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MERCI (MONITORING EUROPEAN RESEARCH COUNCIL'S IMPLEMENTATION OF EXCELLENCE):

EVALUATION REPORT ON THE IMPACT OF THE ERC STARTING GRANT PROGRAMME

iFQ-Working Paper No. 16 | Dezember 2015

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Executive summary

In February 2009, the European Research Council (ERC) launched the MERCI project ("Monitoring European Research Council's Implementation of Excellence") to monitor the "Starting Grants" (StG) funding scheme. The StG programme supports "excellent" postdocs with up to 1.5 million euros for the duration of up to five years to set up or consolidate their own research group and pursue independent, investigator-driven "frontier research". Due to the fact that the StG programme was only established in 2007, the MERCI project puts a strong emphasis on programme implementation and the way the programme works in practice. In this way, MERCI focuses on the individual perspective and aims to paint a broad picture concerning direct and indirect effects of the StG funding scheme.

MERCI not only evaluates the objectives of the programme but questions the objectives themselves by assessing whether the StG funding scheme is tailored to the specific needs of postdocs. MERCI was implemented as an ERC Coordination and Support Actions (CSA) project with duration from 2009 to 2014 (grant agreement number 228473). The project was carried out by a consortium of four partners: the Institute for Research Information and Quality Assurance (iFQ), TU Dortmund University, Bielefeld University and the Humboldt University of Berlin.

Within the framework of the MERCI project, four broad topics were addressed:

1. *Funding strategies of StG applicants and motives to apply for a StG:* MERCI sheds light on the applicants' overall funding strategies by asking about their motivation to apply for the StG, contrasting the motives to apply for the ERC grant with the motives to apply to other funding bodies, and describing their overall project portfolio. By doing so, MERCI seeks to answer the question concerning the extent to which the StG programme substitutes for or supplements other competitive or recurrent funding sources.
2. *ERC selection process:* MERCI raises the question of whether the ERC actually reaches the appropriate target group of "excellent" up-and-coming researchers from all over the world and analyses the ERC selection process. This perspective is complemented by analysing which factors (might) affect the ERC funding decision from the applicant's point of view and how the applicants assess the selection process.
3. *Experiences of StG recipients with their host institution and their working conditions:* MERCI examines to what extent the StG is effective at enabling postdocs to become independent researchers. Thus, to what extent is the economic and symbolic capital provided by the StG translated into increased research autonomy and favourable working conditions? To answer this question, MERCI focuses on the relationship between the StG recipient and his/her host institution as well as on researchers' time budgets. It also touches upon factors relating to mobility.
4. *Outcome and sustainability of the StG funding:* With regard to the outcome of the StG funding, MERCl analyses to what extent the transition to becoming an independent researcher affects climbing the career ladder. Moreover, the project elaborates on the sustainability of the ERC funding with respect to both the StG recipient's individual (short-term) career prospects and the continuation of the StG research group.

In order to gain a comprehensive view of the StG programme implementation as well as the career development attributable to the StG funding, a *triangulation approach* and a *comparative design with approved and rejected StG applicants* were chosen. The particular advantage of the research design comes not only from the parallel implementation of qualitative (semi-structured interviews) and quantitative (online survey with a panel design and bibliometric analysis) methods but also from the functional interlacing of partial or preliminary results, the development of instruments, and the interpretation of empirical data. In order to assess whether the StG funding affects the career development of young researchers and whether the programme performs well, it is necessary to collect longitudinal data. Therefore, one building block of MERCI was a panel approach comprising two waves of standardised online surveys allowing for a *longitudinal design with several cohorts of StG recipients* and a comparative design with rejected StG applicants as a control group. The first panel wave was conducted at the beginning of the StG funding (or one year after the StG application for rejected applicants) and the second wave was conducted in the last part of the StG funding period (or 3.5 years after the StG application for rejected applicants). A short intermediate survey was run between the first and the second wave surveys.

MERCI can draw upon sound empirical evidence based on three surveyed StG cohorts (StG 2009, 2010 and 2011 cohorts) with more than 1,700 valid cases for the first wave survey and roughly 500 cases for the second wave survey. For the qualitative study, 40 interviews with StG applicants from the 2009 cohort were carried out (29 with approved applicants, 11 with rejected ones). The bibliometric analysis was conducted for approved and rejected applicants from the StG 2007 and 2009 cohorts. Whenever possible, in the MERCI project

– empirical results gathered from the different methodological approaches were triangulated, allowing for a comprehensive understanding of the logic of the practice,
– approved and rejected StG applicants were compared,
– cohort-specific effects were identified, and
– differences across nationalities, positions, and research fields were taken into account.

Below, selected empirical findings are presented in line with the four topics mentioned above:

1. Funding strategies of StG applicants and motivation to apply for an StG

– Regardless of their research field, current host country, or funding status, the *motivation to apply for an StG is mainly driven by the endowment of the grant*. This on the one hand relates to the amount of funding and its duration but also, on the other, to its thematic openness and freedom for the researcher to set their own research priorities. These are also the characteristics which are perceived as outstanding compared to other funding schemes. The reputation of the StG also represents an important, but slightly less relevant, motivation to apply for ERC funding. Whereas it is true of almost all applicants that the attractiveness of the StG mainly arises from its generous endowment and flexibility, for a minor but relevant group the StG application proves to be an essential attempt to ensure funding for their own position or to compensate for a lack of other funding opportunities. These motives were found to be most relevant for respondents from the Humanities, respondents from Eastern European and Scandinavian countries, and rejected StG applicants. The *relevance of the StG project in the overall project portfolio of researchers differs across research fields*. While in the Social Sciences and Humanities the StG

seems to be essential for implementing a long-harboured research idea, in Life Sciences and Physical Sciences and Engineering an ERC grant is often embedded in large-scale projects and instead represents an integral part of a more diversified funding portfolio. In Social Sciences and Humanities, the StG funding is crucial for the implementation of the research project as well as the career prospects of the Principal Investigator. In some cases, the employment of the Principal Investigator would even have been endangered without the StG. In the other research fields, the implementation of the StG project idea is still deemed possible without the ERC funding; maybe, but not necessarily, with some small adjustments due to a smaller funding budget.

– Due to its thematic openness and flexibility, in some specific research fields the *StG tends to substitute for recurrent institutional funding:* in Life Sciences, receiving an StG does not appear to result in a general shift in the relevance of funding sources because the applicants usually make use of a large variety of funding sources. Here, the StG apparently neither compensates for a general lack of funding which would restrict the general expansion of research activities nor substitutes for other specific sources. In Natural Sciences and Engineering, the StG instead tends to substitute for recurrent funding, whereas the number of projects funded by third parties remains almost stable. Furthermore, in Natural Sciences the StG leads to an increase in the overall number of projects, whereas this trend is not observable in Engineering. In Social Sciences, the composition of projects barely differs between approved and rejected applicants. Regardless of whether the respondents receive an StG or not, third-party funding, recurrent funding, and individual fellowships are of equal relevance and the StG project is 'added' to the existing set of projects without triggering any general shift in funding sources. Given that in the Humanities the proportion of projects funded by individual fellowships and recurrent funding is substantially lower among the grantees than among the rejected applicants (whereas the number of projects based on third-party funding remains almost equal), one may conclude that the StG funding in this field primarily substitutes for recurrent funding and fellowships.

– The survey results and qualitative interviews reveal that only a minority of the StG proposals are written without any external support. *Advice from colleagues or from the ERC's National Contact Points significantly increases the chances of success* – but only to a minor extent. Whereas the survey findings suggest that individual researchers' acceptance rates are not very strongly moderated by the availability and usage of external support, the qualitative interviews suggest that highly informed peers might provide useful input for a successful StG application. Even in view of an expansion of institutionalised support, informal advice by experienced peers still plays the most important role in the preparation of applications. However, the support focuses more on the question of how to design and adjust a proposal so that it fits the ERC's norms. This observation – in conjunction with the increased efforts by the institutions to 'preselect' promising candidates for an StG application in order to offer training in oral presentation and other specific courses – leads to the conclusion that at least in some cases the StG becomes a 'collective endeavour' by the potential StG host institution and the Principal Investigator.

2. ERC selection process

– Bibliometric analysis reveals that the *past publication performance of approved and rejected StG applicants differs only moderately*. The bulk of the StG applicants already exhibit an above-average

output prior to the StG application. In the analysed domains (Life Sciences and Physical Sciences and Engineering) over 90 percent of the applicants have published at least six articles in international journals and over 75 percent of all applicants have authored at least one highly cited paper. Both of these statements hold true for rejected and selected applicants. This evidence indicates the strong recognition of the ERC's principle of scientific excellence and demonstrates an *effective self-selection attitude amongst StG applicants*. Furthermore, in order to investigate the internationality of approved and rejected StG applicants, international cooperation and international perception were analysed. The MERCI results indicate that for both factors, approved applicants score higher than their rejected counterparts.

– MERCI respondents were asked to assess the ERC evaluation process according to a set of criteria which are intended to reflect different dimensions or stages of the evaluation process – ranging from the organisation of the application and the review process to contracting after a positive evaluation. The survey findings suggest a *fairly balanced contribution of formal-administrative and review-related criteria to researchers' overall satisfaction with the evaluation procedure* and that, consequently, equal priority should be given to both factors when attempting to further improve the StG programme.

– *Compared to the evaluation process of other funding bodies* (the European Commission, foundations, national and subnational-level governmental funding bodies), *the StG programme does not exhibit any weaknesses with regard to the application phase, and overall it is instead classed as average.* Furthermore, while information provided in terms of documentation appears to be sufficient, one area where the StG programme probably needs to be improved is in terms of the speed and transparency of the evaluation process itself. With regard to the other funding bodies, the factor that is evaluated most critically is the quality of the evaluation reports.

3. Experiences of StG recipients with their host institution and their working conditions

– *The StG is seldom used to enable mobility:* More than 80 percent of the MERCI respondents opt to stay not just in the same country where they lived when applying for the StG but also at the same institution. Less than 11 percent of the StG recipients use the grant in order to move to an institution in another country. In most cases, the StG funding is used to improve research conditions at the institution where the StG-holder was already working when they applied for the grant.

– *Familiarity with the research institution and the reputation of an institution are of utmost importance when it comes to choosing an StG host institution.* Overall, three quarters of StGrantees deem reputation to be an important or very important factor. Especially in the Humanities and Life Sciences, reputation counts for the most. Optimal contractual conditions and research infrastructure are in general less relevant but are very important criteria for those StGrantees who decide to leave their current host institution and country to implement the StG project.

– *Receiving an StG is usually followed by a higher level of autonomy in terms of allocation of material resources, human resources, and laboratory and office space,* while it has less effect on teaching activities and institutional co-determination. Compared to their peers at the same career level, both approved and rejected StG applicants report exceptionally high levels of scientific independence. This

may suggest that the StG serves as an instrument to supplement pre-existing scientific independence with financial autonomy. The comparison of researchers' time budgets reveals that the StG brings with it a *substantial surplus of time for research:* while StG recipients on average dedicate 46 percent of their overall working time to genuine research activities, the respective proportion for the rejected StG applicants is 10 percentage points lower. Even when controlling for potential moderating factors (e.g. teaching load, position, research field and country group) receiving the StG appears to result in a significant increase in research time. In the assessment of their working conditions, approved applicants systematically report higher levels of satisfaction across different aspects of their work. The most significant changes between approved and rejected applicants appear in the assessment of long-term career prospects and with regard to their reputation at the host institution and in the scientific community.

4. Outcome and sustainability of the StG funding

– The development of skills and competencies was an outcome dimension of the StG funding. To obtain a proxy for the perceived development of individual skills – independent of the career stage a respondent is at and the position he/she holds – approved and rejected StG applicants were asked to rank their own level of competence compared to colleagues at the same career level. The respondents' overall tendency to rate their own competencies as "above average" is noteworthy but points (again) to a strong self-selection among StG applicants. Due to the fact that both approved and rejected applicants perceive their abilities to carry out research independently to be very strong compared to colleagues at the same career level, it seems plausible that *strong research skills might be a precondition for the application rather than an outcome of the StG programme.* Among approved StG applicants, skill development is focused on a small set of competencies – namely leadership, acquisition of research funding, and networking skills – whereas in the reference group a broader set of skills was mentioned and the picture therefore appears much more heterogeneous.

– The survey data suggests substantial vertical mobility on the career ladder among all MERCI respondents. Overall, in the time interval between the StG application phase and the second wave survey, the proportion of respondents holding a full or associate professorship doubled while the proportion of those holding an assistant professorship or group leader position remained stable. In addition, the survey findings show that approved StG applicants promoted to professor obtain a full or associate professorship close to the time of the ERC funding decision. This provides evidence for the hypothesis that *movement up the career ladder is a direct result of a successful StG application*. In general, for many applicants the StG serves as an official confirmation of their scientific status and helps them to progress in their professional career, while it is less relevant as an instrument for actually *achieving* scientific independence.

– With regard to the sustainability of the StG funding, the survey data indicates that the *majority of StGrantees intend to stay at their StG host institution* (67 percent), 24 percent are still unsure, and 9 percent intend to change institution. 82 percent of the StG recipients expect to be given a permanent position, 9 percent expect a temporary one, and only 1.5 percent do not expect further employment opportunities at their current institution. The remainder (7 percent) have not yet made any arrangements. However, the individual prospect of further employment at the StG host institution strongly differs across research fields. Furthermore, *the majority of StG*

research groups will most likely continue to exist in a similar composition at the current institution (62 percent). In 16 percent of cases, the StG research group will most likely be dissolved and 4 percent of the groups will most likely move to another research organisation. For 17 percent of the respondents the future of their research group was still unclear. Here, differences across research fields come into play: compared to other research fields, in the Humanities and Social Sciences the future of the StG research group is most frequently unclear.

