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How Should Research Be Funded? The DFG Researcher Survey

What should third-party funding of research look like? How well do the grant programmes offered by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) match the needs of researchers? Which areas should the DFG especially advocate in the interest of the scientific community, and how does the community rate these activities? These and many other questions are answered by the study “Researcher Survey 2010: Research Conditions for Professors at German Universities”, which was conducted by the Institute for Research Information and Quality Assurance (iFQ) on behalf of the DFG. This Infobrief takes a look at some of its key findings.

1 Background and Approach

Understanding and helping to shape the changes in the German research system are central tasks of the DFG. To assess the effects of its funding practice and establish an empirical basis for its decisions, the DFG uses surveys and evaluations¹. Therefore in 2009 it asked the iFQ to take a comprehensive inventory of the research conditions, wishes and concerns of professors at Germany’s universities. The focus was both on issues directly relevant to the DFG, such as researchers’ proposal submissions and their appraisal of DFG tasks and grant programmes, and on more general topics like scientific integrity and staff recruitment at universities. To map trends over time and make comparisons, authors Susan Böhmer, Jörg

Neufeld, Sybille Hinze, Christian Klode and Stefan Hornbostel took cues from previous studies as they selected the topics and worded the questions. They picked up on earlier DFG surveys of grant applicants (1999, 2003), the 2006 iFQ survey of DFG review board members, the university teacher surveys conducted by the Allensbach Institute in the 1980s, and international studies along the same lines.

The target audience for this survey were professors (incl. junior and special professorships) at German universities. Professors make up the largest clientele of DFG funding² and are thus both directly affected and particularly interested in and knowledgeable of DFG programmes. Moreover, this selection was made for practical reasons. While there is in Germany no complete directory of all researchers, Kürschners Deutscher Gelehrten-Kalender provides a solid database that lists 21,598 uni-

¹ This refers to ex-post evaluations of funding programmes (e.g. the evaluation of the Transregio variant of the Collaborative Research Centres Programme) and research policy issues (e.g. gender equality). http://www.dfg.de/en/dfg_profile/evaluation_statistics/programme_evaluation/index.html

² Professors submit more than half of all proposals in the Individual Grants Programme.

versity teachers. To identify differences between the opinions of early-career researchers and those of more established ones, some analyses were differentiated by age groups. The group of potential interviewees was restricted to university teachers (including universities of art, education, theology, technology, and medicine). From this population, a random sample was drawn of 9,768 individuals who were invited to take part in the survey. In the end, the analyses were based on 3,131 usable questionnaires (32 percent of invitees). To shorten the length of the survey for the individual participant, some topics were presented only to a random subset of respondents. This reduces the universe of respondents for some question modules.

Naturally, the various topics were evaluated quite differently by each respondent. However, there appear typical response behaviour pat-

terns that can be attributed to certain characteristics of survey participants. The most obvious differences in opinion are linked to subject affiliation: a chemist, for example, responds differently than an engineer. Factors such as age or gender turned out to have only a small influence. In some sets of questions, differences arise depending on proposal behaviour and success. Some of the analyses are therefore broken down by cohorts submitting many vs. few proposals, and having more vs. less success with them. In these cases, data are normalised relative to the subject area situation.

2 Proposal Activity

A surprisingly large percentage of researchers request external funding from research funding agencies (see Figure 1). Nearly 90 per-

