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Selection committee membership: Service or self-service

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ABSTRACT

Project funding is an increasingly important mode of research funding. The rationale is that through project funding new fields and new themes can be supported more effectively. Furthermore, project funding improves competition, which is expected to select the better research projects and researchers. However, project funding has a price, as it requires researchers to invest time in reviewing proposals, and to participate in selection committees. In that perspective, selection committee membership can be seen as a service to the scholarly community.

However, what do committee members themselves get from membership? In this paper we show that committee members in average are more successful in grant applications than other principle investigators, and this is not explained by performance differences. The findings suggest that committee membership is not only service, but also self-service.

1. Introduction

Project funding is an important part of total research funding – for fundamental research, as well as for strategic and application oriented research. The following arguments are generally used for project funding. Firstly, it is easier to direct resources to priority areas, and to new fields and themes. Secondly, project funding is competitive, which may increase quality. Researchers submit applications, and through peer review it is expected that the best researchers and the best proposals are selected. Over the last decades, the share of project funding in total research expenditures has increased and still is increasing, although the levels are rather different between countries (CBS, 2011; Lepori et al., 2007; Van Steen, 2012).

Project funding requires organized decision-making, leading to the selection and rejection of proposals. Peer review is a crucial aspect of this, and it is considered the basis of merit based funding. Although shortcomings of peer review are well known (Thorngate, Dawes, & Foddy, 2009), peer review is generally conceived as the best method available (ESF, 2006; RIN, 2010). Over time, decision-making about research proposals has become a committee activity and often peer reviewers are not members of the committee. Peer review is one of the inputs in the decision-making process (Chubin & Hackett, 1990; Hansson & Monsted, 2012; Van Arensbergen & Van den Besselaar, 2012), and should provide a threshold: a good review is necessary to be eligible for funding. Research indicates several problems related to committee based grant decision-making:

- Firstly, the way the decision-making process is organized does significantly influence the outcomes (Langfeldt, 2001, 2004; Van Arensbergen & Van den Besselaar, 2012), indicating the contextuality of the decision-making.
- Secondly, that competitive project funding results in supporting the better researchers has been disputed. Selection procedures may succeed in filtering out the lower half of the applications. But within the set of good researchers, it is hardly

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possible to select performance based (Bornmann, Leydesdorff, & Van den Besselaar, 2010; Melin & Danell, 2006; Van den Besselaar & Leydesdorff, 2009). Furthermore, researchers with more competitive project funding do not seem to outperform others (Van der Weijden, Verbree, & Van den Besselaar, 2012). Even stronger, committees do not select the best researchers but 'produce' them: *After* being selected for a grant, performance differences between the granted researchers and the non-granted researchers emerge, because of the more abundant resources of the former (Melin & Danell, 2006; Sandström, 2012).
- Finally, evidence exists that nepotism and sexism play a role in grant allocation (Wenneras & Wold, 1997). Whether this still holds for sexism is disputed (Bornmann, Mutz, & Daniel, 2007; Ceci & Williams, 2011; Marsh & Bornmann, 2009; Marsh, Jayasinghe, & Bond, 2008), but nepotism is still visible (Sandström & Hällsten, 2008).

The issue of nepotism has a few dimensions. Firstly, nepotism may play a role when a grant applicant has committee members in his/her direct social network, where other applicants lack such strong ties. Secondly, committee members themselves may be involved in a grant proposal, e.g., as applicant, as co-applicant, or as a direct colleague of an applicant. In cases where committee members are involved in one of the applications, we speak of 'conflict of interests'. The common solution for this is that committee members leave the meeting when the proposal they are involved in is discussed. The other committee members can discuss and decide on the proposal, without interference of the involved committee member. However, no evidence exists which shows that this solution is sufficient. Membership may influence the other committee members, even when the involved person has left the room.

