A 3 Basic research funding structures and publications in international comparison

Financing for basic research can take various forms. In Germany, funding is provided through basic financing of tertiary education institutions (universities and universities of applied sciences) and non-university research institutions (außeruniversitäre Forschungseinrichtungen, AUFs) on the one hand, and in competitive processes through research funding organizations on the other. In its previous annual reports, the Commission of Experts has examined research at tertiary education institutions (2012) and AUFs (2010) in considerable detail. The present analysis investigates the funding structures in competitive basic research funding, which in Germany is allocated by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG).

International comparisons show that competitive research funding can take place through various funding lines, allowing the same overall level of funding to be structured in entirely different ways. This analysis compares the DFG's funding structures with the most prominent research funding organizations in the United Kingdom (UKRI), the Netherlands (NWO), Switzerland (SNF) and the USA (NIH and NSF).[85] Available data from the ten-year period 2008 to 2017 is taken as the basis for this comparison. The comparison takes the following structural characteristics into account: the total amounts awarded for individual funding lines, average funding amounts, maximum funding durations for specific programmes, distribution of approved funding across subject groups and success rates. The assumption is that different structures will result in different research results. Consequently, this analysis also makes an international comparison of the structure of research results (publication quality and quantity) which could be attributed to funding allocated through the research funding organizations considered here.

Funding and funding structures of the DFG

The DFG is Germany's central research funding organization for competitive financing of basic research. According to its statutes, the DFG "serves all branches of science and the humanities by funding research projects and facilitating national and international collaboration among researchers".[86] The specific tasks of the DFG also include: selecting "the best projects by researchers at universities and research institutions on a competitive basis"; funding "excellent science without regard to extra-scientific factors"; awarding "the best researchers with funding"; providing "the means and freedom necessary for successful research", and facilitating "the advancement and training of early career researchers".[87] "In principle, every scientist working in Germany or at a German research institution located abroad who has completed their academic training (a doctorate as a rule) is eligible to submit a proposal".[88]

In addition, basic research in Germany is funded through basic financing of AUFs, whose researchers can only submit applications to the DFG in cooperation with tertiary education institutions (cf. box A 3-1).

By far the largest proportion of all DFG subsidies (around €3.1 billion in 2017)[89] was granted to applicants at universities (91.3 percent in 2017).[90] In addition to direct project costs, programme allowances also finance indirect project expenses related to funding (also known as overheads, such as accommodation, administration and energy costs). At present, programme allowances account for 22 percent.[91]

Box A 3-1

Non-university research institutions as further pillars of publicly financed research in Germany

In addition to the DFG, Germany finances an independent sector of AUFs, each of which has specific missions. Max Planck Institutes conduct knowledge-oriented basic research in natural sciences, life sciences, the humanities and social sciences. The Helmholtz Association performs top-level research in strategic programmes in the fields of natural sciences, technology and biomedicine. The Fraunhofer-Gesellschaft conducts application-oriented research in the fields of health, security, communications, mobility, energy and the environment. The Leibniz Association conducts knowledge-oriented and application-oriented basic research into issues of societal, economic and ecological importance.[92]

The sector of AUFs – which may only submit applications to the DFG under specific conditions – is unique to Germany. The Federal and Länder governments provide total funding of €6.82 billion for AUFs (2017 target).[93] When scientists at AUFs[94] nevertheless wish to apply for funding from the DFG, they can only do so in cooperation with tertiary education institutions. This mechanism is also known as the duty to cooperate.[95]

The DFG is jointly financed by the Federal Government (58 percent) and the Länder governments (42 percent).[96] The level of financial support is granted on the basis of an economic plan proposed by the Joint Committee (Hauptausschuss) of the DFG and approved by the Joint Science Conference (Gemeinsame Wissenschaftskonferenz, GWK).[97] The Pact for Research and Innovation (Pakt für Forschung und Innovation, PFI) sets down research policy objectives to be implemented by the DFG. In return, the DFG receives financial planning security in the form of annual funding increases.[98] From 2006 to 2010, this increase in funds amounted to 3 percent per year; from 2011 to 2015, it amounted to 5 percent per year, and annual increases of 3 percent are planned for the period 2016 to 2020.[99] Additional funding was made available to the DFG as part of the Excellence Initiative. In 2005, the Federal Government and the Länder concluded the agreement on the Excellence Initiative's first financial support period from 2006 to 2011. As part of this, the DFG was awarded additional funding totalling €1.9 billion.[100] In the second Excellence Agreement for the period 2011 to 2017, signed in 2009, the DFG received total funding of €2.7 billion.[101]