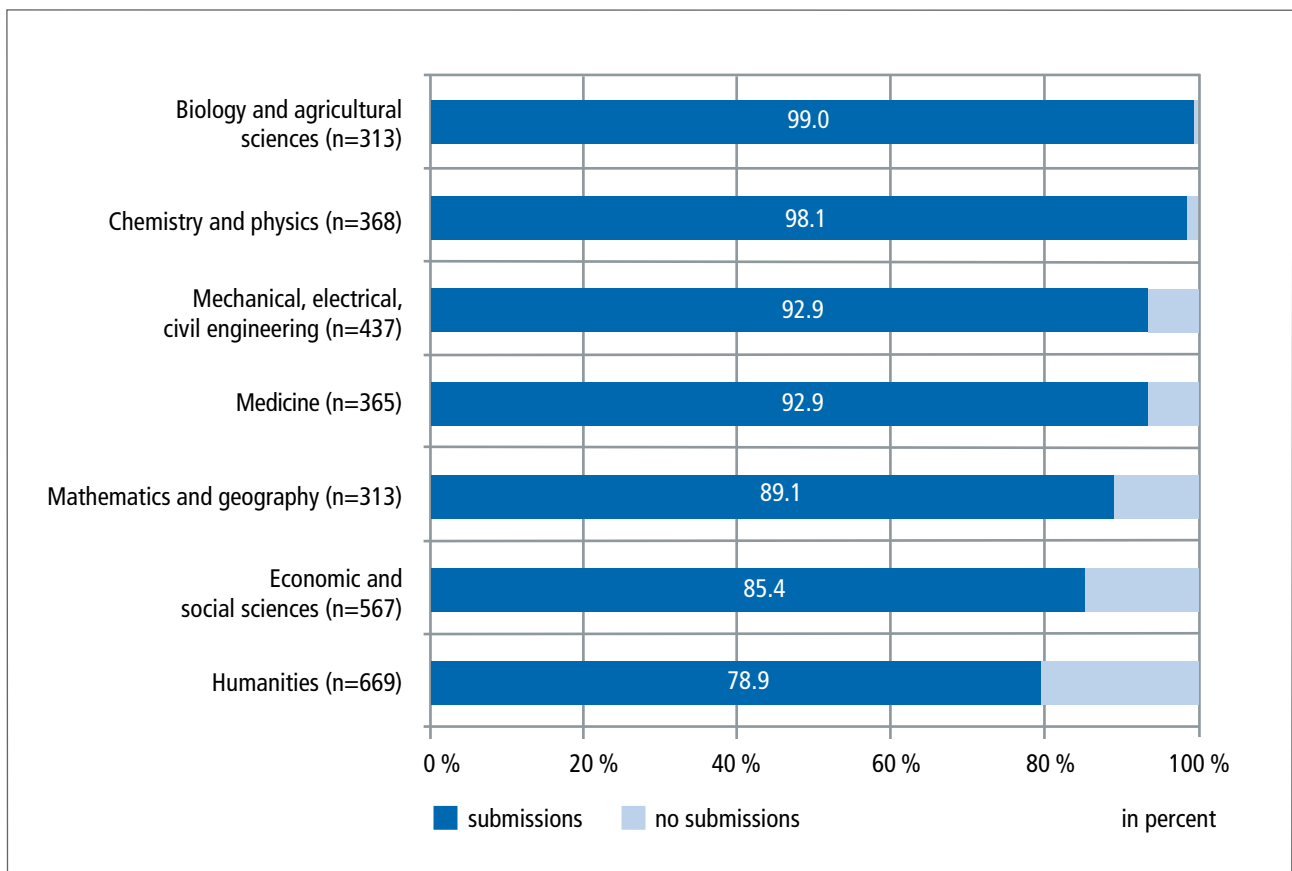


Figure 1
Proposals submitted in past 5 years for externally funded projects, by discipline
Over 25,000 euros, all funders, n = 3,032, source: Böhmer et al. 2011

cent of respondents have applied for a grant of at least 25,000 euros within the past five years. Fully 99 percent of biologists (including agronomists) have submitted proposals, followed closely by physicists and chemists (98 percent). Even for scholars in the humanities, which in public discussion are often thought unlikely to seek third-party funding, the survey identifies an applicant rate of 79 percent. Between the different age groups, clear differences in proposal activity can be observed. While 17 percent of 61- to 65-year-olds and 21 percent of those over 65 have not applied for third-party grants in the last five years, this holds true for only 7 percent of 41- to 45-year-olds. The cohort with the largest proportion (12 percent) of highly active grant applicants are researchers aged 51 to 55.