2. Research question

Here we generalize this question. Does membership of committees of a funding agency has an effect on success in grant applications? We consider all committee membership, not only membership of the specific committee that decides about one's own proposal. Why might such an effect exist? Firstly, membership of committees of a funding agency may lead to an information advantage. Committee members may have better knowledge about what funding opportunities exist or will be open in the future, and therefore may have a more active application behavior. They may also have better application skills, as they have seen many proposals and have learned how the proposals are assessed. Secondly, committee membership may lead to (and be the result of) a stronger network and more social capital, and this may result in nepotism. Decision makers may be inclined to favor their strong ties, such as fellow committee members. Thirdly, committee membership may result in reputation that positively influences the probability of getting funds. However, if this reputation correlates with scholarly performance, the committee members may in fact be the better scholars.

In this paper we aim at filling the knowledge gap by answering the question whether committee members score better than other applicants, and if so, by identifying how strong the effect is. In the rest of the paper, we use CMs for committee members and NCMs for the other applicants, who are not members of one of the committees of the council. Specifically, the following questions will be answered:

(1) Does application behavior of CMs and NCMs differ, possibly caused by an information advantage?
(2) Do CMs and NCMs differ in success rate, possibly reflecting better networks and social capital?
(3) If we find differences, can these be explained by performance differences?

3. Data and methods

The case analyzed in this paper is a biomedical research funding agency (FA) in the Netherlands. Data were collected through a survey among all principle investigators (PIs) in the discipline (NOD, 2007). Data about the number of applications and grants were obtained from the FA, covering a three years' period. As we control for performance, we also retrieved for all PI's in the population the number of publications in the period under consideration. Author disambiguation was done manually. The number of citations to these papers was retrieved, two years after the end of the three years period. The survey study had a response rate of somewhat smaller than 30%, which resulted in a sample of some 200 PIs. We tested the non-response, which is similar to the respondents in terms of distribution over universities and over subfields within the discipline. Also performance levels are equal in the respondents group and the non-respondents group.

Of these PIs, some 116 applied at least once for funding during this three years period. Applicants can have different roles, but most of them (86) are main applicant in at least one application. The majority of applicants also take up other roles within some applications, such as co-applicant, or PhD supervisor.[1]

The data set for this study included the following variables: age, gender, group size, the number of applications submitted to the FA, the number of grants awarded by the FA, committee membership, reviewer activity, and several performance indicators. Performance was measured over the same three years period, and therefore covers recent performance and not the whole researchers' history. The following performance metrics was used: (1) the number of publications in the

[1] Not all applicants can act as formal PhD supervisor. In that case, the applicant has to engage a full professor as co-applicant who takes up that role.

Table 1
Some sample characteristics.

		Mean	N	F
Group size – all	Applicants	17.7	116	6.729*
	Non-applicants	14.5	68	
Age – all[a]	Applicants	55.2	116	6.330**
	Non-applicants	52.6	69	
Group size – applicants only	Committee members	17.5	31	0.216ns
	Non-members	18.4	85	
Age – applicants only	Committee members	55.8	31	0.257ns
	Non-members	55.0	85	

ns, non-significant.
[a] Age in 2007.
* Sign <0.01.
** Sign <0.05.

considered period, (2) the number of citations these publications have received, (3) the number of publications normalized over the research group size, and (4) citations per publication. Inspecting correlations between the performance indicators, we found very high correlations (>0.8) between the first three performance indicators. The three correlate much lower with the fourth one (0.2). To avoid multicollinearity, we use as performance variables only the number of publications and the fourth performance indicator, the number of citations per publication.

4. Findings

The non-applicants do have a significantly smaller research group than the applicants, possibly suggesting different attitudes and/or missions within the two subsamples. However, as the applicants are also significantly older, they have had more time to build up their group. Within the group of applicants, the committee members and the other applicants do not differ in terms of age and group size (Table 1).

We also tested whether performance differs between CMs and NCMs. Performance is not normally distributed, and therefore we use a Mann–Whitney test. This was done for applicants versus non-applicants, and within the applicants for committee members versus non-members. As Table 2 shows, applicants have significantly more publications and citations, but in terms of citations per publication and publications per FTE, the differences are small and not significant. Within the group of applicants, no significant performance of committee members and non-members exist.