In 2017, the DFG awarded total funding in the amount of €3.15 billion[102] (including the Excellence Initiative). In 2008, this figure stood at €2.23 billion, representing a significant funding increase of more than 40 percent over the entire ten-year period from 2008 to 2017.[103] This growth can be traced back in part to the programme allowance, introduced in 2007 and financed from the Higher Education Pact. Since 2013, a further portion is attributable to significant financial allocations as part of the second round of the Excellence Initiative.[104] The distribution of approved funds across the individual funding lines has remained broadly stable over the last ten years. The main recipient groups of DFG funding, the average funding amounts and the maximum funding duration of programmes have changed only slightly.[105]

The DFG system comprises various programme lines. There are 39 funding lines which cover a wide spectrum of objectives and target groups. According to the DFG itself, the portfolio of funding schemes is composed of the instruments divided into Individual Grant Programmes,[106] Coordinated Programmes,[107] the Excellence Initiative of the Federal Government and the Länder (2005 to 2017), the Excellence Strategy of the Federal Government and the Länder from 2018,[108] Research Infrastructure, Scientific Prizes and International Programmes.[109]

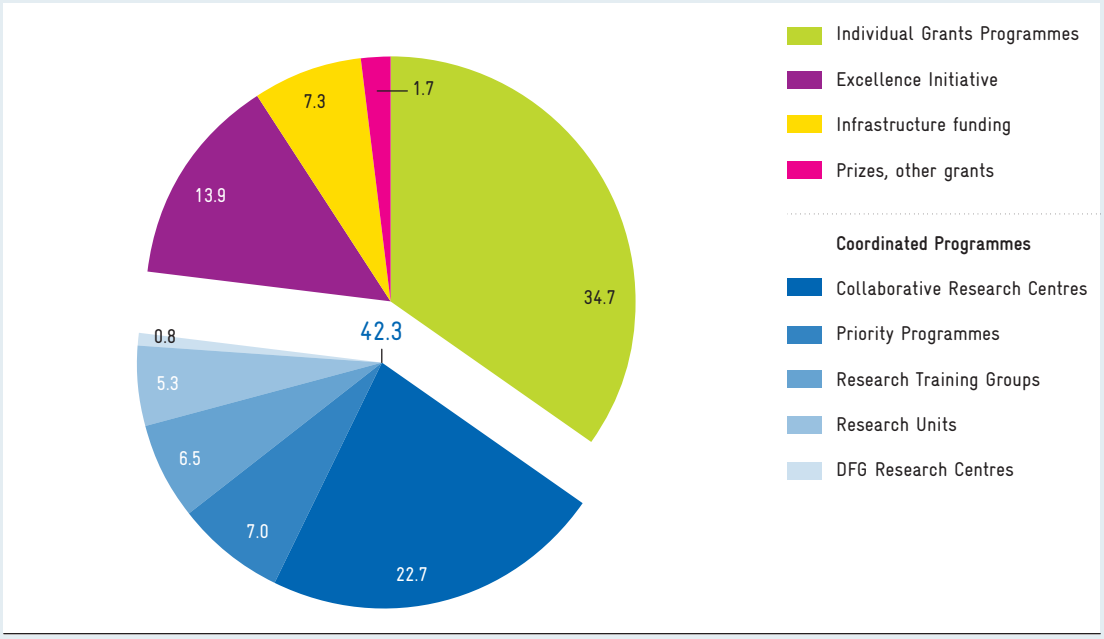
The single largest share of funding in 2017 went on Individual Grant Programmes at approximately 35 percent, followed by Collaborative Research Centres at almost 23 percent (cf. figure A 3-2). The five most important Coordinated Programmes (Collaborative Research Centres, Priority Programmes, Research Training Groups, Research Units and DFG Research Centres) account for around 42 percent of funding awarded.[110] The aim of Coordinated Programmes is to promote "cooperation and structural innovation".[111] The DFG aims to achieve this "by encouraging national and international collaboration in areas of current relevance and by concentrating scientific potential at a university".[112] In doing so, DFG funding

