs with 10 or more decisions between 2015/16 and 2017/18. Bin size is 10%.

As demonstrated by Figure 17, there are patterns in how funding outcomes are distributed across ROs. As well as most having a success rate of 10%-30%, most also have a fundable rate of between 10% and 30% too. The largest ROs (with 50+ decisions) have a much lower unfundable rate, and a much higher funded rate, than smaller ROs. There does not appear to be as strong a link between RO size and fundable rates, although the smallest ROs tend to have a lower fundable rate than the biggest ROs.

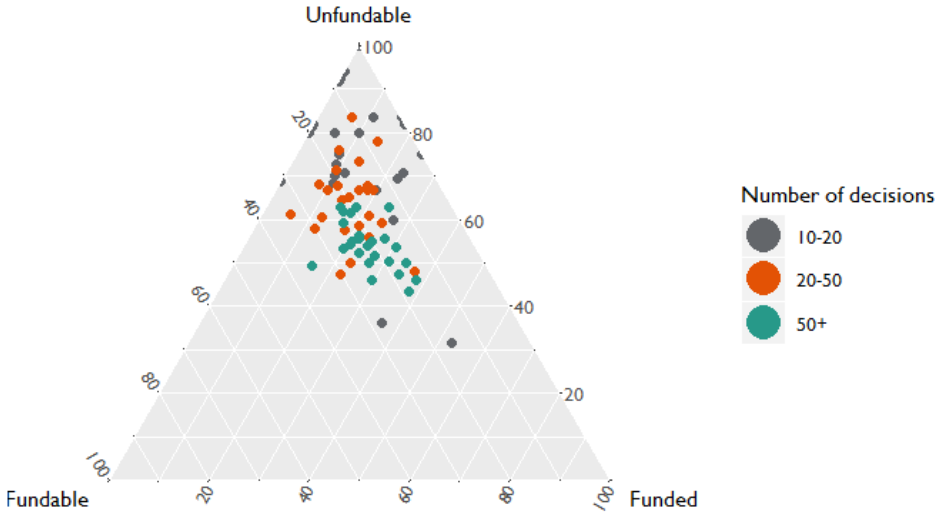

Figure 17. Ternary diagram of funding outcomes by RO

Kendall's tau-b is a type of correlation coefficient that can be used to measure the strength of a relationship between two variables.[3] Similarly, these relationships can be visualised on a

[3] It is a correlation coefficient that can be used for bounded data such as percentages. Tau-b is used so as to accommodate paired ranks. A correlation of 0.5 or higher is considered a strong positive relationship, with -

scatter plot, with confidence bands added to indicate whether the relationship is significant. These techniques will now be used to test the relationship between RO size and an RO's fundability, success and conversion rates.
There is a fairly strong positive relationship between the size of an RO and its fundability rate (Table 1 and Figure 18), meaning that larger ROs are more likely to produce proposals that could be funded.

tau-b	Lower CI	Upper CI
0.53	0.42	0.64

Table 1. Tau-b correlation coefficient for number of applications per RO and their fundability rate