1. Introduction: background and scope of the project

1.1 The relevance of the postdoc phase in academic careers and the role of funding programmes

This short introductory chapter aims to contextualise our specific object of evaluation, namely the "Starting Grants" (StG) programme for "excellent" postdoctoral researchers offered by the European Research Council (ERC). [1] In the first stage, we will briefly consider the characteristics of the postdoc phase in order to lay the ground for the specific needs related to this state of transition in academic careers. In the second stage, we will provide insights into the overall 'organisation' of the postdoc phase in order to embed the role of individual grants or funding schemes in this context. This contextual information seems to be crucial for capturing the characteristic features of highly prestigious funding schemes in general and the specific features of the StG programme in particular.

Given that no convincing theoretical framework has yet been developed that 1) describes and analyses academic career pathways, 2) captures a comprehensive set of potential career determinants, 3) embeds them in the context of research organisations and research systems, and, last but not least, 4) relates individual decisions and career pathways to the opportunity structures offered by the specific context (e.g. national research systems and funding opportunities), we need to systematically compile these various factors in order to paint the complete picture.

The postdoc phase as a crucial transition phase in academic careers

In essence, the *postdoc phase* can be regarded as a crucial, *highly productive mid-phase in academic careers* where the transition from an early stage to an established researcher or from a dependent to an independent researcher takes place (on this point, see e.g. Gingras et al. 2008; Kreckel 2008; Laudel, Gläser 2008; European Science Foundation 2009; Boulton 2011; Youtie et al. 2013).

1 The ERC, the first pan-European research funding organisation, was set up in 2007 under the EU's Seventh Framework Programme for Research (FP7) to support investigator-driven research and to promote scientific excellence (cf. on this point e.g. Commission of the European Communities 2004; European Research Council Task Force 2011 and Luukkonen 2014). The ERC is now part of the first pillar ('Excellent Science') of Horizon 2020, the new EU Framework Programme for Research and Innovation. For further information see: http://erc.europa.eu/about-erc

Laudel and Gläser's (2008) approach, which regards research careers as being simultaneously embedded in a scientific community and an organisational context, is a highly compelling step in the right direction towards a sound concept for analysing research careers and understanding the important function of the postdoc phase. Their approach dissects research careers into cognitive, community, and organisational careers, which are interrelated but also follow their own logic and principles. Transitions between career stages are explained by interactions between these three career "chains", with cognitive careers existing in a dynamic tension with institutional factors.

With regard to careers in the scientific community, Gläser and Laudel (2008) describe the postdoc phase as the transition phase from a learner to a peer (from "an apprentice to a colleague") based on a four-stage concept of academic careers outlined below (cf. ibid., p. 390):

1. an apprentice working under supervision,
2. a colleague conducting research independently and contributing to the scientific community's state of research,
3. a master who acts as a mentor for apprentices, and
4. a member of the elite who strongly influences the direction of knowledge production.

Following Laudel and Gläser (2008, p. 391), "being independent" or "being a colleague" relates to the researcher's ability to

– assess the relevance, validity and reliability of the scientific community's body of knowledge,
– acquire valid knowledge deemed relevant for the work,
– identify gaps in this specific scientific body of knowledge and to formulate research questions to fill a research gap,
– assess the capabilities and opportunities to answer these research questions,
– answer the research questions (which may also include collaborating with other researchers), and
– publish the corresponding research results for the scientific community.

When this stage of independence in the scientific community is achieved is not only a matter of cognitive development and capabilities but is also moderated by contextual factors. Here, the scientific discipline and the national research system a postdoc is embedded in prove to be especially relevant. Firstly, career pathways are shaped by disciplinary cultures: every researcher is part of a wider research culture (cf. for instance Whitley 1982; Becher 1994; Kerr 2001 [1963]) with its own standards and regulations, e.g. in terms of publication behaviour. So, for instance, in contrast to the Natural Sciences, Social Scientists publish in different formats – more specifically, they produce books and contributions to edited volumes and monographs rather than journal articles. Furthermore, in general they focus more on issues of national, regional, or even local interest than Natural Scientists do. Therefore, they publish more in the local language and in the national media (see on this Hicks 1999; Archambault et al. 2006; Nederhof 2006). However, specific disciplinary features affect not only the knowledge production but also the 'organisation' of the postdoc phase. For example, the proportion of postgraduates completing a PhD compared to the overall number of graduates differs considerably across research fields, which results in an intensified competition for postdoc positions. Furthermore, formal positions for postdocs are much more common in Sciences than in Social Sciences and Humanities, and independent research is more easily achieved in Sciences because the resources provided by the university often suffice (Laudel, Gläser 2008, p.

401). Moreover, characteristics of the labour market within academia and outside and, thus, exit options differ substantially across disciplines, as the recent discussion in the biomedical sector shows (cf. Alberts et al. 2014; Kelly, Marians 2014).

Secondly, the overall structure of a research system shapes the institutional environment a researcher is embedded in (cf. on this point e.g. Crawford et al. 1993; Ackers, Gill 2008). The specific features of a national research system thus determine the sequence and predictability of a successful academic career and the overall organisation of the postdoc phase. They may lay the ground for an (im)balance of power between different levels within universities and institutionalised expectations with respect to research (or teaching) careers.[2]

Regardless of these two contextual factors, two overarching international developments in the overall organisation of research obviously affect the opportunity to successfully pass through the postdoctoral transition phase and, thus, to become an independent researcher: during recent decades, it has been possible to observe a trend towards a prolongation of the postdoctoral transition phase via a series of short-term contracts and decreasing job security resulting from a cutback of permanent academic positions. In fact, since the 1970s the number of temporary postdoc positions has risen sharply in Europe as well as in the US, while the number of permanent faculty positions has increased only moderately (see on this point Stephan, Levin 2001; Youtie et al. 2013, p. 3). In addition, due to public budget constraints and cutbacks in basic institutional funding, extramural third-party funds became more and more relevant. Consequently, in order to implement their own research ideas and to compensate for cutbacks in institutional funding, (young) researchers are more and more dependent on funding provided by stakeholders such as national funding agencies, (sub-)national governmental agencies (e.g. ministries), the European Commission (EC), and the ERC, not to mention foundations and the private sector (cf. on this point e.g. Stephan 2012; Resnick 2014).

Research grants as a means to create "protected space" and as a facilitator of scientific recognition

During recent years, an increased number of funding schemes have been set up to address the structural drawbacks as outlined above. In this context, there is an ongoing discussion about whether "projects or people" should be funded and about the duration and organisation of the funding period (cf. e.g. Ioannidis 2012; Nicholson, Ioannidis 2012; Stephan 2012). Here, the question arises as to whether we should regard the trend of being third-party funded as an opportunity or burden for postdocs. On the one hand, third-party funded research activities bring with them the risk that young scientists are only funded for a (relatively) short period of time. On the other hand, there are now a number of funding schemes providing lucrative funding for up to five years, allowing young researchers to conduct large-scale projects.

In fact, over the course of recent decades, several funding schemes targeting "excellent" postdoctoral researchers have been established. Examples with similar features to the ERC StG programme

2 For detailed information about career paths of postdocs and the predictability of academic careers in different countries see for example Huisman et al. 2002; European University Institute 2008; Kreckel 2008; European Science Foundation 2009; Teichler, Höhle 2013.

include the former EURYI award[3] at the European level and, at the national level, the "Emmy Noether Programme" funded by the German Research Foundation (DFG), the "Veni Vidi Vici" talent scheme funded by the Netherlands Organisation for Scientific Research (NWO), and the "Future Research Leaders" and "Successful Research Leaders" programmes offered by the Swedish Foundation for Strategic Research (SSF).[4]

Generally speaking, these postdoc funding schemes offer a considerable amount of funding for a longer time span (up to € 1.5 million for up to five years) in order to create a research environment which is intended to enable postdoctoral researchers to proceed on the pathway to becoming an independent researcher. Even though these funding schemes may differ with respect to the precise arrangement and eligibility criteria, they implicitly rely on the same underlying mechanism, namely allowing researchers to pursue their own research programme, (almost) independently of external influence for a certain period of time. In line with Whitley (2014), we will subsequently denote this concept as *protected space*. Whitley conceptualises the "protected space" as a defined period of time in which a researcher may autonomously decide how to use his/her research capacities (both cognitively and with regard to resources) without being influenced by direct hierarchical interventions and being forced to justify his/her own work immediately to the community. Whitley defines the "protected space" along three dimensions:

1. Capacities for conducting research independently in terms of time and material resources as well as knowledge,
2. the period of time for which autonomy and freedom from hierarchical interventions are granted, and
3. the thematic scope within which the new idea is realised.

Working in a "protected space" may allow researchers to tackle challenging problems which require a considerable time span and to strongly invest in the development of new skills and competencies (see Whitley 2014, p. 370). In turn, this 'investment' may reap rewards (first and foremost in the form of publications) which in turn may facilitate the successful transformation from apprentice to colleague status in the scientific community.

Beyond that, individual research grants are increasingly proving to be an indicator for scientific recognition (cf. Youtie et al. 2013; Langfeldt et al. 2014): in the case of funding programmes for an elite of talented "excellent" (young) researchers, high prestige (symbolic capital) is attributed to receiving such a grant, which results from the fact that the recipient successfully passed through a highly competitive merit-based selection process. This, once again, may help to raise additional extramural funds – a phenomenon described as the "cumulative advantage effect" or "Matthew effect" by Merton (1968) (on this point, see also Allison, Long 1990; Zuckerman 1996 [1977]; Zuckerman 2010).

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3 In 2003, the European Heads of Research Councils (EUROHORCs) developed the European Young Investigator Awards (EURYI) Scheme in cooperation with the European Science Foundation (ESF). EURYI grants were awarded at least € 1 million for a period of 5 years and could be hold in any of the countries participating in the scheme. The ERC's StG funding scheme shares many characteristics with EURYI which is why EUROHORCs decided to indefinitely postpone future calls of EURYI. The EURYI award can, thus, be seen as a precursor to the StG programme). Cf.: http://www.esf.org/coordinating-research/euryi.html

4 A list of selected European funding schemes for postdocs can be found in Annex I.I.

A number of evaluative studies (cf. for example Langfeldt, Solum 2007; Böhmer et al. 2008; Böhmer, Hornbostel 2009; Böhmer, Ins 2009; van Arensbergen, van den Besselaar 2012; Gerritsen et al. 2013; van Arensbergen 2014) address the overarching question of the role that highly prestigious funding programmes play in the career development of young researchers and provide empirical evidence about the impact of these programmes. Overall, these evaluative studies show a positive impact on the likelihood of successfully pursuing an academic career – i.e. retaining talented young researchers in academia, increasing the probability of obtaining a professorship or receiving a follow-up research grant. We will address selected results gathered from these studies throughout our report and refer to them whenever it seems useful to contextualise the MERCI findings.

In the next section, the special features of the StG funding scheme and the framework of the MERCI evaluation study are presented.

1.2 The "Starting Grants" programme and the conceptual framework of MERCI

1.2.1 The "Starting Grants" programme[5]

The StG programme was introduced in 2007 as a response to the diagnosis by the ERC that "Europe currently offers insufficient opportunities for young investigators to develop independent careers and make the transition from working under a supervisor to being independent researchers in their own right […]" which "leads to a dramatic waste of research talent in Europe." (http://erc.europa.eu/starting-grants). Consequently, the StG funding scheme is designed to support promising up-and-coming researchers with up to € 1.5 million (in some circumstances up to € 2 million) for the duration of up to five years to set up or consolidate their own research group to pursue independent, investigator-driven "frontier research".[6] Candidates from all over the world, regardless of their age, discipline, and position (even professors are eligible to apply) are free to apply. They need to submit a research proposal and are free to choose a host institution (i.e. a legally recognised public or private research organisation) located in one of the EU Member States or associated countries in order to implement their StG research project. In order to attract and reach the most promising talents worldwide, the ERC declares "scientific excellence" to be the sole evaluative criterion for its selection of StGrantees, based on an excellent research proposal and a promising track

5 In the present report, we concentrate on the "Starting Grants" programme. This programme is complemented by the "Advanced Grants" (supporting established top researchers), the "Synergy Grants" (supporting a few small groups of researchers working together on the same project) and "Proof of Concept" (funding open only to ERC grant-holders). For a detailed description of these funding schemes see: http://erc.europa.eu/funding-schemes.

6 Following the ERC, the term "frontier research" reflects a new understanding of basic research which recognises that basic research in science and technology is of critical importance to economic and social welfare and that research "at and beyond the frontiers of understanding" is "progressing in new and the most exiting [sic] research areas and is characterised by the absence of disciplinary boundaries" (cf. http://erc.europa.eu/glossary/term/267).

record. Through peer-reviewed competitions,[7] the best postdoctoral researchers are selected to carry out their innovative research projects in Europe.

The ERC programme hence addresses a variety of issues: it offers young researchers the opportunity for a research-focused period, allowing them to independently conduct a large-scale, long-term research project and to develop leadership skills by leading their own research group at a host institution of their choice. Furthermore, it aims to create positive framework conditions for fostering mobility between or within countries and hence harnessing the diversity of European research talents and channelling funds to the most promising researchers. The overall objective of the StG programme is to counteract the effects of brain drain, to stimulate brain gain by enhancing Europe's attractiveness as a research location for promising young researchers, and to contribute to the consolidation of the European Research Area (ERA) accordingly.