A

Fig. A 3-2

Download data

Annual total funding volume for ongoing projects awarded by each programme in 2017 as a percentage of all funding



Source: DFG data. Calculations by Fraunhofer ISI in Kroll (2019).

places major emphasis on supporting collaboration between researchers. The Excellence Initiative and Research Infrastructure programmes also account for significant proportions of spending (at 13.9 percent and 7.3 percent respectively). The ranking of funding lines has also broadly remained stable since 2008.[113]

In 2017, the average funding amount in the Individual Grants Programmes category was approximately €200,000 across all new applications in the same category.[114] The success rate for the Individual Grants Programmes category was around 30 percent in 2017; however, this figure has fluctuated significantly over the course of time. The lowest figure was 23 percent, recorded in 2013; the highest stood at 35 percent in 2009.[115] The funding period for new applications in Individual Grants Programmes is usually between two and three years (in fact, the average for 2017 was 31.6 months).[116] Coordinated programmes are generally longer – for instance, Collaborative Research Centres can run for up to twelve years, while Research Training Groups can run for up to nine.[117]

International comparison of funding structures

The following section compares the funding structures of the DFG with those of the most important research funding organizations in the United Kingdom (UKRI), the Netherlands (NWO), Switzerland (SNF) and the USA (NIH and NSF). In doing so, reference is made to a study conducted by the Austrian Institute of Economic Research (Österreichisches Institut für Wirtschaftsforschung, WIFO) on behalf of the Commission of Experts.[118]

In all these countries, the funding awarded by the aforementioned research funding organizations only represents a proportion of total research funding for tertiary education institutions. At 18 percent, the proportion of overall research funding for tertiary education institutions awarded by the DFG is at the lower end in international comparison.[119] The same is true for the funding amounts provided by the DFG per scientist in the tertiary education sector.[120] In the international comparison, the cumulative average growth rate of 6.8 percent for DFG funding in the period 2005 to 2016 ranks in the middle of the table.[121]

Box A 3-3

A

Classification of funding lines and instruments

Categories of funding lines for international comparison	**Description** (selected examples from DFG funding lines)[122]
Project funding	**Project funding**
Single project funding	Standard funding for single principal investigator-led research projects (Research Grants)
Single project funding early career	Single project funding for early career researchers, i.e. fixed-term staff and/or first-time applicants
Single project funding high-risk	Single project funding with a specific focus on high-risk projects (Reinhart Koselleck Projects)
Networks and multi-project funding	Funding for collaborations between scientists/research directors, usually from different research institutions (e.g. Research Units)
Interdisciplinary research	Funding for research projects with interdisciplinary collaboration or interdisciplinary approach
Priority areas	**Larger-scale, coordinated funding lines**
Structural priority area	Funding with the aim of reinforcing scientific excellence and boosting international visibility (Collaborative Research Centres, DFG Research Centres, Excellence Initiative)[123]
Thematic priority area	Support for research on predefined topics (Priority Programmes)
Infrastructure	**Funding for research equipment (outwith funding in single project funding)** (Scientific Instrumentation and Information Technology, Scientific Library Services and Information Systems)
Funding of people	**Promotion of people**
Education and training	Funding for potential scientists not holding a doctorate with the aim of preparing them for or guiding them towards a scientific career (Research Training Groups)
Career	Funding for post-doctoral researchers with the aim of improving their career prospects (e.g. Emmy Noether Programme, Heisenberg Programme)
Mobility	Funding to facilitate researchers' international mobility and support exchange programmes (e.g. Research Fellowships)
Diversification	Funding for researchers with the aim of improving diversity in terms of gender, origin or type of tertiary education institution (Project Academies)
Prizes	Prizes for researchers (e.g. Gottfried Wilhelm Leibniz Prize, Heinz Maier-Leibnitz Prize)
Translation	**Funding with the aim of using basic research for specific applications**
Applied research	Funding for applied research within the tertiary education system (e.g. Clinical Trials)
R&D collaboration with firms	Funding for collaborative R&D projects
Commercialisation	Funding for commercialization of research results
R&D value chain	Funding for the entire research cycle, from basic research to applied research and experimental development through to commercialization
Scientific communication	**Funding to communicate research findings to a non-scientific audience**
International cooperation	**Funding for bilateral research collaboration between different countries** (e.g. establishing international collaborations, submitting joint applications for D-A-CH)