The most frequent addressee of grant requests is the DFG, which receives proposals

by 73 percent of all respondents. Internal DFG calculations, based on a comparison of data from the Federal Statistical Office on university employees and data from the DFG's proposal database, show that over two thirds of all academic researchers are DFG customers. It can therefore be assumed that DFG applicants are slightly over-represented in the iFQ survey. But it should be noted that external funding, especially in the form of DFG grants, has a high priority for the scientists and scholars. The next most important third-party funders are the Federal Ministry of Education and Research (39 percent), national foundations (30 percent), the European Commission (28 percent), and industry / businesses (28 percent) (see Figure 2).

Respondents who in the past five years have applied for grants from third parties but not from the DFG (663 individuals, or about

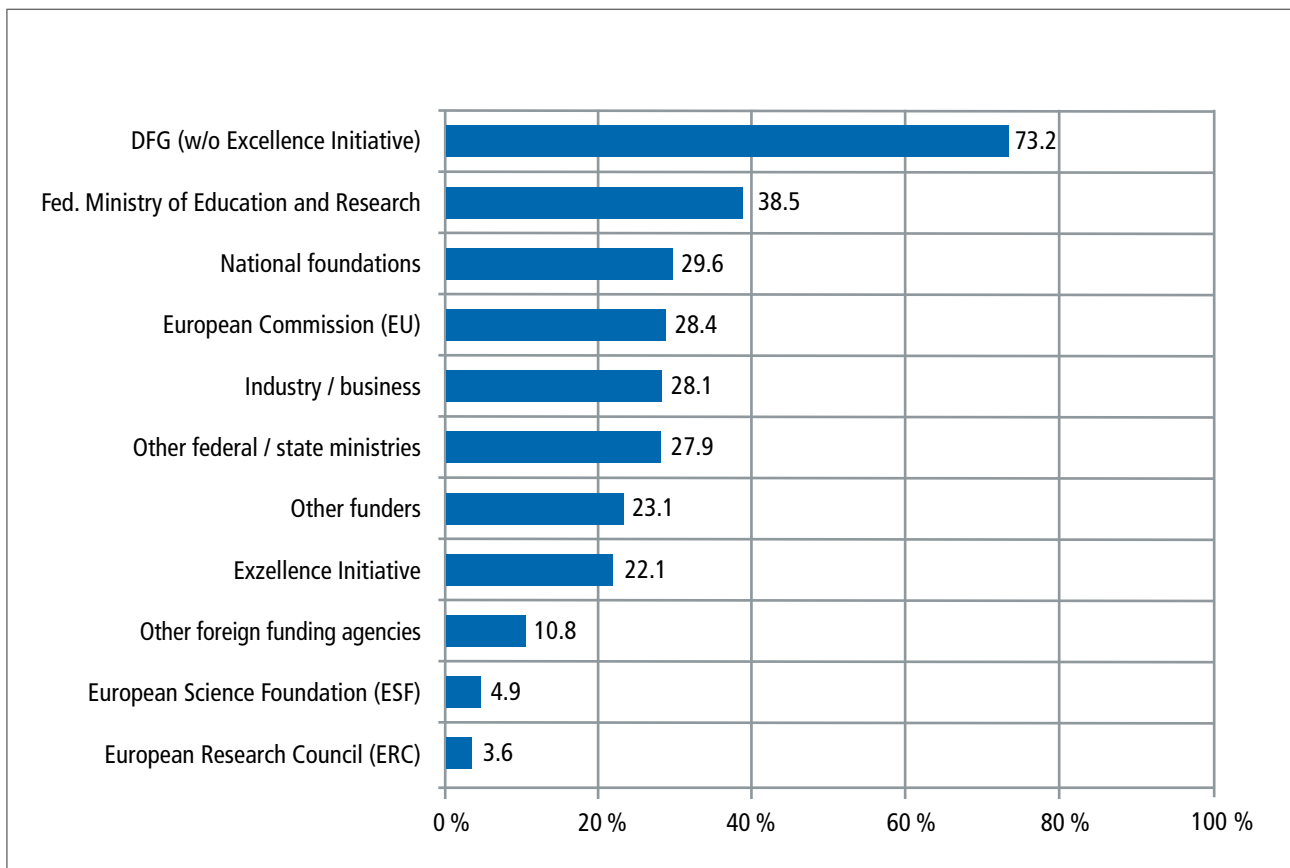


Figure 2

Proposals submitted in past 5 years for externally funded projects, by funding body
Over 25,000 euros, n = 3,131, source: Böhmer et al. 2011