In the text box below, the basic information about the ERC StG programme are summarised. Please be aware that we refer to the eligibility criteria applicable for the StG 2007–2012 calls for applicants. In 2013, the ERC implemented the "Consolidator Grants" programme for young researchers who completed their PhD between 7 and 12 years ago, and reduced the eligible time frame for an StG application to the period of two to seven years after obtaining a PhD accordingly. Since MERCI only analyses StG cohorts prior to this adjustment, it does not have any effect on the composition of our sample across different cohorts of StG applicants.

7 For details concerning the ERC selection process see Section 4.1.1.

The ERC Starting Grants in a nutshell

The ERC Starting Grants (implemented in 2007)

Eligibility requirements*

- PhD (or equivalent degree) obtained between ≥2 and ≤12 years prior to the opening date of an StG call,
- promising track record including one major publication without the participation of the PhD supervisor,
- significant publications (as main author) in major international peer-reviewed multidisciplinary scientific journals, or in the leading international peer-reviewed journals of their respective field,
- presentations at well-established international conferences, granted patents, awards, prizes, etc., and
- an excellent research proposal.

Funding

- Up to € 1.5 million (in some circumstances up to € 2 million) per grant
- Duration: up to five year
- Calls for proposals: published once a year

* Applicable to the StG 2007–2012 calls. Since 2013, the "Starting Grant" has targeted researchers ≥2 and ≤7 years after obtaining their PhD; researchers ≥7 and ≤12 years after their PhD are targeted by the "Consolidator Grants".

Source: http://erc.europa.eu/starting-grants [09-03-2014]

The demand for the StG funding scheme is immense, which may indicate that the ERC is in fact addressing an important problem and that the funding scheme is particularly appealing for a wide target group of postdocs – both in terms of the duration and the amount of funding. The first StG call in 2007 received a massive response of 9,167 applications of which 299 were selected, leading to a success rate of merely 3 percent. For the second call[8] in 2009, 2,503 proposals were submitted, of which 242 were selected (success rate of 11 percent). In the following years, the StG success rate levelled off at between 9 percent (StG 2013) and 16 percent (StG 2010). The ERC's budget for the StG programme increased over the course of FP7 so that the number of funded projects increased to over 500 for the StG 2012 call (see Figure 1).[9]

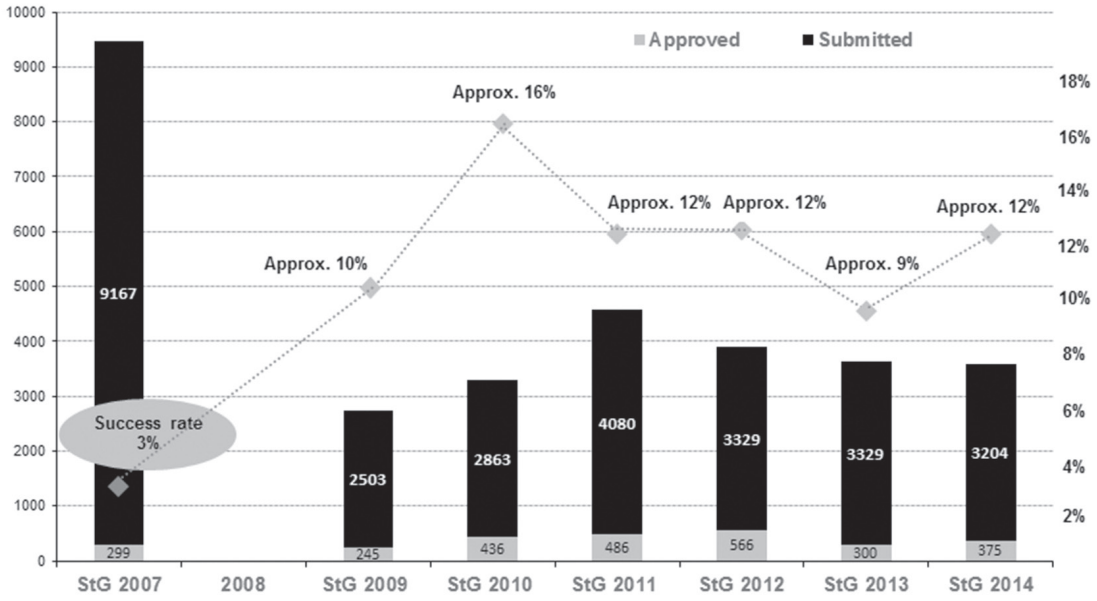
In its initial years, the StG programme targeted a quite heterogeneous group of postdocs due to the fact that postdocs were eligible to apply up to 12 years after obtaining their PhD, which made the

8 Due to the vast number of StG applications in 2007 and the corresponding management workload, there was no StG call in 2008.

9 The total budget allocated to the ERC for the period of Horizon 2010 (2014–2020) is € 13.1 billion, meaning a real-term (i.e. taking inflation into account) increase of 60 percent compared to FP7. Cf.: http://erc.europa.eu/facts-and-figures

selection process rather challenging. As outlined above, in 2013 the "Consolidator Grants" (CoG) funding scheme was launched to specifically target researchers in later postdoc stages. In 2013, 300 StG applicants and 311 CoG applicants were approved so that the number of approved applicants increased to over 600 in total. In both funding schemes, the success rates amount to approximately 9 percent. For the 2014 cohort there is a similar trend, but with an increased chance of success (12 percent for the StG and 15 percent for the CoG). Figure 1 illustrates the submitted StG proposals and success rates across StG cohorts over the time period.

Figure 1 Submission of StG proposals and success rate across cohorts



Source: own graph; figures obtained from the ERC website: http://erc.europa.eu/statistics-0

Given that the StG programme is a substantial funding instrument, the ERC is highly interested in developing methods to assess its implementation and outcome. As a consequence, the ERC funded several so-called Coordination and Support Action projects (CSA projects). All CSA projects are geared towards conducting evaluative studies for the StG programme by applying distinct empirical approaches. One of these CSA projects is the MERCI study which is described in the next section.

1.2.2 MERCI - conceptual framework and research questions

In February 2009, MERCI ("Monitoring European Research Council's Implementation of Excellence") started as a CSA project to monitor the StG programme. Due to the fact that the StG programme was only established a few years ago, MERCI puts a strong emphasis on the programme's implementation and on how it works in practice. In this way, MERCI focuses on the individual perspective and aims to paint a broad picture concerning the questions of whether the StG programme succeeds in attracting up-and-coming "excellent" young researchers and in accomplishing its objectives, namely helping young researchers to carry out research independently and to

conduct groundbreaking frontier research. Furthermore, the MERCI project addresses direct and indirect effects of the StG funding scheme, recognising that the unsettled nature of a programme in its initial years makes it difficult to actually measure "impact" in the sense of long-lasting consequences and long-term changes (Rossi et al. 2004). Here, direct effects relate to the working conditions and the career development of StGrantees whereas indirect effects instead relate to structural changes (e.g. diffusion of standards in national funding systems) and changes in organisational or institutional settings. Hence, we not only evaluate the programme's objectives, but question the objectives themselves by assessing whether the tailoring of the StG funding scheme is suitable for meeting the specific needs of postdocs.

Overall, MERCI focuses on four topics:

Firstly, MERCI sheds light on the applicants' *overall funding strategies* by asking about their *motivation to apply for the StG,* contrasting the motives to apply for the ERC grant with the motives to apply to other funding bodies, and describing their *overall project portfolio*. By doing so MERCI seeks to answer the question concerning the extent to which the StG programme substitutes for or supplements other competitive or recurrent funding sources and arrangements for (young) researchers.

Secondly, MERCI raises the question of whether the ERC reaches the appropriate target group of "excellent" young researchers. The project analyses the ERC selection process based on the publication data of former StG applicants. In order to paint a detailed picture we differentiate between two levels of analysis: on the one hand, we will discuss the *determinants of the funding decision* by focusing on past publication performance measured by bibliometric analysis. On the other hand, we will direct attention to the *StG applicant's assessment of the ERC selection process* and examine a) whether this assessment changes over time and b) how the ERC selection process is assessed in contrast to those of other funding bodies.

Thirdly, MERCI investigates *to what extent the StG is effective at enabling postdoctoral researchers to become independent.* On paper, the comparatively long duration of the StG funding and the thematic breadth and financial endowment of the grant seem to serve this purpose perfectly. However, it remains unclear how this capital provided by the StG is utilised by the individual researchers. To what extent is the ERC's economic and symbolic capital translated into increased research autonomy and favourable working conditions ("protected space") compared to researchers at the same career stage? Accordingly, we raise the question about the extent to which the StG funding scheme affects the *working conditions or research environment of StG recipients.* In order to answer this question, we will elucidate the relationship between the StG recipient and his/her host institution. In order to provide the ERC with information about how the StG funding performs in practice, we will elaborate *on grant management as perceived by StG recipients.* In this context we are interested in the StGrantees' experiences with regard to the grant implementation at the host institution, their experiences of negotiating with the host institution and their assessment of the support received by the StG host institution and/or the ERC, and their overall satisfaction with the ERC funding scheme (ERC service utilisation, etc.). Even though changing country is not an essential requirement for implementation at a host institution,[10] in view of the ERC's overall aim of consolidating the ERA we will also shed light on *applicants' mobility.*

10 This is in marked contrast to e.g. the Marie Skłodowska-Curie actions or the Feodor Lynen Research Fellowships.

Fourthly, regarding the outcome of the StG funding, MERCI elaborates on the questions of 1) to what extent the ERC funding scheme affects the *development of skills and competencies* and 2) whether it facilitates career development measured in terms of formal position. In addition, the project elaborates on *the sustainability of the ERC funding* with respect to both the StG recipient's position at the host institution and the continuation of the StG research group. In doing so, we will tackle the overarching question of the extent to which the ERC increases the grantees' research capacity.

1.2.3 Dimensions of analysis

The StG programme targets a quite heterogeneous group of postdoctoral scientists which makes it rather challenging to derive conclusions about genuine effects which are exclusively attributable to the ERC funding. Heterogeneity in this context relates not only to the Principal Investigator's characteristics (e.g. with respect to his/her discipline, age or postdoc experience) but also touches on the institutional setting and national research system that he/she is embedded in. The MERCI analysis will mainly focus on three dimensions of analysis: 1) the national career systems, 2) the current career stage and position of StG applicants and 3) the disciplinary field of StG applicants. By doing so, we avoid getting stuck in an overwhelming number of details and features specific to particular countries and institutions which shape the research environment of an individual researcher. Below, we will briefly introduce these three dimensions of analysis.

National research and career systems

National research systems shape the institutional environment a researcher is embedded in and affect the opportunity structures for pursuing an academic career. Taking the specific features of a national research system into account helps us to understand the attractiveness and outcome of the StG funding in different countries. Given that postdocs of any nationality are allowed to apply for an StG and that they may choose a host institution in an EU Member State or associated country of their choice, StG host countries have been grouped for further analysis.

Taking into account the fact that in higher education research no commonly accepted classification of national career systems yet exists (cf. Laudel 2012), we have referred to a framework developed by the European University Institute (EUI, see on this point European University Institute 2008). The EUI has defined *four models of academic systems in Europe* based on the recruitment procedures in the research systems and the degree to which they are open or closed to non-national researchers:

1. *The European Continental model:* Although the recruitment of researchers is regulated by many formal rules, it exhibits a tendency towards informal agreements in practice; promotion up the career ladder is often regulated by seniority. Non-national researchers face difficulties in entering the system because job offers are rarely posted in English. In this model, researchers are strongly dependent on professors and/or chair-holders ("chair system"), fixed-term contracts are usually only obtained after a longer period of employment and, traditionally, PhD students and postdocs are employed in temporary positions. In general, academic systems belonging to this model are open to international and dynamic competition only to a limited extent. Over recent decades, some reforms have taken place in order to attract international

researchers and to foster meritocracy where individuals are assessed based on their performance; new positions have been created. *Typical examples* are Italy, Spain, Germany and France.

2. *The Anglo-Saxon model:* This model is characterised by a relatively open and transparent merit-based recruitment procedure and by its openness to non-national researchers. This not only results in a high level of quality among scholars at all career stages working in these countries for a short or long period of time but also in an internationally recognised scientific output (which in turn is evident in the capacity to compete with US universities). The Anglo-Saxon model comprises both academic flexibility and the availability of tenure or tenure track positions. Taking into account the fact that distinct career tracks coexist, in addition to researcher positions (i.e. freedom from teaching tasks) there are also explicit lecturer positions. An important factor for attracting many foreign researchers is probably not the salary as such but the high rate of salary increase over the course of the career. *Typical examples* are the UK, Ireland and the Netherlands.
3. *The Scandinavian model:* This model has characteristics of both the European Continental and the Anglo-Saxon model. Recruitment procedures are relatively open and competitive with a focus on merit. However, in practice, a tendency towards informal rules and agreements prevails. The amount of research and teaching at universities is relatively balanced (including separate career tracks), there is high intersectoral mobility between the public and private sector and there are a lot of temporary positions. *Typical examples* are Denmark, Sweden and Norway.
4. *The Transitional Eastern and South-Eastern model:* Since the fall of the Soviet regime, many political, economic, administrative and legal reforms in academic structures have taken place in Central and Eastern European states. In the course of these developments Central and Eastern European countries have launched reforms and introduced competitive elements to counter the brain drain towards Western countries. One of the main special features in the higher education sector is the rise of private higher education institutions (a trend which is much less developed in Western Europe). *Typical examples* are Hungary and Poland.