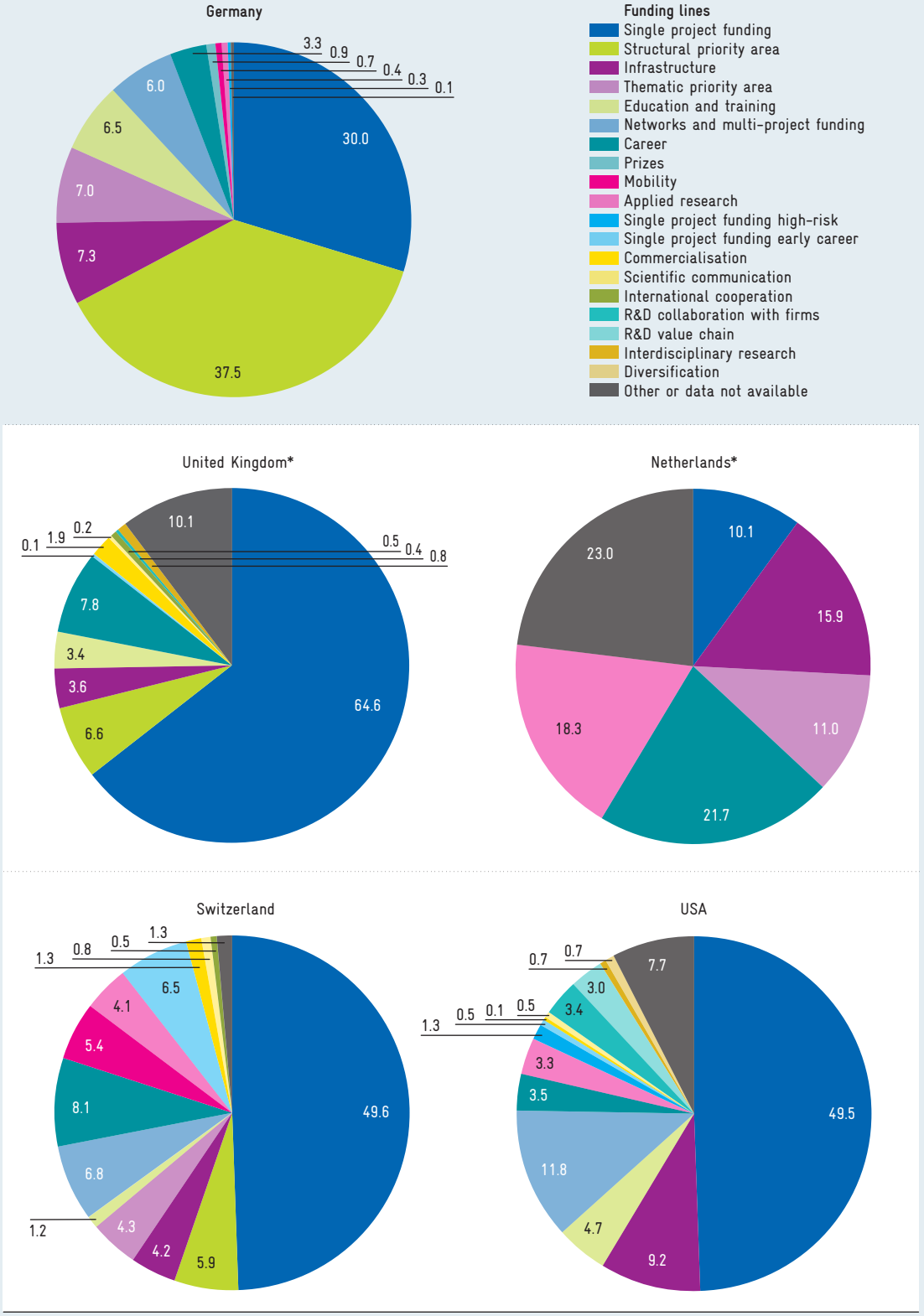
Source: Janger et al. (2019: 23f.).