4.1. Differences in application behavior?

We now address the *first question* about differences in application behavior. We expect that committee members (CMs) have an information advantage, which may CMs to be more active applicants than non-members (NCMs). In the period under consideration, 86.1% of the CMs in our sample applied at least once for funding, whereas this was only the case for 57% of the NCMs. As main applicant the figures are respectively 55.6% and 37.6%. The CMs also apply more often than the

Table 2
Performance levels by applicant status and committee membership status (Mann-Whitney).

		Mean	Median	*N*	*U*
Publications – all	Applicants	33.0	28	116	2919.5*
	Non-applicants	22.5	18	69	
Citations – all	Applicants	300	183	115	3193.5**
	Non-applicants	204	117	69	
Citations per publication – all	Applicants	7.0	5.8	115	3905.5ns
	Non-applicants	8.3	6.1	69	
Publications per FTE – all	Applicants	2.1	1.5	116	3369.5ns
	Non-applicants	1.7	1.4	68	
Publications – applicants only	Committee members	34.0	28.0	31	2171.5ns
	Non-members	32.5	26.0	85	
Citations – applicants only	Committee members	314	161	31	1285.5ns
	Non-members	294	197	84	
Citations per publication – applicants only	Committee members	7	5.7	31	1193.5ns
	Non-members	7	6.1	84	
Publications per FTE – applicants only	Committee members	2.3	1.8	31	1268.0ns
	Non-members	2.1	1.5	85	

ns, non-significant.
* Sign <0.01.
** Sign <0.05.

Table 3
Applications by committee membership status (Mann–Whitney).

		Mean	Median	*N*	*U*
All applicant roles	Committee members	5.19	4	31	898.0*
	Non-members	3.39	3	85	
Main applicant	Committee members	1.74	1	20	1262.5ns
	Non-members	1.35	1	56	

ns, non-significant.
* Sign <0.01.

Table 4
Success by committee membership status – applicants only (Mann–Whitney).

		Mean	Median	*N*	*U*
All applicant roles	Committee members	1.68	1	31	987.0*
	Non-members	1.01	1	85	
Main applicant	Committee members	0.77	1	20	1033.0*
	Non-members	0.48	0	56	

* Sign <0.05.

NCM do. In average, CMs have applied about 4.47 times during the period under consideration, and 1.5 as main applicant, whereas the comparable figure for NCMs are 1.93 and 0.77 times.

The rest of the analysis includes only those that have applied for funding during the period under consideration. CMs significantly more often apply for grants than NCMs (mean = 5.19 versus 3.39; median 4 versus 3). If we restrict the analysis to the main applicants only, the averages again differ (mean = 1.74 versus 1.35) but the medians are equal (both 1), and here no statistically significant difference could be measured (Table 3). Overall, these findings provide a positive answer on the first question, showing that CMs are indeed more active applicants. This suggests that CMs may be more aware of the funding possibilities, and/or have developed better application skills.

4.2. Differences in success?

We continue with *question 2*, and investigate whether differences in success exist, and especially in success rate. The latter is defined as the ration between granted applications and total applications.

As Table 4 shows, CM are more successful than NCMs are. For all applicant roles, the CMs were successful 1.68 times in the period considered versus NCMs only 1.01 time. In their roles as main applicant, the comparable figures are 0.77 for CMs and 0.48 for NCMs. All these measured differences are statistically significant (Table 4).

Not only differences in absolute success are relevant, also differences in success rate have to be analyzed. The issue is whether differences in success are reflecting the differences in application behavior only, or whether CMs are even more (or less) successful than would be expected from the higher number of applications. If one focuses on all applications, *success rate* of CMs and NCMs is not different (mean 0.30 versus 0.32; median 0.25 versus 0.20). However, restricting the comparison to the main applicants' role, we do find that the CMs have a substantial higher (and statistically significant) success rate than the NCMs (mean = 0.55 versus 0.35; median 0.5 versus 0), as Table 5 shows.