For the MERCI classification, we labelled our four groups of countries according to the EUI model – with a slight adjustment to the fourth group: here we referred to "Transitional Eastern and South-Eastern European countries". We extended our classification to non-European countries, taking the geographical designators as a reference to prototypical countries in which the respective career system is common rather than to specific regions. Furthermore, to take into account the fact that we were faced with very few countries which could not be classified, we introduced a separate category covering the remaining four countries – Morocco, Ghana, Georgia, and Ukraine. A list of all countries assigned to the five categories is attached in Annex I.II.[11]

11 The classification of countries was undertaken on the basis of secondary information (e.g. scientific publications as well as statistical data from EUROSTAT and other agencies), but suffers from certain limitations: in some cases, the data available is rather limited and not always comparable because of the different methods of data collection or inconsistencies concerning the time period the data relates to.

Career stage and position

In our online surveys, respondents were asked to indicate their formal positions when applying for the StG and during their subsequent career path.[12] Grouping positions across countries is highly complex taking into consideration that:

– There are country-specific positions which do not have an equivalent in other countries (like for example the "Maître de Conférences" position in France).
– Positions with similar or identical names can have (slightly) different rights and duties (e.g. "Researcher" in the UK and "Ricercatore" in Italy).
– Positions with different names can be similar in nature (e.g. "Assistant Professor" in the UK and "Juniorprofessor" in Germany).

In order to arrive at a classification which allows for a cross-country comparison despite this heterogeneous nomenclature, positions have been grouped according to more general career stages. In contrast to Laudel and Gläser's (2008) three-dimensional career model – where the scientific community career with its four career stages comprises only one dimension (cf. on this Section 1.1) – our operationalisation here exclusively refers to formal organisational positions and may be related to the four-stage framework for research careers (R1 to R4 level) as described by the League of European Research Universities (LERU) (cf. European Commission 2011).[13] However, in order to ensure intuitive understanding of our categories, we will use the labels displayed in the first column in place of the R levels.

12 For this purpose the questionnaires contain a drop-down list with a variety of country-specific positions
.

13 The LERU classification distinguishes between R1 "First Stage Researchers": up to the point of PhD, R2 "Recognised Researchers": PhD-holders or equivalent who are not yet fully independent, R3 "Established Researchers": researchers who have developed a level of independence and R4 "Leading Researchers": researchers leading their research area or field.

Table 1 Grouping of positions for the MERCI analysis

Grouped position	Position
Full/associate professor	Full Professor
	Research Professor
	Associate Professor
	Directeur de Recherche
	Maître de Conférences
Assistant professor/group leader	Assistant Professor
	Group Leader/Project Leader
	Juniorprofessor
(Senior) researcher	Senior Researcher
	Senior Lecturer
	Akademischer Rat
	Researcher/Research Fellow
	Lecturer
	Chargé de Recherche
	Ricercatore
	Wissenschaftlicher Mitarbeiter/Assistent
Other/not classified	Fellow
	Other/not on list

Source: own classification

Research field

As outlined in Section 1.1, disciplinary cultures not only shape standards in terms of publication formats and output but also in terms of the organisation of academic careers. In order to allow for comparisons across research fields, for the bibliometric analysis disciplines have been grouped in line with the ERC classification Life Sciences (LS) and Physical Sciences and Engineering (PE).[14] Bearing in mind that Social Sciences and Humanities (SSH) have their own publication standards and that publications are only covered inadequately in the WoS (see Hicks 1999; Archambault et al. 2006; Nederhof 2006), we excluded SSH from our bibliometric analysis.

For the analysis of survey and interview data, we broadened the focus and chose a classification across *five research fields* in order to take into consideration the specific features of the Humanities and Engineering:

1. Humanities (HUM)
2. Social and Behavioural Sciences (SOC)[15]
3. Life Sciences (LS)
4. Natural Sciences (NS)
5. Engineering (ENG)

14 A list of disciplines assigned to the ERC domains (so-called ERC panels) is attached in Annex I.III.

15 To ensure better readability we will use the term "Social Sciences" in the continuous text.

A list of disciplines assigned to these five research fields for the analysis of the survey data can be found in Annex I.IV.

1.3 Rationale and structure of this report

In order to ensure a sound analysis of the object of evaluation we will answer our research questions with the help of three different methods – qualitative interviews, online surveys in a panel design and bibliometric analysis. The MERCI triangulation approach, the research design, the data base, and the sampling approach are briefly described in Chapter 2. The report is structured around evaluative questions which cover the *following topics:*

– he funding strategies of StG applicants and their motivation to apply for an StG (Chapter 3),
– the ERC selection process (Chapter 4),
– the experiences of StG recipients with their host institution and their working conditions (Chapter 5), and
– the outcome and sustainability of the StG funding (Chapter 6).

In each chapter, whenever possible,

– empirical results gathered from different methodological approaches will be triangulated, allowing a comprehensive understanding of the logic of the practice,
– approved and rejected StG applicants will be compared,
– cohort-specific effects will be identified, and
– differences across nationalities, positions, and research fields will be taken into account.

For issues exclusively relating to subjective perception and individual experiences – such as the working atmosphere at the StG host institution, institutional integration or career obstacles – findings from the interview study will play an essential role.

In line with this complementary approach, we will widen our scope beyond the mere presentation of the empirical MERCI results and discuss them against the background of contextual information and embed them in the current state of research. By doing so we will be able to figure out genuine special features of the StG programme on the one hand and specific features of highly prestigious funding programmes on the other.

The final chapter gives a brief summary of the key findings. Furthermore, it offers self-critical reflections about the approach and scope of the MERCI study and about further research desiderata.

2. Study design: multiple questions - multiple approaches

2.1 Triangulation approach and research design

As outlined in Chapter 1, the main objective of MERCI is to gain a comprehensive view of the StG programme implementation and the career development attributable to the StG funding. Without a doubt these objects of evaluation depend on many contingent factors and we are thus faced with a complex and multidimensional endeavour. In order to provide valid answers to our evaluation questions, we chose both a *triangulation approach* and a *comparative design with rejected StG applicants as a control group*. The particular advantage of this empirical approach comes not only from the parallel implementation of qualitative (semi-structured interviews) and quantitative (online survey with a panel design and bibliometric analysis) methods but also from the functional interlacing of partial or preliminary results, the development of instruments, and the interpretation of data. In the following, we briefly consider the added value of our triangulation approach and present the MERCI research design.

Dating back to Norman Denzin in the 1970s, triangulation is broadly defined as "the combination of methodologies in the study of the same phenomenon" (Denzin 2009 [1970], p. 291). Combining methods touches on epistemology and the two questions are, hence, to define the relationship between the methods that were used and to clarify the criteria in terms of the empirical findings' relevance: are different methods linked sequentially or are they instead part of an integrated multi-method design? Are quantitative and qualitative approaches given equal priority in the planning and process of the research programme? Are they effectively intertwined, meaning that the empirical results are not only compared but also integrated?[16] Here, we follow Flick's (2011 [2004]) understanding of triangulation seen as an integrated research strategy for not only validating empirical results but also increasing the scope, depth and consistency of methodological procedures. Beyond any quantitative and qualitative disputes, this implies that different methods are used as *complementary research strategies* with their respective qualities by systematically combining the methodological strengths and weaknesses of one single method with another. Accordingly, the benefit of triangulation is to create innovative ways of understanding a phenomenon, to increase the confidence in research data and to comprehensively understand the object of evaluation better than a single-method approach would have done.

But what does this specifically mean with regard to MERCI and how is the triangulation approach used within the scope of this project? Below, we outline our approach including three main components:

First, we use three different methods, namely online surveys, semi-structured interviews and bibliometric analysis, which are given equal priority in the research process. These methods are used to systematically compensate for the weaknesses and strengths of single quantitative and qualitative methods.

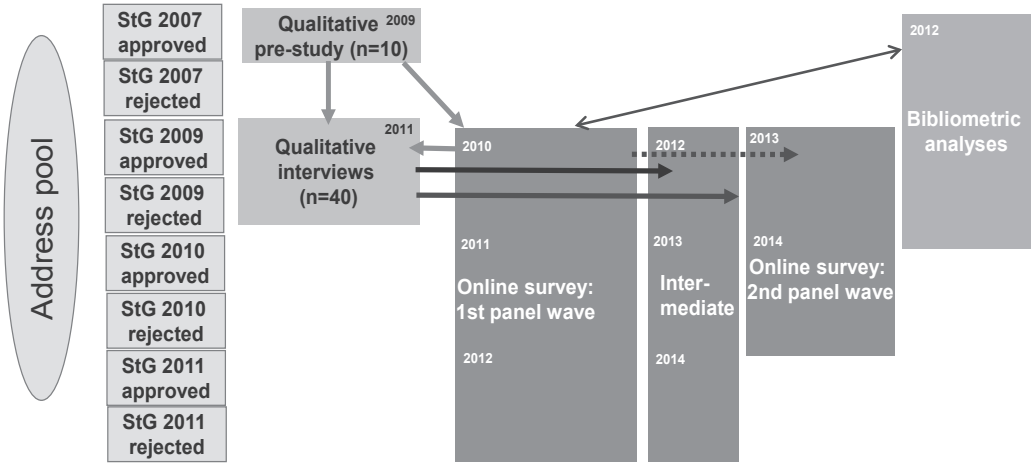
16 For an overview of the current state of research regarding triangulation/mixed-method research approaches see Bloch et al. 2014.

Second, the different methods are used for the development of instruments where (preliminary) findings are thoroughly taken into account. This especially applies to the development of interview guidelines and the questionnaires for the online surveys.

Third, we comprehensively combine and integrate empirical data and use it for validating, complementing and discussing divergent findings. In this way, we aim to generate broad explanations and interpretations and thereby 'get from the what to the why'. This step seems crucial with regard to the main problem of quantitative data in application-oriented contexts (such as evaluations) in order to further interpret the measured values of indicators in the whole context of the evaluation. In other words: the triangulation approach helps us to capture the logic of the practice (cf. Böhmer et al. 2008, p. 23).

The figure below gives an overview of the methods that were used and the StG cohorts that were addressed in the scope of MERCI:

Figure 2 Research design of MERCI



Source: own illustration

In the following we briefly describe which method is used and why, how the different methods are intertwined and which StG cohorts are addressed by which method at which time.

2.1.1 Online surveys with a panel design

The evaluation of the StG programme's effects on the career development of postdoctoral researchers and their experiences with the StG requires sound empirical evidence and a *comprehensive gathering of individual aggregate data* that takes *changes over time* into account accordingly. To answer the quite challenging question of whether the StG funding has any effects (and if yes: which ones?) on the career development of young researchers and whether the programme performs well, we chose 1) a longitudinal design with several cohorts of StG recipients and 2) a comparative design with rejected StG applicants as a control group. One building block of MERCI is a panel approach consisting of two waves of standardised online surveys: the first panel wave is conducted at the

beginning of the StG funding (or one year after the StG application for rejected applicants) and the second wave is conducted in the last part of the StG funding period (or 3.5 years after the StG application for rejected applicants). A short intermediate survey is run between the first and the second wave surveys. For the rejected StG applicants several topics needed to be dropped or adapted. For instance, rejected applicants were asked about their experiences at their current workplace or their scientific activities during the last three years.

In the *first wave* the online survey focuses on

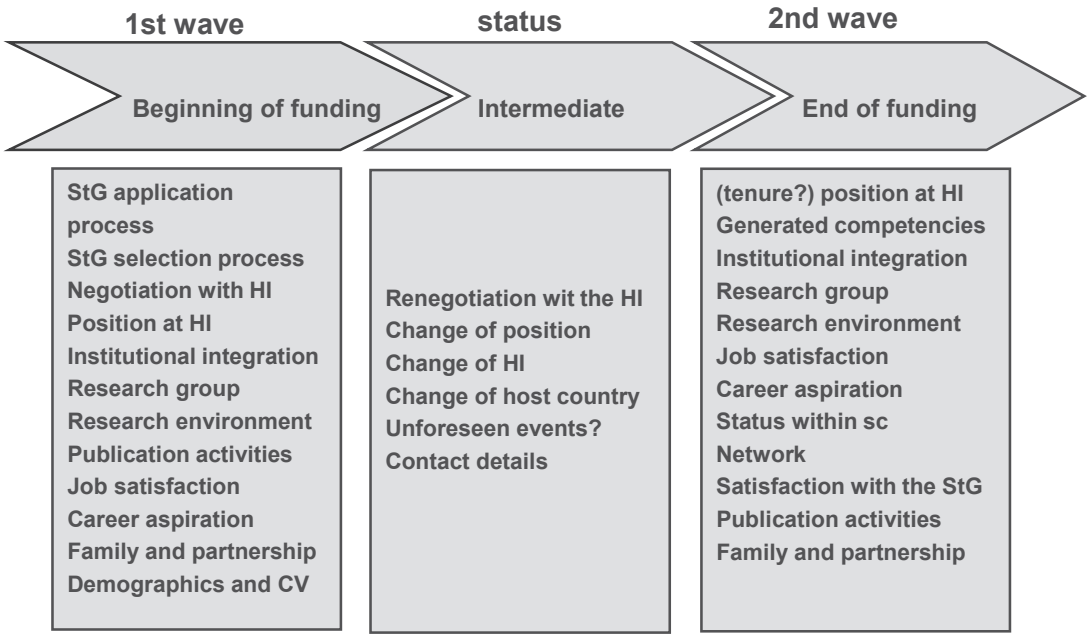
- the motivation to apply for an StG,
- the assessment of the StG application and the ERC evaluation process,
- the StG applicant's professional background,
- the implementation at the StG host institution (this topic is dropped for the rejected applicants),
- the research environment and working conditions at the StG host institution (or alternatively at the current workplace for rejected applicants),
- publication activities,
- career expectations, and
- amily and relationships.