A

Fig. A 3-4

Download data

Structure of funding lines in international comparison in 2017 as a percentage of all funding



* 2016

United Kingdom: weighted average of the AHRC, BBSRC, EPSRC, ESRC, MRC, NERC and STFC. Data taken from financial reports.
USA: weighted average of the NIH and NSF.

Source: research funding organizations' data. Germany, the Netherlands, Switzerland: WIFO calculations in Janger et al. (2019).
United Kingdom, USA: own calculations based on Janger et al. (2019).

To make it possible to compare the complex funding structures of different countries' research funding organizations, the various funding lines – the finer details of which differ – are allocated to broader (but internationally comparable) categories. Box A 3-3 outlines the funding line classification method that the international comparison is based on.[124]

One aspect shared by research funding organizations in almost all of the countries examined here is that single project funding is one of the most important funding lines (cf. figure A 3-4). Following the above classification method, single project funding from the DFG includes Research Grants. In the United Kingdom, Switzerland and the USA, single project funding is the largest funding line, representing 50 to 65 percent of total funding in these countries. It is striking that the proportion of structural priority area funding is higher for the DFG than in comparative countries; structural priority areas concern funding with the aim of reinforcing scientific excellence and boosting international visibility. Based on the above classification, structural priority areas include three DFG funding lines: Collaborative Research Centres, DFG Research Centres and the Excellence Initiative (cf. box A 3-3). This pattern has remained comparatively stable in recent years; in Germany, it has even been further reinforced by the Excellence Initiative.[125] DFG funding is therefore more concentrated on larger-scale, coordinated funding lines than is the case for research funding organizations in other countries. However, international empirical studies show that such coordinated funding lines are not always more successful. In particular, their success appears to differ depending on the subject area.[126] The following section examines whether there are systematic differences in the publications of projects funded by the respective research funding organizations in an international comparison.

In terms of the distribution of funding across subjects, the largest proportion of funding was allocated to projects in the natural sciences in the countries examined here – with the exception of the USA.[127] Due to the funding activities of the NIH, the largest proportion of funding in the USA on average went to the field of medicine. In Germany, the field of engineering sciences receives more funding than in the comparison countries.[128]

The results of the WIFO study suggest that, in this international comparison, Germany has the lowest average funding amount and a rather low maximum

International comparison of funding characteristics of single project funding on the basis of new applications in 2017

Tab. A 3-5

Download data

Country	Research funding organization	Average funding amount (in €m)	Maximum funding duration (in years)[2)]	Success rate (in percent)
Germany	**DFG**	**0,28**	**3**	**30**
Netherlands	NWO	0,33	6	22
Switzerland	SNF	0,50	1–4	48
United Kingdom	AHRC	0,64	5	25
	BBSRC	N/A	5	24[4)]
	EPSRC	0,98	N/A	29
	ESRC	N/A	N/A	23[4)]
	MRC	N/A	5	22
	NERC	N/A	N/A	31[4)]
	STFC	N/A	N/A	N/A
USA	NIH	0,41[1)]	3–5	19[1)]
	NSF	0,34	2,9[3)]	21

N/A: data not available. AHRC, BBSRC, ESRC, MRC, NERC and NWO: 2016.
[1)] On the basis of new applications, applications for renewal and applications for amendments. [2)] 2018 or last available applicable documents without specific year stated. [3)] Average duration. [4)] Overall success rate.
Source: research funding organizations' data. WIFO calculations in Janger et al. (2019).