10 percent of respondents) were asked for reasons why they have not submitted proposals to the DFG. The most frequently named obstacles are the demanding proposal process (70 percent) and low approval rates (66 percent). A distant third, cited by about 30 percent of respondents, is a lack of experience with DFG programmes. The perception that the review process takes too long is considered a problem by 27 percent of all non-applicants. About one in five non-applicants points to bad experiences in the past or is concerned that the reviews lack fairness.

When it comes to transparency, the DFG gets high marks from those respondents familiar with it as applicants. On funding requirements, review criteria, and the review and decision process, DFG applicants feel good to very well informed – better than those who applied to other funders. If an application was rejected, 87 percent of DFG applicants – more than those applying anywhere else – received a written explanation of the rejection, inclu-

ding notes from reviewers. Since 2007, this has been DFG policy.

It should be noted, however, that the written review notes explaining proposal rejection tend to be rated poorly by most applicants. Across all funding agencies, applicants find fault with scientifically incorrect assessments, non-transparent evaluation criteria, implausible decisions, and unhelpful explanations.

3 Benefits and Demands of Externally Funded Research

Many university researchers today rely on external funding for their investigations. The main motivation for raising third-party money is the funding of staff positions. Just over 70 percent of survey participants indicate that they can pursue their research agenda only with the help of external resources. About the same number of respondents say they use third-party funding to build research infrastructure.