Consequently, also the answer on the second question is also positive. CMs do not only have more success, proportionally with their higher number of applications. Their success rates are actually higher than expected, especially as main applicant.

4.3. Is success explained by past performance?

Finally, we tested whether performance differences between the two groups explain the differences in success. We already showed that the average performance is equal between the CMs and NCMs (Table 2). This suggests that performance has no influence. To further test this, regression analysis was done to explain the number of awarded grants by performance (publications, citations per publication) and by the number of applications.

Table 5
Success rate by committee membership status – applicants only (Mann–Whitney).

		Mean	Median	*N*	*U*
All applicant roles	Committee members	0.30	0.25	31	1349.5ns
	Non-members	0.32	0.20	85	
Main applicant	Committee members	0.55	0.50	20	710.5*
	Non-members	0.36	0.00	56	

ns, non-significant.
* Sign <0.06.

Table 6
Success by number of applications and performance (multiple regression).

Role	Variable	Beta	R^2	N
All applicants	# Applications	0.760*		
	# Publications	−0.136**	0.566	116
	# Citations per publication	0.096ns		
Committee members	# Applications	0.843*		
	# Publications	−0.133ns	0.688	31
	# Citations per publication	0.029ns		
Non-members	# Applications	0.663*		
	# Publications	−0.145ns	0.455	85
	# Citations per publication	0.151ns		

ns, non-significant.
* Sign < 0.00.
** Sign < 0.05.

We included in the regression analysis only those researchers that applied at least once in the period covered by the data. The number of applications is a strong and significant predictor, whereas the number of publications has a small but significant negative effect (Table 6). The citations per publication do have a weak positive effect, but this is not significant.[2]

We did the same analysis for the CMs and the NCMs separately (Table 6 bottom). For both groups the same model was found, with the number applications having a strong effect, and the number of publications having a small negative effect. However, for the two subsets, the latter effect is not statistically significant – due to the small N. The number of citations per publications has a weak effect in both cases, and but is also not significant.

Clearly, the number of applications is by far the strongest predictor of success, and this does not disappear when performance is taken into account. Furthermore, the applications-beta of the CMs is some 25% larger than the application-beta of the NCMs, suggesting a slightly higher return on applications for the CMs. We consider this as nepotism, an effect of committee membership.

5. Conclusions and discussion

We did find three effects: (i) CMs submit more applications. Our hypothesis is that this is because committee members have due to their role an information advantage, and better application skills. (ii) The higher number of applications of the CMs pays, as it also leads to substantially more grants. (iii) The success rate of CMs is higher than expected when taking into account the higher number of applications. This larger pay off of committee membership may be explained as the "nepotism effect", as performance did not play a role. To answer the overall question posed in this paper, we conclude that being member of committees of course is a service to the scholarly community. But is has become clear that at the same time it is self-service too.

Most research funding organizations do have codes of conduct and regulations to avoid conflict of interests. Our results suggest that these are not sufficient, as the effects are more subtle. What does this imply for organizing evaluation procedures? Several options for improvement may exist. (i) One may think of a stronger circulation of committee members, and opening committee membership to larger groups of researchers. This would avoid the polarization between 'established' and 'outsiders'. However, it remains an open question whether the established elites would welcome this. (ii) If the main source of inequality lies in information advantages for the committee members, other and better information streams are needed that would help the non-committee members to anticipate the upcoming calls better.

However, although our findings are based on an empirical study, these policy suggestions should be scrutinized by further research. For the time being, they remain hypotheses. For example, the first suggestion implies that the number of years in committees may have an effect – something that easily can be studied.

As the stakes are high in research grant allocation mechanisms, the results of this study ask for larger scale research on the effects of committee membership on grant decision-making, in order to establish whether the findings of this paper do represent a general pattern.

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[2] A backward stepwise method removes citations per publication, and gives for the rest the same results.

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