funding duration in terms of single project funding on the basis of new applications (cf. table A 3-5).[129] No comparable data on other funding lines was available to the Commission of Experts. Regarding the effects of different funding durations, empirical studies suggest that shorter funding durations tend to lead to less excellent publications, partly due to less freedom for research.[130] In terms of the effects of increasing funding amounts on research results, the empirical evidence is controversial; however, there tends to be good evidence of a positive correlation between the funding amount and the results of the funded research.[131] At 30 percent, the DFG's success rate for single project funding is quite high compared to other countries – with low average funding amounts at the same time (cf. table A 3-5). In summary, both the funding duration and the average funding amount appear to be structural characteristics that merit more detailed analysis and examination in future.

There is also a difference between the eligibility of indirect costs in single project funding programmes. While the DFG applies a rate of 22 percent – similar to the SNF (20 percent) – the NWO does not fund

Box A 3-6

Operationalization and measurement concept for research council acknowledging publications (RCAPs)[132]

Scientific publication results are one method by which to measure the results of research projects. Publications are allocated to research funding organizations based on the details in the acknowledgement sections of journal articles. Not all research funding organizations make such acknowledgements a legal obligation. However, for some time now, they have been the standard query for many scientific journals when submitting articles via the corresponding institution tools. According to both Thomson Reuters (Web of Science) and Elsevier (SCOPUS), funding information has been collected as standard since 2009 and is reliably interpretable.[133] Data from Web of Science was used as the basis for comparisons in this regard, as it provided more robust funding reference data for the period under examination. Nevertheless, a comparative analysis with SCOPUS – which still contains incomplete funding references but includes data from a wider range of subjects – provided almost identical results, at least in the case of research council acknowledging publications within individual scientific disciplines.

A total of around 5.6 million publications were analyzed using Web of Science data for the period 2010 to 2017. Publications that acknowledge one of the key research funding organizations included in the analysis are referred to briefly as research council acknowledging publications (RCAPs).

The number of RCAPs of the respective country and the number of national and international co-publications among the RCAPs are taken as quantitative indicators. These publication-based indicators are available for the period 2010 to 2017.

The excellence rate and the crown indicator (CI) are used as qualitative indicators.

The excellence rate is defined as the proportion of a country's publications that are among the 10 percent of the world's most-cited publications in the respective scientific discipline. The CI compares a country's citation rates with those of the rest of the world, normalized for specific disciplines.[134] The CI is normalized to 1.0. For example, a CI of 1.4 would indicate that the publications of the country in question are cited 40 percent more frequently than the international average.

The excellence rate and the CI are calculated on the basis of citations. These citation-based indicators are based on a citation window of three years (including the year of publication), meaning that only publications with a corresponding time interval until the current margin can be recorded. These indicators are available for the period 2010 to 2015. In order to satisfy the various starting situations of qualitative indicators of all publications, the difference between the RCAP excellence rate and the excellence rate for all publications is taken as a further qualitative indicator for the research funded in a respective country (with the same approach applied for the CI).

any indirect costs, while the NIH and NSF fund all indirect costs (30 to 69 percent). The UKRI finances 80 percent of all costs incurred (direct and indirect costs); the remaining 20 percent must be borne by the research institution.[135]

International comparison of research results: publications from funded projects

Assessing research results on the basis of publication performance and taking publications which acknowledge funding from national research funding organizations (referred to here in short as research council acknowledging publications, RCAPs) as an indicator of the results of funded research produces clear, country-specific patterns. Box A 3-6 explains how publications can be allocated to research funding organizations.