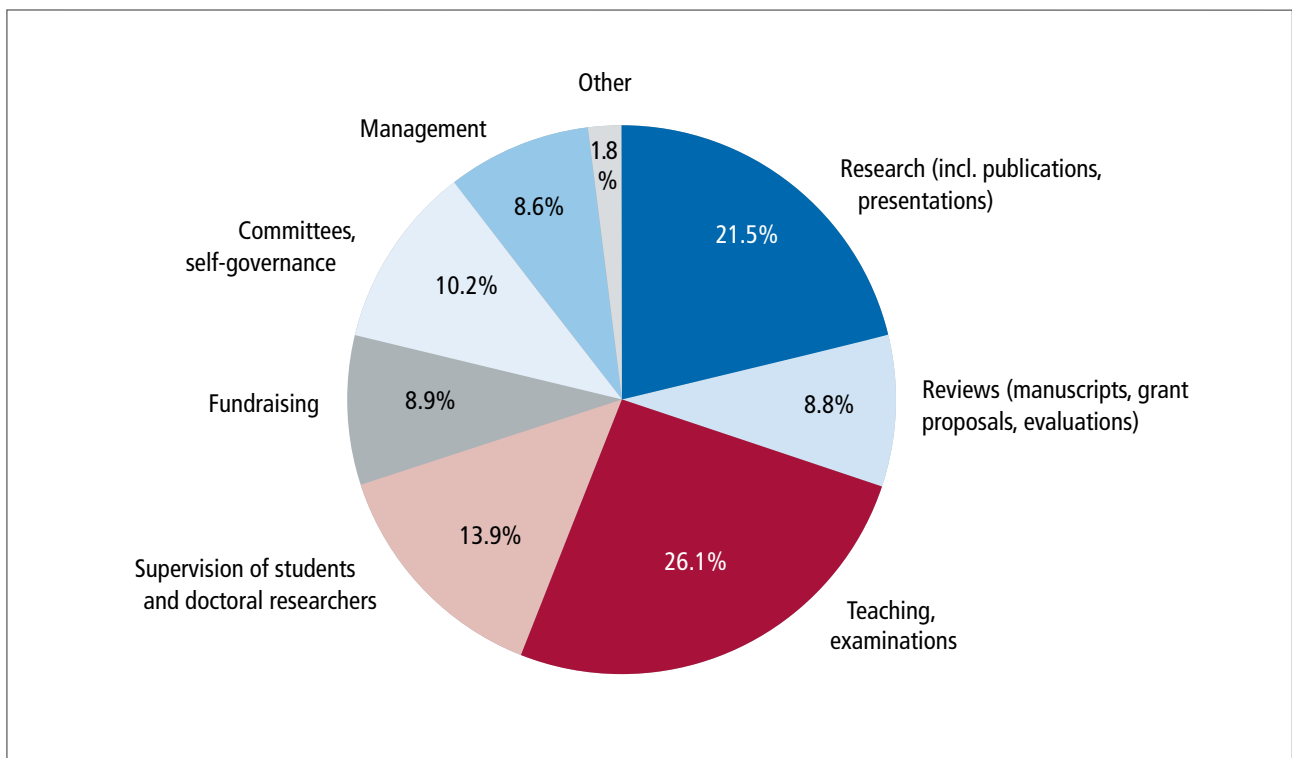


Figure 3
Percentage of working hours spent on various activities, annual average
N = 2,607, source: Böhmer et al. 2011

But external funding also has indirect effects that benefit researchers, many of whom seek it because it is considered “reputation currency” and helps determine how research institutions allocate their internal resources. The latter is especially true in medicine (55 percent overall vs. 64 percent in medicine). About one-third of respondents state that their university requires them to raise third-party funds. In the engineering sciences, external funding also helps to develop contacts outside the university.

While funding opportunities tend to be perceived as good (by 43 percent of respondents) and the ratio of core support to externally funded projects is seen as balanced, a majority (61 percent) feels that there is too much need for external fundraising. The pressure to publish and performance demands due to evaluations are also considered too high, by 48 and 39 percent of respondents, respectively.

The professors state that 21.5 percent of their time budget is available for actual research, including publications and presentations (see Figure 3). But fundraising is also a typical part of many researchers’ work routine, taking up about 9 percent of their time. About the same amount of time is spent on the review of manuscripts (mostly for journals), grant proposals and evaluations. Within the past year, written reviews of manuscripts were prepared by 90 percent and of project proposals submitted to funding agencies other than the DFG by 72 percent of respondents. More than half (55 percent) also wrote reviews for the DFG. About 16 percent served in oral review panels for the DFG, and one in ten provided oral reviews for other funding agencies. Only one percent of respondents were not involved in any reviews. Even though reviews account for a large part of researchers’ time budget, two out of three claim they usually or always accept requests for reviews. This reflects the high regard in which the idea of scientific self-governance is held.

4 Tasks of the DFG and Research Policy Measures

The core mission of the DFG is the promotion of excellent research. To fulfil this basic mandate and for research-policy reasons, it pursues specific tasks and goals. The authors of the study determined how relevant the respondents consider these activities and how they rate the performance of the DFG in these areas.

It should be noted first that virtually all the tasks polled were rated important or very important by the respondents (see Figure 4). Early career support for researchers is considered by most respondents an important task of the DFG. It is rated important or very important by 94 percent of respondents. A close second is the representation of the scientific community’s interests in the political arena (87 percent important or very important), and the safeguarding of good scientific practice (86 percent). These self-governance responsibilities are followed by the promotion of national and then international research collaborations. Rated least important of all the tasks polled (considered not-at-all or not important by one-third) is the DFG’s involvement in the Excellence Initiative.

But when it comes to the quality of the DFG’s performance of these tasks, the DFG nonetheless receives very high marks for its contribution to the Excellence Initiative. This set of questions was posed only to survey participants who had previously rated the respective tasks as important or very important. The safeguarding of good scientific practice is one of the tasks considered both very important and very well performed. More critical is the assessment of the DFG’s performance in representing the scientific community’s interests in the political arena. While the respondents consider this task important, only 40 percent believe it has been done very well or well. Ratings for the DFG’s performance on policy advice are in the midrange.

According to the survey results, the DFG has a mandate to play a formative role in German science policy. Here too, researchers endorse the DFG's role as the voice of the scientific community, because at the same time they tend to believe that politically driven priorities have too much influence on science policy. Is this true for all science policy reforms and measures? What measures and reforms in general – i.e. independent of the DFG's mission – do researchers view as particularly suitable or unsuitable to strengthen research in Germany?