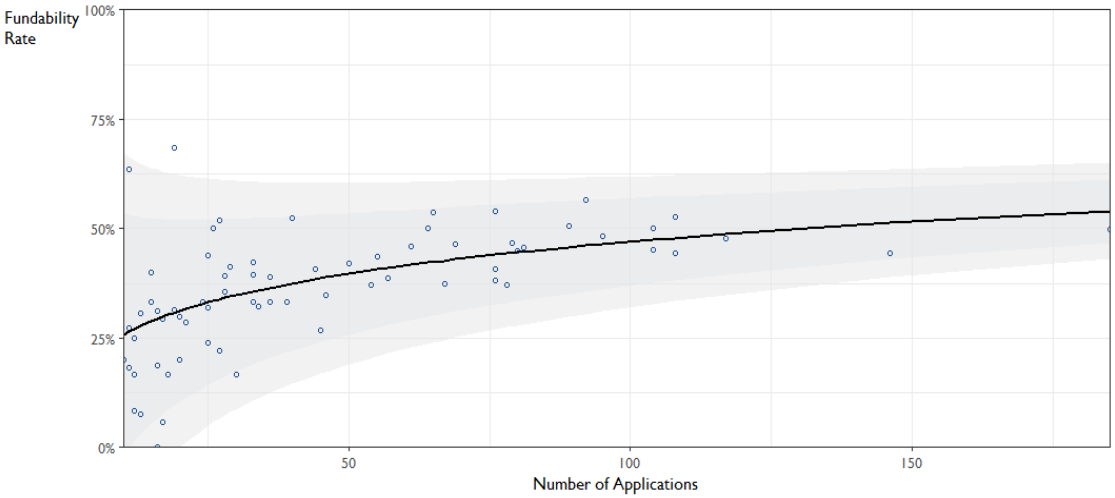

Figure 18. Relationships between number of applications from an RO and their fundability rate. For ROs with 10 or more applications. Dark grey indicates 90% confidence bands, light grey are 99% confidence bands.

While there is also a positive relationship between the number of applications submitted by an RO and their success rate, the relationship is less strong than it is for the fundability rate (see Table 2 and Figure 19).

tau-b	Lower CI	Upper CI
0.36	0.22	0.5

Table 2. Tau-b correlation coefficient for number of applications per RO and their success rate

0.5 a strong negative relationship. For more information see: https://en.wikipedia.org/wiki/Kendall_rank_correlation_coefficient

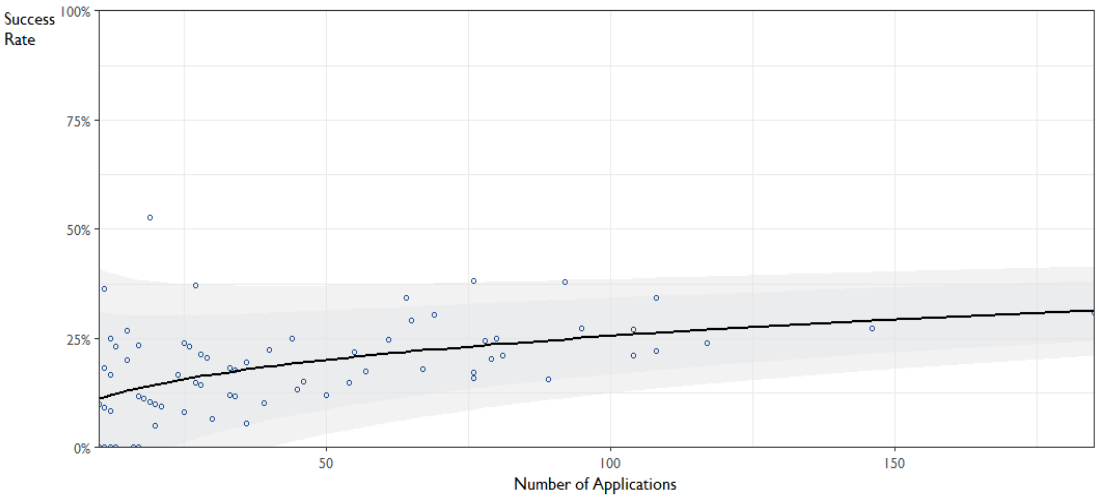

Figure 19. Relationships between number of applications from an RO and their success rate. ROs with 10 or more decisions. Dark grey indicates 90% confidence bands, light grey are 99% confidence bands.

There is a very weak positive relationship between the conversion rate and the size of an RO. As indicated by the confidence intervals in Table 3 (and Figure 20), we cannot be confident in the robustness of this relationship. The findings across the three rates indicates that larger ROs have a higher success rate than smaller ROs because they submit more high quality proposals, rather there being a systemic bias towards them in the funding process, given that they are not significantly better at converting fundable proposals. What this does not tell us is why larger ROs submit more fundable proposals.

tau-b	Lower CI	Upper CI
0.11	-0.07	0.3

Table 3. Tau-b correlation coefficient and confidence intervals for number of applications per RO and their conversion rate