The short *intermediate survey* is primarily a status survey to obtain information about a potential change of position and StG host institution (or workplace for rejected applicants) and to serve panel maintenance purposes (update of the contact data). But it also traces the implementation process of the StG research group, the adherence to negotiated agreements with the StG host institution and third-party funding activities.

The *second wave* survey provides information on

- the subjective assessment of the integration and status at the StG host institution,
- skills and competencies developed during the StG funding period,
- experiences of international mobility,
- third-party funding activities,
- output during the StG funding,
- perceived influence of the ERC funding scheme on career development,
- (anticipated) sustainability of the StG funding,
- career aspirations, and, last but not least,
- satisfaction with the ERC grant management.

Figure 3 Topics covered by the different surveys in the MERCI online panel



HI = host institution; sc = scientific community

Source: own illustration

In total, we addressed three StG cohorts, namely the StG 2009, 2010 and 2011 cohorts. Our survey panel comprises roughly 1,700 valid cases for the first wave survey and 500 for the second wave (for detailed information about our sample see Section 2.2.1 and Table 2).

2.1.2 Qualitative interviews[17]

In summer 2009, an exploratory pilot study was conducted based on ten semi-structured interviews with approved applicants from the first StG cohort who applied for an StG in 2007. The exploratory interviews were used to gather initial insights into the practical experiences of StGrantees, to explore topics they deemed crucial and to identify problems which were not detected in the pre-empirical research stage. Furthermore, these interviews aimed to obtain information about the motivation to apply for an StG, the professional background of the StGrantees, their assessment of the StG application and selection process, the country-specific features and institutional framework conditions StGrantees were facing when implementing their research group at the StG host institution and the status ascribed to the ERC funding. Data gathered from these initial interviews thus served as an initial empirical input to both address the research questions and to develop the online survey questionnaire.

For the main qualitative study, which was carried out in spring/summer 2011, 40 semi-structured face-to-face interviews with approved and rejected StG applicants from the StG 2009 cohort were conducted. These interviews focused on

17 The qualitative interview study was carried out by Michael Meuser and Ivonne Küsters from TU Dortmund.

– personal background and scientific biography,
– the application procedure for the StG and the ERC selection process,
– the StG project idea,
– implementation at the StG host institution and working conditions,
– work on the StG project and work with the StG research group,
– experiences with the prestigious status of the StG and the perceived grant-related effects on the interviewee's career,
– career development and future career plans, and
– work-life balance.

By and large semi-structured interviews and the first wave online survey cover the same topics. However, these two instruments have a different focus with respect to the depth of information, and thus act as complementary research strategies: the standardised online surveys are broader in scope and seek to identify effects of the StG funding programme by generating statistical evidence. In contrast, with the help of the qualitative interviews we attempt instead to understand how these effects come about and to elaborate on these findings, to widen and deepen our perspective by gathering interpretative information, to provide (typical and atypical) illustrative examples, to probe into issues not covered by the survey and to reveal neglected contextual factors accordingly (Erzberger, Prein 1997). Last but not least, we address a series of topics in the interviews that can only be covered inadequately in a standardised way – for example (perceived) career obstacles, the working atmosphere at the StG host institution, institutional integration, networking and gender factors, the (perceived) degree of independence or the challenges with regard to work-life balance.

2.1.3 Bibliometric analysis[18]

Publications are an integral part of the track record of an individual researcher and play a crucial role in the StG proposal: applicants need significant publications as a main author in major international peer-reviewed multidisciplinary scientific journals or in the leading international peer-reviewed journals of their respective research field. Within the scope of the MERCI project we aim to gather evidence on the role of (past) publication performance in the ERC selection process by comparing publications and citations of approved and rejected StG applicants before applying for the ERC funding scheme. The publication activity of StG applicants is used to evaluate whether the ERC funding scheme actually succeeds in attracting up-and-coming young researchers from all over the world and whether the 'best' (in bibliometric terms) candidates are selected. In order to investigate differences at the bibliometric performance level, the first two StG cohorts (StG 2007 and 2009 cohorts) are included in our bibliometric study.

With only a few exceptions, studies dealing with the publication performance of research grant applicants rely exclusively on bibliometric data (cf. for example Melin, Danell 2006; Bornmann, Daniel 2007; Bornmann et al. 2010). In most cases there is no, or at best only some, non-bibliometric information available about the individuals involved. Within the scope of the MERCI project, bibliometric data is supplemented by survey data addressing the publication habits and publication strategies of StG applicants. By explicitly referring to publication strategies, we seek to

18 The bibliometric analyses were carried out by Bielefeld University (Matthias Winterhager and Christine Rimmert) and the iFQ (Jörg Neufeld).

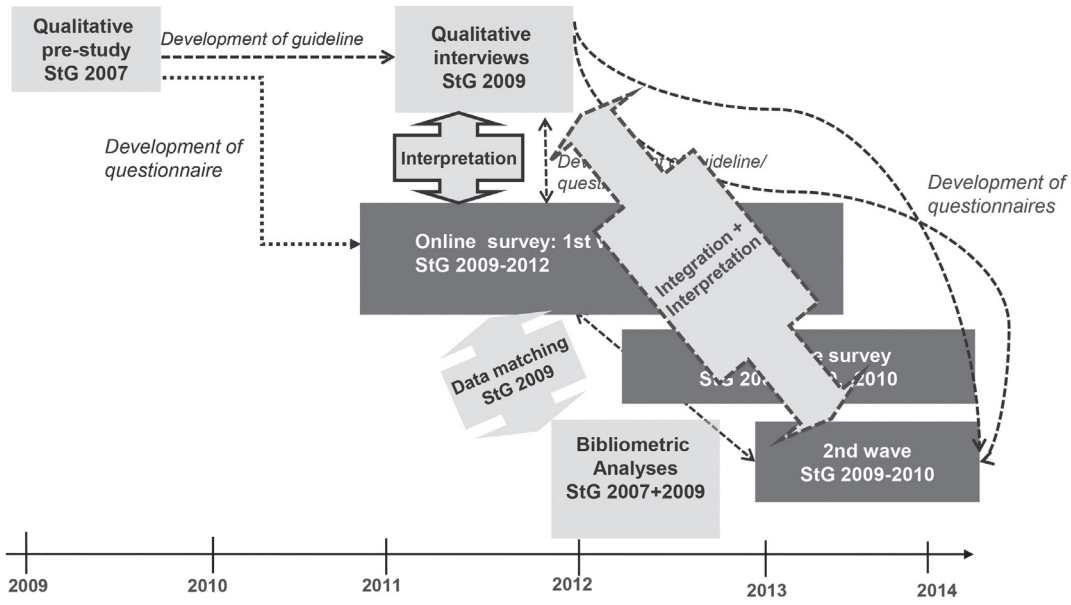
explain the performance differences between the groups of approved and rejected applicants on the one hand and between different research fields on the other.

We should point out that the bibliometric analysis carried out in MERCI does not make it possible to conduct any impact analysis of the StG funding: measuring funding effects on the publication performance of grant recipients requires a longer time period after the project start and publishable results (which tend to only be available at the end of a project). Furthermore, bibliometric impact (citation) analyses themselves require at least three years for the applicable publications to generate citations.[19]

2.1.4 Implementation of the triangulation approach in the MERCI project

The two main areas where the triangulation approach is applied within MERCI are, firstly, the development of instruments and, secondly, the compilation of empirical results gathered from the different methodological approaches. With the help of Figure 4, we aim to illustrate the interweaving of instrument development and the integration/interpretation of data in the course of the project duration (2009–2014).

Figure 4 Triangulation with regard to instrument development and interpretation of empirical data



Source: own diagram

As demonstrated by the figure above, one added value of our triangulation approach is the chronological – mostly consecutive – sequence of different field phases for the qualitative interviews and online surveys, allowing for large feedback loops and enhancing the interactive effects (initial

19 Due to the vast number of applications for the StG 2007 call and the correspondingly delayed funding decisions, the ERC contracts with successful applicants were concluded later than originally planned and, thus, 2007 StGrantees were implemented at their host institution with a considerable delay. For this reason, we refrained from conducting an impact analysis.

empirical results could be taken into account for the development of instruments) between these two methodological approaches. Consequently, thanks to the qualitative pre-study, initial experiences with the ERC in general and with the StG in particular could be explored. On the one hand, this rather anecdotal evidence was extremely helpful for developing the guidelines for the main qualitative study. In particular, the narrative opening question with respect to biographical background and individual career path proved very useful for gathering in-depth information about the individual scientific career which, in turn, enables us to embed the ERC application or funding period in the biography.[20] On the other hand, results of the qualitative pre-study were fed into the development of the first wave online questionnaire, while the main qualitative study contributed to the development of the intermediate and second wave questionnaire.

For every survey wave, we developed two versions of the questionnaire: one for the approved StG applicants and one for the rejected ones. Whenever possible, these two versions containes the same questions to guarantee comparability of answers. However, the questionnaire addressing rejected applicants needed to be adapted to take into account their specific situation, and several questions were excluded (e.g. those concerning implementation at the StG host institution or the experiences with the StG) or added (e.g. questions concerning the reuse of the StG proposal).

Since MERCI is concerned with a heterogeneous group of young researchers working in numerous European countries, one of our main concerns was to ensure the intercultural validity of the questionnaire (e.g. in terms of the relativity of meanings) and to adequately capture country-specific features. Therefore, after compiling draft versions for the first wave questionnaire addressing approved and rejected applicants, we conducted a series of *cognitive interviews* (cf. on this Prüfer, Rexroth 2000; Willis 2005) for the pre-test in spring 2010: in total, five cognitive interviews with approved and rejected StG applicants from the StG 2007 and 2009 cohorts were conducted – selected from different host countries, research fields and genders. The interviews were carried out via Skype video conferences and lasted between 45 minutes and two hours. We used think-aloud and paraphrasing techniques to gather information about cognitive processes while the interviewees filled out the questionnaire. We aimed to obtain answers to the following questions: are the survey questions comprehensible? Are the item batteries exhaustive? Is the intention of a question clear or is the respondent confused by the instruction text? How are questions and concepts understood by the respondents? What information is being processed? How do respondents use the item batteries and answer categories provided by the questionnaire? The video conferences were recorded and analysed afterwards. All in all, the cognitive interviews proved to be very useful: the interviewees' reactions and remarks were used to control the questionnaire with regard to its comprehensibility and linguistic correctness; some items were diversified or supplemented and the wording was adapted. Last but not least, the cognitive interviews gave some indication of the layout and the overall usability with regard to the time needed to fill out the questionnaire.[21]

In order to optimise the quality of the questionnaires, various quality assurance cycles were implemented: consortium partners and experts on survey methodology were consulted with regard to

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20 The guidelines for the approved StG applicants are available at the iFQ website: http://www.research-information.de/Projekte/Merci/projekte_merci_lang.html

21 The questionnaires for all three surveys (first wave, intermediate and second wave) are available at the iFQ website: http://www.research-information.de/Projekte/Merci/projekte_merci_lang.html

the scales and order of questions and items. Members of the International Advisory Panel and the ERC Executive Agency (ERCEA) were also invited to comment.

In addition to the development of instruments, the central question with a triangulation approach is how empirical results gathered by different methodological approaches can be combined. In this context, the challenge is to *effectively integrate findings* from the different methodological approaches and to piece together a puzzle, i.e. to achieve a comprehensive understanding of the object of evaluation – not just by describing but also by explaining effects. In order to paint a holistic picture and improve the robustness of empirical findings, we draw on Lamnek (2010) and indicate three constellations of findings: 1) congruence, 2) complementarity, and 3) divergence. Our interplay of data was, hence, directed by the following questions: do empirical results gathered from the different methodological approaches point in the same direction? Can we identify possible factors behind any divergences? Revealing and trying to really *explain and understand* divergent or similar findings may lead us to gain a deeper insight into how the StG funding works in practice. This kind of constructive combination of results is conducted in two directions (cf. on this point Böhmer et al. 2008, p. 23):

Firstly, on the basis of standardised survey results we may check or even validate whether specific interview findings are typical for approved and rejected StG applicants – or at least subgroups of them (e.g. across research fields, host countries or gender).

Secondly, on the basis of interview material we may check whether correlating variables or statistically significant differences in the survey data can be (further) corroborated against the everyday world and practices of approved and rejected StG applicants or alternatively (further) complement the picture. Furthermore, the in-depth information gathered from the qualitative interviews, in particular the generated background information, proved to be very useful for contextualising, elaborating and therefore achieving a better understanding of those survey results which are not intuitively comprehensible. In essence, the data from the qualitative interviews enables an empirically grounded interpretation of survey results that surpasses the level of plausibility. The qualitative information may thus help us to gain a deeper understanding of what lies *behind* the survey statements, making the survey results more meaningful and convincing (cf. Jick 1979). In addition, as outlined above, with the help of the interviews we can fill in topics that can be covered only inadequately in a standardised way – for example, the ascription of StG prestige or the working atmosphere at the host institution.

We will also combine results from the bibliometric analysis and online surveys. In doing so, we are able to validate the self-reported number of peer-reviewed articles indicated in the online survey. Compared to a genuine bibliometric analysis, our online survey offers the opportunity to *actually learn* about the StG applicants' publication strategies, meaning the preference for publishing research findings and the perception of prevalent publication practices.

2.2 Data base, sampling and data analysis

Given that the ERC data protection regulations are very strict, for our MERCI evaluation study we were only allowed to approach those StG applicants who gave consent to the ERC for their personal data to be transferred. Consequently, for the online surveys, the qualitative interviews and the bibliometric analysis only those StG applicants were considered for our evaluation purposes. Across our three surveyed StG cohorts, 62 percent of the approved and 34 percent of the rejected applicants gave their consent to the ERC, which reduced our pool of approachable applicants (see Table 2).