Researchers' most important concern is early career support, specifically a reliable career outlook. While the interviewed professors regard the general professional environment as quite satisfactory for junior scientists, they problematise especially the lack of (permanent) positions for early-career researchers. The promotion of international cooperation and the active international recruitment of excellent research-

ers is viewed as another important tool for strengthening German research. Most respondents (approximately 55 percent) are critical of excellence competitions, both in teaching and for research. This reflects a scepticism, evident across different answers, of measures that focus on the short to medium term. Conversely, the (sustainable) strengthening of core funding independent of performance but also performance-based resource allocation polls favourably. While the professors believe strongly that the scientific community should be better represented in political decision-making processes, they rate increased options for academics to help shape their own institution's policies as only slightly positive, and more university management as clearly negative.

While most of the proposed research policies are evaluated fairly similarly by researchers across subject areas, some disciplinary differences do exist. For example, researchers

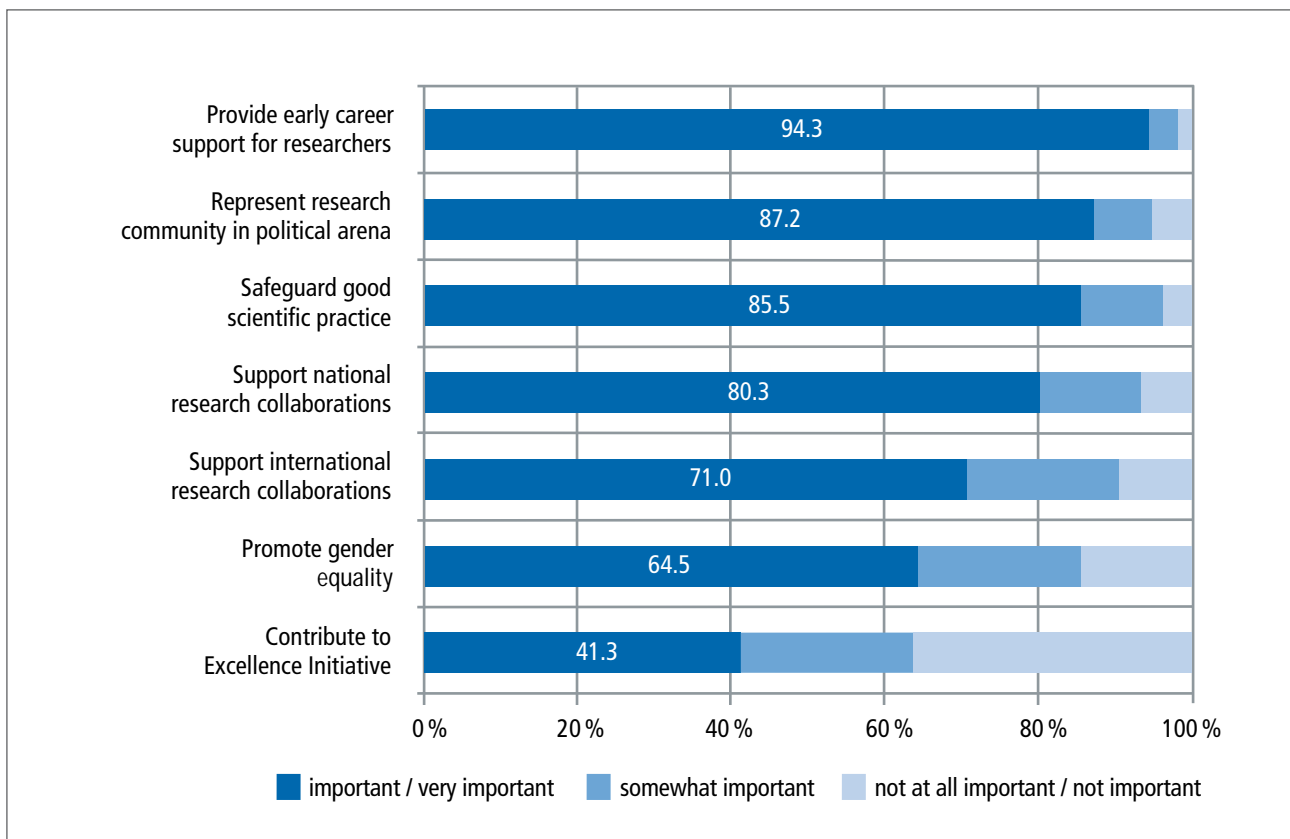


Figure 4

Importance of DFG tasks

N = 2,720 to 2,751, source: Böhmer et al. 2011

in chemistry, physics, biology and the agricultural sciences are especially opposed to increased funding for socially and economically relevant research, while the professors from the engineering, economic and social sciences are neutral towards it. Competitions for excellence in research, seen by the majority as unsuited for strengthening research in Germany, are rated as neither suitable nor unsuitable by medical scientists. Like the engineers, the medical scientists advocate greater support for collaboration between academic and non-academic research, which the other disciplines rate as neither negative nor positive on average. A controversial issue seems to be the expansion of structured doctoral training. Here opinions range widely, from support by medical researchers to rejection by chemists, physicists and engineers.

In detail, then, we see a differentiated body of opinion on research policy that varies between disciplines. Few differences are found in these matters between the sexes and different age groups.

5 Summary and Outlook

The findings paint a rich picture of the research conditions in Germany: Externally funded research plays an important role today for the vast majority of researchers. The DFG, as the largest funding body for basic research, has a particular significance which respondents associate with specific expectations. At the same time, they also express a high level of satisfaction with both the programmes of the DFG and the way it fulfils its mission.