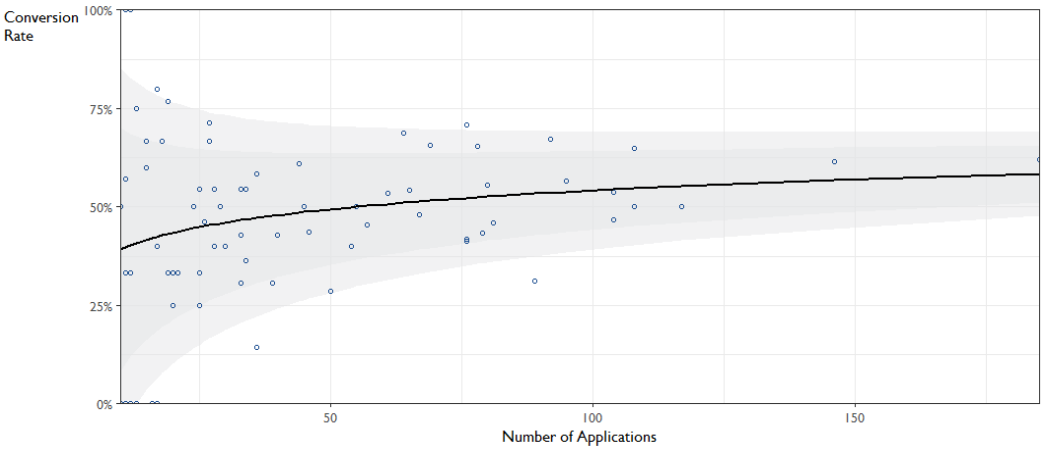

Figure 20. Relationships between number of applications from an RO and the conversion rate. ROs with 10 or more applications. Dark grey indicates 90% confidence bands, light grey are 99% confidence bands.

Most ROs have a higher fundable rate for Research Grants (Open Call) than for other schemes, despite the success rate not being any higher (Figure 21). This fits with the finding that Open Call has a higher fundable rate than other calls.

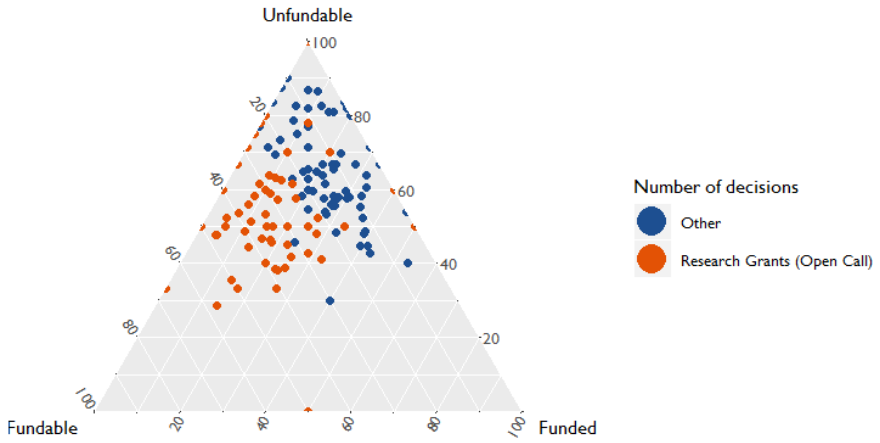

Figure 21. Ternary diagram of decision outcome by RO and call, ROs with 10 or more decisions

Conclusion

This analysis has assessed the different funding outcomes of ESRC research grant applications. While the majority of applications are ultimately deemed unfundable, the proportion that are unfundable has fallen. Unfundable decisions are now being made earlier in the grant funding process. These are both encouraging findings, and if this trend continues it will have a beneficial impact on the efficiency of the funding process, both for us and our community.

The analysis used a number of rates to help understand how funding decisions are made. We often focus on the success rate, but the fundability and conversion rate are both useful too. This analysis found that, while large ROs have a higher success rate than small ROs, they have an even higher fundability rate. Larger ROs are not significantly better at converting fundable proposals. At the call level, it was found that Research Grants (Open Call) receives a high number of fundable proposals and has a low conversion rate, a pattern consistent for most ROs.

These concepts can be further utilised to help identify organisations that may be struggling with demand management issues, and to understand the level of community engagement with specific funding schemes.

Of course it is not just the quality of proposals that should determine what gets funded, and we must continue to direct funding towards research addressing the most critical issues facing the world. In addition, the uncertainty around how fundability is defined, and its contingency on a range of factors means that the fundability and conversion rates should only act as guides, rather than objective truths. Nevertheless, using this broader range of metrics helps us better understand the effects of our funding processes.