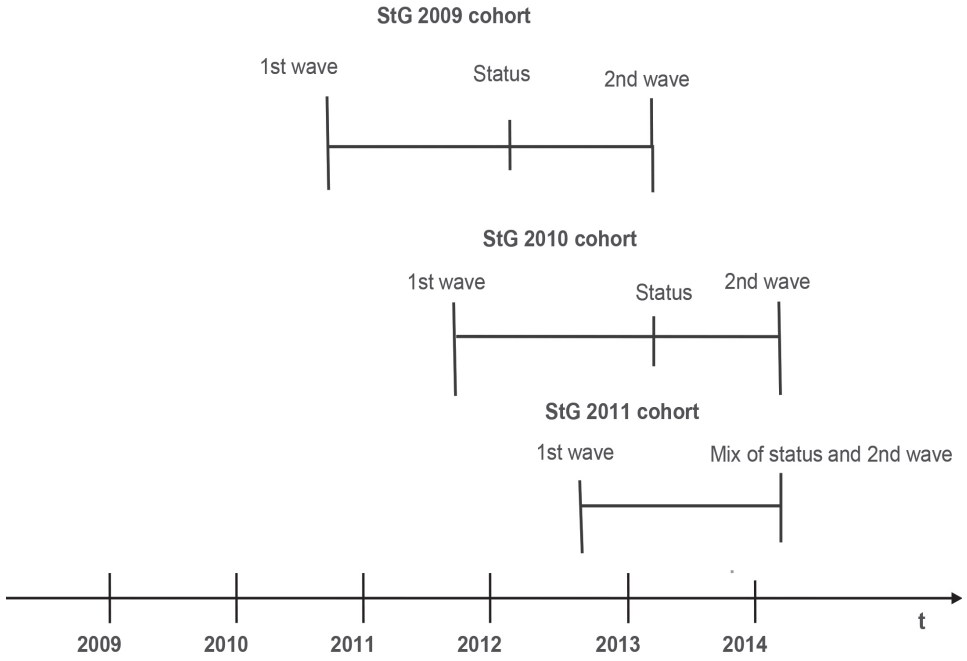
2.2.1 Online survey

All in all, we surveyed three StG cohorts with the first wave questionnaire, namely the StG 2009, 2010, and 2011 cohorts. In consequence of a close cooperation with the CSA project EURECIA and in agreement with the ERCEA, MERCI refrained from surveying the StG 2007 applicants. Given that the StG 2007 cohort must in any case be regarded as exceptional[22] and that there was no StG call in 2008, we are unfortunately not able to monitor important changes between the first and the second StG cohorts. In fact, it is to be expected that a process of consolidation had already begun in 2009 and that, hence, the following cohorts would resemble each other (at least more than the StG 2007 and 2009 cohorts).

We should point out that the StG 2009 and 2010 cohorts were addressed with the whole set-up of the online panel, meaning with the first wave, intermediate and second wave surveys. In order to close the panel design within the MERCI project duration and to increase the data basis for the second wave data analysis, the StG 2011 cohort received a mix of the intermediate and second wave questionnaires. Figure 5 illustrates the design of the panel survey by showing which StG cohort is surveyed with which kind of survey in which year.

22 The first StG call in 2007 saw an extremely high number of applicants with a very low acceptance rate of only 3 percent. In contrast to the StG 2007 call, in the following StG calls a full proposal needed to be submitted at the very beginning, although it is only evaluated in the second stage of the selection process (cf. on this point Section 4.1.1).

Figure 5 Panel design of the online survey



Source: own illustration

Basic logic of invitation procedure

The MERCI online panel aims at covering the entire population of all ERC applicants for the StG 2009, 2010, and 2011 cohorts and to trace research careers of these applicants for a period of roughly three years correspondingly. For the first wave survey, all applicants who consented to the ERC on the transfer of personal data were invited. For the intermediate and second wave survey, each respondent who participated in the first wave survey was invited again, regardless whether he/she actually completed the entire survey or not. In order to increase the pool of potential respondents for the second wave survey, all first wave participants were invited to the second wave questionnaire regardless whether they participated in the intermediate survey or not. Thereby additional StG applicants from the cohorts 2009 and 2010 could be mobilised to take part in the second wave survey. However, among this specific group, the inclination to respond was much lower compared to those who did also participate in the intermediate survey which lead to a further drop in the overall response rate for the second wave surveys correspondingly.

It is important to note that the gross sample of rejected StG applicants potentially to be invited for the intermediate and second wave survey was slightly reduced taken into account that some of them had been approved in subsequent StG/CoG calls and could, thus, not be surveyed in their role as "rejected applicants" again. Before sending out the invitation for the second wave survey, these cases were filtered out either based on the contact data delivered by the ERC (as far as this information was available at the point of time when the survey invitation was prepared) or on survey information from the rejected applicants. Furthermore, to avoid any confusion for potential StG applicants who could not be filtered on the basis of existing information, the intermediate and second wave questionnaire included introductory filter questions preventing that applicants which

had been approved in the meantime were incorrectly surveyed in their role as rejected applicants. In addition, invited applicants who explicitly refused to participate in the MERCI study were blocked and dropped from the sample for further invitations ("black list").

Survey participation and response rates

Table 2 outlines the key facts about survey participation across the three StG cohorts in our MERCI panel. In order to filter cases which started the survey but did not complete it or missed a number of crucial questions, we defined a variable for "valid cases".[23] It should be taken into account that the number of valid answers given in the report for specific questions might differ from the number of cases given in the table below. Most of the questions could be skipped by the respondents and only very few – namely those which are relevant for routing – were mandatory. Throughout the report we present all cases for which we received valid answers on the respective variables analysed, irrespectively whether the person actually completed the whole questionnaire.

Overall, even when taking into account drop-outs, we reached satisfactory response rates compared to other online surveys addressing researchers (e.g. Böhmer et al. 2008; Böhmer et al. 2011). However, Table 2 shows that rejected applicants did not only less frequently consent to data transfer for ERC evaluation purposes but also less frequently completed the questionnaire. Across the three cohorts, 71 percent of the approved and 61 percent of the rejected applicants invited to the first wave survey actually started the questionnaire. Whereas 68 percent of the invited StGrantees completed the survey (meaning that they answered at least one of the questions listed in footnote 23) this share was considerably lower among the rejected applicants (46 percent). It is also striking that drop-out-rates among the rejected applicants soared from the first to the second cohort, which is probably attributable to the fact that a part of these respondents applied twice for a StG and had consequently been approached twice by MERCI's first wave survey. All in all, drop-out occurred much less frequently among the StGrantees.

23 Due to the complexity of the questionnaire (large amount of filtered questions) it would be insufficient to define an indicator for a "complete" case based on one or two single variables. Equally, defining an indicator based on a specific percentage of answered questions is hardly feasible due to the large amount of filtered questions and blocks of questions. In the first wave survey, we defined a case as "invalid" if the respondent did neither state his/her current research field, the field in which he/she did the PhD studies, nor the year of birth. These variables have been chosen since they are positioned in different parts of the questionnaire and did not depend on filter conditions.

Table 2 Response rates across survey wave and cohorts

		StG2009		StG2010		StG2011		Total		
		funded	rejected	funded	rejected	funded	rejected	funded	rejected	Total
Population	Total number of applicants at ERC*	245	2,147	436	2,331	486	3,519	1,167	7,997	9,164
	Consent data transfer	67%	37%	74%	40%	48%	28%	62%	34%	37%
First wave survey	Invited	165	767	323	922	234	971	722	2,660	3,382
	Response rate (based on all cases in data set)	73%	62%	67%	62%	74%	59%	71%	61%	63%
	Response rate (based on valid cases)	72%	60%	64%	40%	72%	41%	68%	46%	51%
	Cases in data set	120	476	218	568	172	574	510	1,618	2,128
	Valid cases (based on defined variable set)	118	462	206	367	168	399	492	1,228	1,720
Intermediate survey	Invited*	119	474	218	525	172	493	509	1,492	2,001
	Response rate (based on all cases in data set)	63%	56%	57%	57%	60%	55%	60%	56%	57%
	Response rate (based on valid cases)	63%	51%	57%	52%	55%	47%	58%	50%	52%
	Cases in data set (including drop-outs)	75	265	125	298	103	269	303	832	1,135
	Valid cases (based on defined variable set)	75	243	124	272	95	230	294	745	1,039
Second wave survey	Invited*	119	450	218	504	-	-	337	954	1,291
	Response rate (based on all cases in data set)	55%	46%	44%	42%	-	-	48%	44%	45%
	Response rate (based on valid cases)	45%	43%	40%	39%	-	-	42%	41%	41%
	Cases in data set (including drop-outs)	65	209	97	213	-	-	162	422	584
	Valid cases (based on defined variable set)	54	192	88	195	-	-	142	387	529
	Overall "coverage rate" for StG applicants (refers to first wave)	49%	22%	50%	24%	35%	16%	44%	20%	23%

*Ineligible and withdrawn proposals (Source: ERC) were not taken into account.

Source: MERCI online survey: StG 2011 cohort did not participate in the second wave but did receive a mix of intermediate and second wave questionnaire.

The calculation of the response rate for the intermediate survey and second wave survey refers to all persons invited, not only to those who were marked as "valid" for the first wave. This definition has been applied because there is a substantial number of 140 persons who took part and also

completed the intermediate survey although they did not respond to all relevant questions in the first wave survey. While in the intermediate survey, the response rate for the rejected applicants was on average and across cohorts lower than that of the approved ones (58 percent vs. 50 percent) those for the second wave are almost equal (42 vs. 41 percent). This convergence in the second wave probably results from the fact that the second wave survey appeared substantially shorter for the rejected applicants which might have balanced lower commitment to the ERC.

In contrast to the first wave survey, the drop-out occurred less frequently among both groups of applicants which is most likely attributable to the fact that this survey was much shorter. Whereas the intermediate one took on average 6 minutes for the rejected applicants and 10 minutes for the approved ones, the combined intermediate and second wave survey for the StG 2011 cohort took 14 respectively 26 minutes. In general, our survey results suggest that drop-out rates increase once the duration exceeds 25 to 30 minutes, which pleads in favour of a set of shorter surveys in lieu of two long questionnaires.

In order to assess whether potential biases due to panel attrition distort the results, it has been tested if the composition of the sample concerning time invariant variables differs across the three survey waves. As indicate Table 3 and Table 4, panel attrition does neither affect the distribution of the respondents across research fields or concerning gender.

Table 3 Composition of sample by research field across survey waves

	Rejected applicants					
	First wave		**Intermediate**		**Second wave**	
Research field	N	in %	N	in %	N	in %
Humanities	105	9	73	9	41	8
Social Sciences	122	11	94	12	53	10
Life Sciences	393	34	274	35	182	36
Natural Sciences	334	29	222	28	155	30
Engineering	186	16	124	16	80	16
Total	1,140	100	787	100	511	100
	Approved applicants					
	First wave		**Intermediate**		**Second wave**	
Research field	N	in %	N	in %	N	in %
Humanities	38	8	30	9	18	7
Social Sciences	51	11	37	11	29	12
Life Sciences	147	32	101	30	76	30
Natural Sciences	158	35	122	36	91	36
Engineering	62	14	46	14	36	14
Total	456	100	336	100	250	100
	Total					
	First wave		**Intermediate**		**Second wave**	
Research field	N	in %	N	in %	N	in %
Humanities	143	9	103	9	59	8
Social Sciences	173	11	131	12	82	11
Life Sciences	540	34	375	33	258	34
Natural Sciences	492	31	344	31	246	32
Engineering	248	16	170	15	116	15
Total	1,596	100	1,123	100	761	100

Source: MERCI online survey, cohort 2009-2011. Second wave only for cohort 2009 and 2010

Table 4 Composition of sample by gender across survey waves

	Rejected applicants					
	First wave		Intermediate		Second wave	
Gender	N	in %	N	in %	N	in %
Male	804	73	541	71	370	73
Female	301	26	222	29	136	27
Total	1,105	100	763	100	506	100
	Approved applicants					
	First wave		**Intermediate**		**Second wave**	
Gender	N	in %	N	in %	N	in %
Male	333	75	241	74	184	75
Female	110	25	83	26	62	25
Total	443	100	324	100	246	100
	Total					
	First wave		**Intermediate**		**Second wave**	
Gender	N	in %	N	in %	N	in %
Male	1,137	73	782	72	554	74
Female	416	27	305	28	198	26
Total	1,553	100	1,087	100	752	100

Source: MERCI online survey, cohort 2009 -2011. Second wave only for cohort 2009 and 2010

Representativity for StG applicants

In addition it has been checked whether non-response leads to a bias in the composition of the survey sample concerning specific subgroups like for eyample the research field, host country or gender. Table 5 compares the distribution of these characteristics in the group of StG-applicants who consented to data transfer by the ERC for evaluative purposes with the distribution in the sample of those applicants which actually participated in the first wave online-survey. It reveals only very minor differences between both groups and thus the MERCI-sample also allows drawing conclusions about the population of ERC-applicants in general.