From the vantage points of their respective disciplines, the academics expressed opinions on a range of research policy issues. On most topics, there is significant agreement across disciplinary communities. In a few areas, for example on funding models or cooperative research, the differences between disciplinary cultures and working conditions do affect opinions.

The DFG has published a statement on the results of the researcher survey, which also contains several conclusions from the findings³. The DFG has changed from a funding agency for a small group of top-level researchers to “an indispensable competitive authority for a large majority of university professors and a voice of the scientific community in a pluralistic system”. Beyond its core task of promoting curiosity-driven research in individual projects and collaborations, it also receives support for the way it represents Germany’s researchers in the public policy arena. The survey results also provide an important empirical basis for the discussions within the DFG committees on specific topics. Funding for high-risk research or the safeguarding of good scientific practice, to name two examples, are hot topics whose discussion can be significantly enriched by the survey findings. The unique situation and needs of each discipline should be taken into account in this debate.

The survey results can also be used to reflect and expand other DFG analyses. The DFG’s own evaluations of the number of reviewer requests (Reinhardt 2009), for example, can now be seen in relation to the total review workload. The contribution made by competitive research funding to coordinate resources and define the profiles of universities, which is the subject of the analyses of the DFG’s funding ranking (Bovelet and Güdler 2009), is reflected in this survey in the views of individual researchers. This provides an opportunity to examine the institutional and disciplinary allocation of third-party funds in even greater detail. Thus it can be shown at which locations and in which disciplines external funding is more common than elsewhere.

The survey is especially valuable for other studies in which the DFG examines the effects of its funding activities. It creates cross-connec-

3 http://www.dfg.de/en/dfg_profile/evaluation_statistics/programme_evaluation/studies/study_researcher_survey_2010/index.html

tions to past and current surveys relating to specific programmes, e.g. the evaluation of the Excellence Initiative, the evaluation of CRC transregio projects (Geyer et al. 2009) and the evaluation of special subject collections (Astor et al. 2011). The survey also sheds light on the attitudes and opinions of those affected – for example on a topic like equal opportunity in grant programmes, which had previously been analysed mainly on the basis of proposal data (Hinz et al. 2008, Auspurg and Hinz 2010).

Finally, the special value of the survey for the DFG, as the central self-governing organisation of German science, is that the researchers have expressed themselves very directly in it. The result is a comprehensive quantitative picture of research in Germany, qualitatively complemented by the frequent use of open-ended answer options.

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