The publication analysis results outlined in the following originate from a Fraunhofer ISI study commissioned by the Commission of Experts. This study shows that the proportion of RCAPs among all national publications is highest in the USA at the end of the period (2017), at 31 percent. The figure in Germany was 23 percent, in Switzerland 21 percent, in the United Kingdom 20 percent and in the Netherlands 14 percent.[136] While the number of RCAPs rose for all countries from 2010 to 2017,[137] the growth rate of RCAPs in Germany (37 percent) was lower than in European comparison countries.[138]

In almost all countries, RCAPs occur less frequently in co-authorship than publications as a whole.[139] If co-authorship is divided into national and international co-authorship, it can be seen that RCAPs are produced more frequently with co-authors from the same country than publications as a whole (in Germany, for instance, 23 percent of RCAPs were co-authored with a national partner and 20 percent of all publications were co-authored with a national partner in 2017).[140] However, in Germany, as in most other countries, RCAPs are produced with international co-authors less frequently than for all publications (in Germany, for instance, 53 percent of RCAPs were co-authored with an international partner and 59 percent of all publications were co-authored with an international partner in 2017).[141] Moreover, the proportion of international co-publications has grown less sharply for RCAPs than for publications as a whole – a trend evident across all countries.[142]

In terms of the quality of the research results, measured using the citations of respective publications, there are clear country-specific differences.[143] The excellence rate can be applied as the primary indicator (cf. table A 3-7) – that is to say, the proportion of publications that are among the 10 percent of the most-cited publications in the respective discipline (cf. box A 3-6).

The results of the Fraunhofer ISI study make clear that each country's RCAP excellence rate is higher than the excellence rate for respective countries' publications as a whole. In Germany, for example, the RCAP excellence rate is recorded at 17 percent and the excellence rate for all publications is 14 percent. This figure places Germany at the lower end of both rankings. Germany also falls behind the comparative

Tab. A 3-7

Download data

International comparison of excellence rates and crown indicators of RCAPs as well as excellence rates and crown indicators of all publications and differences in 2015[144]

Country	Excellence rate for RCAPs (in percent)	Excellence rate for all publications (in percent)	Difference in excellence rates (in percentage points)	Crown indicator for RCAPs	Crown indicator for all publications	Difference in crown indicators
Germany	17	14	+3	1.4	1.3	+0.1
Netherlands	22	17	+5	1.8	1.6	+0.2
Switzerland	22	19	+3	1.8	1.7	+0.1
United Kingdom	21	15	+6	1.8	1.4	+0.4
USA	20	14	+6	1.7	1.3	+0.4

The term RCAP denotes a publication which acknowledges one of the research funding organizations considered in this analysis. Cf. Box A 3-6.
Source: Thomson Reuters – Web of Science. Calculations by Fraunhofer ISI in Kroll et al. (2019).

countries examined here using the excellence rate for all publications determined by the OECD.[145] At the same time, Germany has the second-lowest number of publications per scientist in the tertiary education sector (in full-time equivalent positions) after the United Kingdom. The proportion of excellent publications among RCAPs is therefore not simply low because there is a disproportionately high number of other publications.[146] At 3 percentage points, the excellence rate increase for DFG-funded RCAPs compared to all publications is also rather low in the international comparison. Only in Switzerland is the rate of increase equally low – but the Swiss figure is an increase on a significantly higher excellence rate across all publications.[147]

For the purpose of classification, it is also useful to compare the excellence rate of DFG-related RCAPs used here to the excellence rates for all publications from tertiary education institutions and AUFs. This comparison can be conducted on the basis of an earlier study for the year 2012.[148] It is clear that the excellence rate for DFG RCAPs (17 percent) is higher than the rates for the Fraunhofer-Gesellschaft (10 percent), tertiary education institutions (13 percent), the Leibniz Association (13 percent) and the Helmholtz Association (16 percent). However, the excellence rate of the Max Planck Society (23 percent) is significantly higher than for DFG RCAPs – as is to be expected, given the Max Planck Society's concentration on excellent basic research. The results of the comparisons indicate that, in terms of the excellence rate, competitively funded research still has considerable scope for improvement.[149]

The crown indicator (CI) can be applied as an alternative qualitative indicator (cf. table A 3-7); it compares a country's citation rates with those of the rest of the world on the basis of a discipline-specific normalization (cf. box A 3-6). This measure of quality also shows that, in all countries, the CI for RCAPs is higher than the CI for all publications in the respective country.[150] When compared to other countries, with 1.4 in 2015, Germany has the lowest CI for RCAPs and – together with the USA – also has the lowest CI for all publications (1.3). The difference between the CI of RCAPs and that of all publications also puts Germany at the lower end of the ranking compared to the other countries examined here.