Given that this comparison only relates to those ERC applicants who consented to data transfer for evaluation purposes, the distribution of gender and research field has also been compared to the overall population of StG applicants. It is striking to note that the MERCI panel sample adequately reflects the structure of the StG applicants for the cohorts 2009, 2011, 2012 at large: According to the ERC statistics, the share of women varies between 21 percent (StG 2011 call), 23 percent (StG 2009 call) and 26.5 percent (StG 2010 call). Also the proportion of the field of research is comparable: Applicants from Social Sciences and Humanities make up each one fifth of the MERCI sample as well as the overall population of the StG applicants. The same holds true for Life Sciences and Physical Sciences and Engineering: among the respondents as well as among the StG applicants from cohort 2009 to 2011 every third persons is working in Life Sciences. Researchers in Physical Sciences and Engineering pose the largest group: 45 percent of the applicants (StG 2009-2011 call) belong to this research field which is also reflected in the MERCI sample (46 percent).

Research field	Rejected				Approved				Total			
	Consent to data transfer		Participated in online-survey		Consent to data transfer		Participated in online-survey		Consent to data transfer		Participated in online-survey	
	N	in %	N	in %	N	in %	N	in %	N	in %	N	in %
Humanities	275	10	105	9	70	9	38	8	345	10	143	9
Social Sciences	278	10	122	11	74	10	51	11	352	10	173	11
Life Sciences	989	37	393	34	261	35	147	32	1250	36	540	34
Natural Sciences	809	30	334	29	248	34	158	35	1057	31	492	31
Engineering	337	13	186	16	86	12	62	14	423	12	248	16
Total	2688	100	1140	100	739	100	456	100	3427	100	1596	100

Source: ERC administrative data and MERCI online survey cohort 2009-2011

Host country	Rejected				Approved				Total			
	Consent to data transfer		Participated in online-survey		Consent to data transfer		Participated in online-survey		Consent to data transfer		Participated in online-survey	
	N	in %	N	in %	N	in %	N	in %	N	in %	N	in %
European Continental	867	51	381	54	260	52	137	46	1127	51	518	52
Anglo-Saxon	423	25	168	24	161	32	106	36	584	27	274	27
Scandinavian	261	15	108	15	60	12	44	15	321	15	152	15
Transitional Eastern/ Southeastern European	141	8	47	7	16	3	8	3	157	7	55	5
Other	2	0	2	0	0	0	1	0	2	0	3	0
Total	1694	100	706	100	497	100	296	100	2191	100	1002	100

Source: ERC administrative data and MERCI online survey cohort 2009-2010
Note: Relates to cohort StG 2009 and StG 2010 only because data for persons who consented data transfer is only available for these cohorts

Gender	Rejected				Approved				Total			
	Consent to data transfer		Participated in online-survey		Consent to data transfer		Participated in online-survey		Consent to data transfer		Participated in online-survey	
	N	in %	N	in %	N	in %	N	in %	N	in %	N	in %
Male	1286	74	804	72	301	75	333	75	1587	74	1137	73
Female	452	26	306	28	98	25	110	25	550	26	416	27
Total	1738	100	1110	100	399	100	443	100	2137	100	1553	100

Source: ERC administrative data and MERCI online survey cohort 2009 and 2011
Note: Relates to cohort StG 2009 and StG 2011 only because data for persons who consented data transfer is only available for these cohorts

Characteristics of the survey sample

Table 6 provides an overview on characteristics of approved and rejected StG applicants who participated in the online-survey. It reveals that the two subsamples strongly resemble each other with regard to gender, age when the PhD was obtained and their years of postdoctoral experience.

Table 6 Description of the online panel sample

	Approved (N= 492)	Rejected (N=1,228)	Total
Female	24.8%	27.6%	26.8%
Male	75.2%	72.4%	73.2%
Age (mean, SD)	37.0 (3.4)	37.8 (3.9)	37.6 (3.8)
Phd age (mean, SD)	29.3 (3.0)	30.2 (3.7)	30.0 (3.5)
Years of postdoctoral experience (mean, SD)	7.8 (2.6)	7.8 (2.8)	7.8 (2.7)
Research field			
- Humanities	9.2%	8.3%	9.0%
- Social Sciences	10.7%	11.2%	10.8%
- Life Sciences	34.5%	32.2%	33.8%
- Natural Sciences	29.3%	34.7%	30.8%
- Engineering Sciences	16.3%	13.6%	15.5%

Source: MERCI online survey (first wave survey), cohort 2009-2011 pooled

Note: Research field is based on the self-assessment of the survey respondents not on ERC-panels.

2.2.2 Qualitative interview study[24]

Interview partners for the pre- and main qualitative studies were selected by means of so-called "theoretical sampling" which aims to ensure that (almost) all existing case variants are covered and maximal and minimal contrasts between cases can be constructed in order to analyse them thoroughly. Here, the sampling of interviewees was based upon the criteria assumed to be important in causing differences between the cases – namely sex, research field, country of host institution, marital status and social background.

For the *qualitative pre-study* ten interviews with StGrantees from the 2007 cohort were carried out in summer 2009. The interviewees were born between 1966 and 1974; they come from Italy, Germany, Hungary, Belgium, and the United Kingdom. The majority of them were still working at institutions in their country of origin; only two interviewees had chosen a host institution in a country that is not their country of origin. Four interviewees worked in Life Sciences, three in Physical Sciences and Engineering and three in Social Sciences and Humanities. Seven of our interviewees were male, three were female.

24 The StG 2007 data for our qualitative pre-study was provided courtesy of the CSA project EURECIA.

For the main *qualitative study*, in spring/summer 2011 a total of 40 interviews were conducted with StG applicants from the 2009 cohort; 29 interviews with approved applicants and 11 interviews with rejected ones. Applicants' probability of being selected for an interview were constrained by their participation in the first wave online survey (cf. on this point Table 2) where at the end of the questionnaire they were asked about their willingness to take part in the interview study.[25] In fact, this 'filter' substantially reduced the pool of potential interview partners, especially among the approved StG applicants, since only 61 out of 118 invited StGrantees consented to actually participate in the interview study. Consequently, not every sampling criterion could be fulfilled, thus restricting the practical implementation of the theoretical sampling. For example, a German StGrantee working at a non-university host institution (like a Max Planck Institute or Fraunhofer Institute) is absent from our sample.

Taking the restricted data base into account, every female StG applicant available (13 cases), every researcher available from the SSH (11 cases), every person with the marital status "single" (8 cases) and every person with a low social status (operationalised by the fact that both parents are non-academics, 8 cases) were interviewed. The original plan to interview StG applicants from five European host countries needed to be modified because there were not enough potential interviewees in each country. Accordingly, the number of host countries was increased from five to eight: Belgium (6 interviews), France (5), Germany (9), Hungary (3), Ireland (2), Italy (6), Switzerland (5), and the UK (4). The interviewed StG applicants were born between 1964 and 1977, with a peak in the early seventies.

Table 7 Sample of the qualitative interviews by research field and gender

Research field	Male	Female	Total
Physical Sciences and Engineering	13	4	17
Life Sciences	7	5	12
Social & Behavioural Sciences and Humanities	7	4	11
Total	27	13	40

Source: MERCI qualitative interview study

Interviews were carried out in English except for those where the interviewee and the interviewer were both native German speakers. Citations gathered from these interviews were translated into English. For data analysis, qualitative interviews were transcribed verbatim. Data analysis started with a case-based interpretation of single interviews and identified important categories and subcategories. It produced reconstructions of relevant processes for key issues as experienced by the interviewee and also retrieved the person's perceptions of these processes and of the associated circumstances and structures. A category-based cross-comparison of all cases was then performed, and factors that produce differences between the cases were identified. In this way, several patterns could be differentiated that cover the structures of all collected cases.

25 See on this point the screenshot of the first wave online questionnaire available at the iFQ website: http://www.research-information.de/Projekte/Merci/projekte_merci_lang.html

Each interview was given an individual code containing the following information:

– The number of the interview,
– "M" or "F" for the gender of the interviewee, and
– "G" for StGrantee or "R" for rejected StG applicant.

This code fully protects the privacy of the interviewees (e.g. Int01FG). The interview data has been treated with the highest regard given to the anonymity of the interviewees. All personal identifiers were removed from the quotes or replaced by pseudonyms, so that an individual interviewee is not traceable. Quotations from the interviews will be used to provide illustrative examples to accompany the interview analysis throughout the present report.

2.2.3 Bibliometric Analyses

For our bibliometric analysis, approved and rejected applicants from the StG 2007 and 2009 calls were considered. As stated in the introduction to Chapter 2, we are only allowed to approach those applicants who gave their consent to the ERC to transfer their personal data. In total, 694 applicants from the StG 2007[26] cohort and 932 applicants from the StG 2009 cohort consented to the data transfer, as shown in the table below. As Social Sciences and Humanities (SSH) are not sufficiently represented in the Web of Science (WoS, Thomson Reuters) database, we included only those (consenting) StG applicants whose proposals were assigned to the ERC domains Life Sciences (LS) or Physical Sciences and Engineering (PE).

26 Due to the large number of submitted proposals for this initial StG call in 2007 (cf. on this point Section 1.2.1), the ERC drew a random sample (n=1,000) from the group of rejected applicants and asked them for permission to transfer their data, whereas all funded and 'above threshold' StG candidates were considered.

Table 8 Data set and sample of the bibliometric study

Status	2007 call				2009 call		
	Rejected	Above threshold	Funded	Total	Rejected	Funded	Total
Number of applicants (evaluated)	8,743	125	299	9,167	2,258	245	2,503
Invited to data transfer (StG 2007 rejected: random sample, n=1,000)	1,000	125	299	1,424	2,258	245	2,503
Consent to data transfer	290	115	289	694	767	165	932
Reduction to LS and PE (SH excluded)	253	102	237	592	628	130	758
Applicants with applications in 2007 as well as in 2009 have been excluded from the StG 2007 sample (n=43)	222	90	237	549			
Invited to online validation	222	90	237	549	628	130	758
Applicants with valid publication lists	136	31	105	272	396	84	480
Percentage with valid publication lists	61.3	34.4	44.3	49.5	63.1	64.6	63.3

Source: MERCI bibliometric analysis

In fact, an accurate assignment of the StG applicants' publications and valid publication lists is a crucial prerequisite for the bibliometric analysis. In order to meet this requirement, publication data from the years 2003 to 2011 was retrieved from the WoS for the StG 2007 and 2009 cohorts. Publication lists for both cohorts were assembled based on the applicants' names and surnames with different kinds of spelling taken into account.[27] Subsequently, the publication lists were manually 'pre-cleaned' (Web/Internet research) to check for homonymy (two different people with the same author name) and reduced to the document type 'article'. Further improvement was achieved through a fine-grained validation procedure carried out by the StG applicants themselves via an online tool which was developed and tested by the iFQ: each StG applicant was invited to check his/her pre-cleaned publication list and to delete and/or add publications. In June/July 2012, we invited the StG 2009 cohort to validate their publication lists; in September/October 2012, the StG 2007 cohort was invited to participate in the validation procedure. Table 8 provides information about the StG applicants' response rate to the invitation to validate their corresponding publication list. The validation procedure yielded 272 valid publication lists (49.5 percent) for the StG 2007 cohort and 480 (63.3 percent) for the StG 2009 cohort. Following the identification of relevant publictions, citation data was retrieved from the WoS.

27 The iFQ was responsible for collecting and validating the publications for the StG 2007 cohort and Bielefeld University was responsible for the StG 2009 cohort. The iFQ and Bielefeld University agreed upon the same methodological approach, ensuring that comparable retrieval strategies, cleaning procedures and the same indicators are used for the two StG cohorts.

Further information about bibliometric data (e.g. with regard to the citation window) and indicators that were derived is given in Section 4.1.2 and 4.2.2.

3. Thematic focus I: funding strategies and StG application behaviour

In most European countries, public research is financed by recurrent institutional basic funding as well as third-party funding and project-based grants allocated on a competitive basis. The latter has gained in importance during recent years (cf. on this point for example Schmoch, Schubert 2009; Auranen, Nieminen 2010). On the one hand, the growing prominence of quasi-market instruments is deemed to be a conscious decision in science policy based on the rationale that competitive or performance-oriented research funding creates incentives to raise productivity and efficiency (Aghion et al. 2010; Bolli, Somogyi 2011). On the other hand, extramural research grants have become increasingly relevant during recent years due to public budget constraints – not least due to the recent economic crisis (cf. European University Association 2013). Consequently, in order to implement their research ideas and to compensate for potential cutbacks in institutional funding, researchers are more and more dependent on third-party funds provided by various stakeholders such as national funding agencies, (sub-)national governmental agencies (e.g. ministries), the EC, and the ERC, not to mention numerous foundations and the private sector. Moreover, research grants have become more than a financial resource for implementing research programmes and increasingly serve as indicators for scientific recognition, especially in the mid-career phase (see e.g. Böhmer et al. 2008; Youtie et al. 2013; Langfeldt et al. 2014).

Assessments are ambivalent concerning the effects of the shift towards competitive funding. Whereas proponents argue that competitive funding, in contrast to recurrent institutional funding, provides incentives to increase productivity and efficiency (Aghion et al. 2010; Bolli, Somogyi 2011), opponents criticise it as a risk-averse and "resource-hogging" process which takes away researchers' and reviewers' capacities for genuine research (cf. Laudel 2006). Whereas changes in knowledge production associated with peer-reviewed grant distribution have been the subject of discussion for more than twenty years and have more recently triggered a debate about how to reorganise allocation mechanisms (see e.g. Stephan 2012; Ioannidis 2011; Ioannidis 2012; Nicholson, Ioannidis 2012), empirical evidence about how researchers respond and adapt to changing funding conditions in their everyday life is rare and isolated (but see on this Laudel 2006; Grimpe 2012).