Taken as a whole, it is clear that DFG RCAPs display a relatively low increase in terms of their excellence rate and CI when compared to the figure for all publications in Germany and that this cannot be justified by the latter already returning above-average figures.

Another of the DFG's objectives is to promote cooperation and structural innovation. To date, no evaluations have been conducted into whether it achieves this objective. As a result, it is also not possible to evaluate whether the heavy focus of financing on funding programmes aimed at promoting cooperation and structural innovation compared to the funds allocated to single project funding is actually productive. For those submitting applications, this entails considerable additional effort in giving systematic consideration to structural innovation and collaborative elements when planning their research. Evidence that such efforts generally provide sufficient benefit to justify them is yet to be provided.

Conclusions and recommendations

The DFG as well as the research funding organizations in the comparison countries have differentiated funding structures in basic research, which are based on different objectives and target groups and are often comparable. Germany places a higher than average emphasis on funding for structural priority area programmes (Collaborative Research Centres, DFG Research Centres and the Excellence Initiative) compared with other countries – a pattern that has become yet more pronounced in recent years. This means that the DFG concentrates more heavily on larger-scale, coordinated funding schemes than other countries' research funding organizations. At the same time, it is clear that the total funding amount provided by the DFG in relation to the number of full-time scientists employed in the tertiary education sector is rather low compared to other countries. The results also indicate that for single project funding, the DFG has the lowest average funding amounts and among the shortest maximum funding durations per new application. The DFG's success rate is, by contrast, comparatively high.

Assessing the research results on the basis of research council acknowledging publications, it can be determined that the excellence rate and CI of publications which acknowledge the DFG are lower than for RCAPs in comparison countries. Meanwhile, the difference in quality between publications with funding acknowledgements and those without is among the smallest in the international comparison.

– The Commission of Experts suggests that the reasons for these patterns should be investigated more closely. It therefore recommends that greater use should be made of causal analyses according to the latest scientific standards.[151] The Commission also proposes preparing the underlying data, making it freely available to the scientific community and having more in-depth quantitative and qualitative analyses conducted by the scientific community for example as part of a specific research priority programme.[152] Scientific insights into the effects of various structures gained through this research should then be integrated by the DFG when examining its funding and support portfolio.
– The international comparison indicates that the DFG places heavy emphasis on funding programmes that aim to promote cooperation and structural innovation. At the same time, the average funding amounts awarded by the DFG to new applications for single project funding are rather low and the funding durations rather short. In addition, the overall level of DFG funding in relation to the number of scientists in the German tertiary education sector is rather low. Empirical findings suggest that the innovative content of funded projects and the quality of research results could be improved by increasing funding durations. In light of these results and the DFG objective of promoting excellence, it may be advisable to increase the average funding amounts and maximum funding durations for single project funding. As the heavy emphasis on funding programmes aimed at promoting cooperation and structural innovation represents a distinctive feature in the international comparison, it should be subjected to critical examination based on detailed DFG data.
– The below-average level of international co-operation measured by the co-authorship of publications referencing the DFG (RCAPs) is also striking. This finding is questionable as the mission of promoting international collaboration among researchers is a specific mission of the DFG, embedded in its statutes. This therefore raises the question of whether international cooperation should not be more strongly promoted by the DFG.
– The present analysis is unable to provide conclusive answers to every question due to problems with data availability. Further analyses should be conducted, in particular to examine whether the DFG should not be more rigorous in its single project funding when selecting projects but, in return, award more generous funding amounts and durations. Beyond that, a discussion is required into whether larger-scale, coordinated funding should be downsized for the benefit of excellent individual projects.
– The international comparison also shows that the programme allowance offered by the DFG is rather low. The increase in the DFG programme allowance to 30 percent – as embedded in the coalition agreement[153] – is therefore to be welcomed, as it also improves the general conditions and the basis for research at universities.