Given the pervasive changes in the research funding landscape, it seems essential to embed researchers' decisions to apply for an StG in the context of their overall third-party funding application behaviour and to elaborate on the role of the StG project in the overall project portfolio. This contextualisation not only provides valuable clues about researchers' strategies for acquiring research funding, but also about the role which the ERC as a funding body plays in comparison to other funding agencies at the European and national level or in comparison to the private sector. Hence, this chapter aims to paint a detailed and comprehensive picture of StG applicants' funding strategies by

– asking about the motivation to apply, or not to apply, for the StG and contrasting the motives to apply for an StG with the motives to apply to other funding bodies (Section 3.1),
– describing the overall project portfolio of the StG applicants and comparing it for approved and rejected applicants as well as for researchers working in different research fields (Section 3.2), and
– discussing the role of (institutional) support in the acquisition of extramural research funding (Section 3.3).

The in-depth discussion of the research portfolio serves a threefold purpose. Firstly, as argued above, the project portfolio is an indicator of past efforts to acquire funding for research. Secondly, it provides information about how relevant specific types of funding agencies are across research fields and national research systems and whether StG funding tends to substitute for or supplement other funding sources. Thirdly, in order to adequately assess potential changes in research conditions which are attributable to the StG funding it is necessary to take into account the overall setting in which the StG project is embedded.

To answer questions about funding strategies and the applicants' overall project portfolio, we rely on information gathered from the MERCI online survey and the qualitative interviews. Whereas the motivation to apply for the StG was evaluated in the first wave questionnaire, assessments of other funding bodies are based on responses from the second wave questionnaire and exclusively relate to funding bodies to which the StG applicants applied in the period *after* their StG application.

3.1 Researchers' strategies and motivation for applying for external funding

3.1.1 Researchers' funding strategies

Researchers' rationales for targeting specific funding sources like the ERC StG are highly varied and numerous reasons are adducible why researchers opt for or against third-party funding applications to a specific funding body or programme. No coherent framework has yet been developed for analysing researchers' funding strategies. Although empirical evidence about researchers' rationales to apply for one funding source over another is still weak and isolated (but see on this for example Böhmer et al. 2011), it provides valuable indications about which factors might prove relevant for researchers' decisions about the selection of funding sources. According to Laudel (2006, p. 495), researchers attempt to adapt to changes in the funding landscape by either adjusting the content of their work or targeting its "resource base". With regard to the resource base, from our point of view the following factors deserve particular attention:

– **Characteristics of the grant:** Here, characteristics such as the amount of funding, the duration of funding, the thematic scope or fit, and the perceived reputation of the grant are discussed (see on this point e.g. Langfeldt, Solum 2007).

– **Expected investment/effort required to obtain a grant:** Researchers are not only expected to assess the tangible and intangible benefits associated with a grant but also to anticipate the

effort required to apply and the administrative burden arising for grant management or acceptance rates (see on this point: Laudel 2006; Grimpe 2012).

– **Perceived chances of success:** Acceptance rates for specific funding programmes serve as an "objective" measure of the ratio between supply and demand and thus provide a rough indicator of the likelihood of approval. However, perceived individual chances of succeeding in the competition might be moderated by numerous factors: how do researchers assess the quality of their project idea, their scientific reputation and their track record compared to potential competitors? How much relative importance do they ascribe to "external" factors over which they have little control (e.g. the reputation of the institution, risk-averse selection procedures)? Within the scope of the MERCI project, we will especially focus on processes of "self-selection" among the applicants and the "proactivity hypothesis". These factors will be discussed in depth in Sections 4.1.2 and 4.2.1.

– **Availability of alternatives:** Opting for or against a specific funding source presumes that a range of alternatives to fund one's research – either in the form of recurrent institutional or external funding – does exist. This is why we will first discuss to what extent an application for the StG programme is driven by a lack of alternative funding opportunities and for which groups of applicants this represents the major reason to apply for an StG. Secondly, we will examine which other funding sources the StG applicants approach and to what extent the pool of alternative funding options that are considered differs across research fields. Thirdly, we will elaborate on the question of how researchers assess these funding sources in contrast to the StG programme.

– **Support for and steering of grant applications:** Last but not least, we will discuss to what extent third-party funding applications – such as for the StG – are supported and steered by the institution a researcher is affiliated with (see on this point Section 3.3).

Existing empirical evidence about researchers' rationales for identifying appropriate funding sources is comparatively weak, but two studies in particular are worth mentioning here: Grimpe (2012, p. 1148) aims to study "scientists' strategies for obtaining project-based research funding in the presence of multiple funding opportunities" and concludes that "different grants are not complementary, i.e. scientists specialise in certain grants". Although he sets out from the assumption that researchers act as economic agents – selecting funding strategies for which they anticipate the highest "return", where this anticipated return is determined by factors such as the application and management workload for the grant, the amount of funding, and the probability of receiving funding – such rationales are not been taken into account in his subsequent empirical analysis. Grimpe argues that as "virtually all funding bodies claim to apply competitive, merit-based selection procedures, common sense would suggest that the probability of receiving the grant is dependent on the scientist's research productivity and quality". He thus fails to deliver insights into researchers' rationales, because he ultimately studies funding outcomes instead of researchers' application decisions and none of the factors incorporated in his models actually relates to the question of *why* a specific funding body was targeted.

Laudel (2006), in contrast, provides a qualitative and more convincing approach to researchers' funding strategies: drawing on interviews conducted with German and Australian university researchers in experimental physics, she distinguishes three prevalent strategies utilised in the acqui-

sition of third-party funding. First, taking into account the effort required for grant application writing and reporting as well as the success rate and size of the grant, scientists reported that they primarily targeted 'easy' funding sources, meaning that they are familiar with application procedures and that they are able to handle them in an efficient manner accordingly. Here, Laudel points to the (perceived) low attractiveness of the European Commission's funding schemes for many German researchers, who adduce bureaucratic procedures and low success rates as the main reasons for refraining from applying for such funding. A second common pattern is characterised by the rationale of targeting as many funding agencies and schemes as possible in order to acquire a sufficient amount of funding to carry out research, with scientists indicating that they often apply for multiple projects due to the small size of single grants. Thirdly, some 'top' scientists, as Laudel labels them, design their research projects and subsequently only approach 'appropriate' sources of funding. Laudel points out that this naturally requires both the existence of suitable funding sources as well as a high probability of success.

Aside from these three patterns, further rationales include the "commercialisation of research results" and "free-riding". In the first case, respondents attempt to achieve independence from funding agencies by selling their services to industry and using the money they earn for research or by 'reallocating' money from externally funded projects in order to try out new research ideas. "Free-riding" relates here, for example, to the practice of allowing collaborators to write the application for someone else's project.

Subsequently, we aim to paint a more detailed picture of researchers' motivation to apply for an StG and other funding sources based on the findings from the MERCI online survey and the qualitative interview study. At the end of this section, we will return to the question of whether decisions to apply for grants such as the StG are driven by specific criteria and whether we can observe some kind of 'specialisation' or identify strategies for targeting funding sources among former StG applicants.

Intensity of application behaviour

In essence, the results from the MERCI online surveys and the qualitative interviews suggest that applying for competitive funding is common among all StG applicants, although the intensity and 'taken-for-grantedness' of the participation in the competitive allocation of research funding varies quite strongly. According to the qualitative interviews, StG applicants are in general very aware of national, EU-wide, and US-American research funding schemes and they are constantly on the lookout for funding options. In addition, our online survey reveals that only 15 percent of the respondents did not apply for further third-party funds after their StG application. Given that our survey sample by implication does not include researchers who refrain from acquiring extramural funding at all, the proportion of non-applicants seems comparable to the iFQ-Scientists Survey in Germany 2010 which found that roughly one tenth of the researchers in Germany did not apply for any third-party funding during recent years (see Böhmer et al. 2011, p. 36).[28]
Although the survey results suggest that the majority of StG applicants put considerable effort into applying for third-party funds, it presents a more varied picture when it comes to the intensity with which StG applicants acquire funding. For some applicants, receiving an StG reduces the need to

28 When comparing the MERCI online survey data with findings from the iFQ-Scientists Survey, it needs to be taken into consideration that this survey relates solely to researchers at German universities and that participation in the

acquire further funding (at least temporarily), but only to a minor extent. Roughly one in four approved StG applicants and one in eight rejected ones did not attempt to acquire further external funding after applying for the StG.[29] Furthermore, on average, StG recipients produced slightly but not significantly fewer proposals than rejected applicants in the same research field.[30]

Table 9 reveals strong differences with regard to application behaviour across research fields, with approved applicants tending to apply less frequently than their rejected peers in the same field. In the Humanities, the inclination to apply for third-party funds is far less pronounced whereas it is strongest in Life Sciences and Engineering. In the latter research fields, not only are non-applicants less common, but on average the respondents also produced more applications during the same period. Whereas researchers from Life Sciences applied on average 3.5 times in the past three years, those from the Humanities wrote only 2.1 applications during the same period.

Table 9 Proportion of approved and rejected StG applicants with at least one additional third-party funding application since the ERC StG application across research fields (in %)

Research field	Proportion of researchers with additional third-party funding applications			
	Approved	Rejected	Total	N
Humanities	55.6	66.7	63.4	90
Social Sciences	75.0	87.7	84.1	113
Life Sciences	82.6	96.0	92.1	317
Natural Sciences	71.6	84.2	79.7	305
Engineering	87.2	93.4	91.7	145
Total	76.0	88.4	84.5	970

Source: MERCI online survey (second wave and intermediate survey)

29 The time period for which further third-party funding applications have been compiled is roughly two to three years.

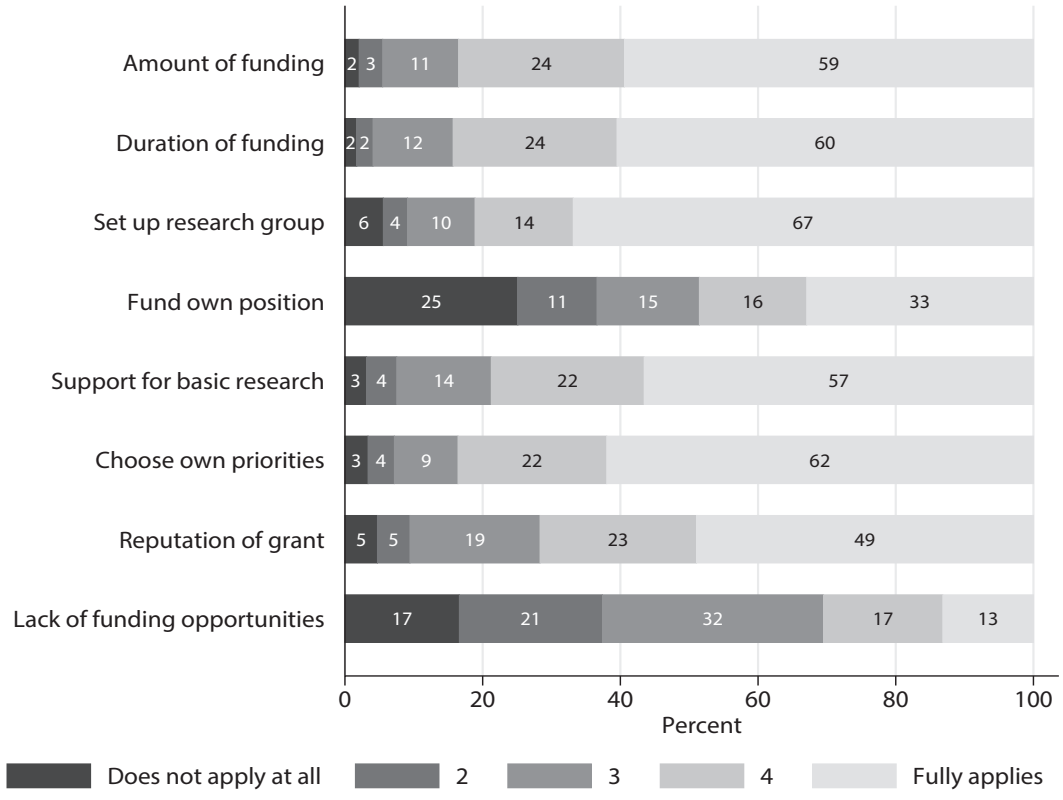
30 Calculations on the average number of third-party funding applications relate to respondents from the StG 2009 and 2010 cohorts only. These respondents could mention up to ten third-party funding applications in the second wave online survey. Since the StG 2011 cohort was not surveyed with the genuine second wave questionnaire (but with a mix of the intermediate and second wave surveys, cf. on this point Section 2.2.1), respondents from this cohort could only mention up to five applications in the survey and the answers were not pooled with the answers gathered from respondents from the StG 2009 and 2010 cohorts. Differences in the number of proposals between approved and rejected applicants are, thus, most likely not significant due to the smaller number of cases included in this type of analysis. Regression analysis reveals that the number of third-party funding applications is more strongly determined by the research field than either the status of being a StGrantee or the position a respondent currently holds. The "baseline numbers" for third-party applications in Life Sciences and Engineering are highest, even when controlling for funding status and position.

3.1.2 Motivation to apply for a Starting Grant

In the following, we will shed some light on the reasons to apply for an StG in particular. In doing so, we will discuss how distinct characteristics of the StG – such as the amount and duration of funding but also its symbolic value and prestige – contribute to the attractiveness of the grant and how relevant these characteristics are for triggering applications.

In general, as Figure 6 shows, the attractiveness of the StG mainly derives from its generous funding conditions as well as from the option to choose one's own research priorities and to set up a research group. Two thirds of the surveyed applicants (StG 2009–2011 calls) regard the possibility of setting up their own research group as a very strong motive for their StG application and 62 percent also rate the freedom to pursue their own research agenda as highly relevant. Roughly three in five applicants express the same view about the amount and duration of funding. Moreover, approved and rejected StG applicants' assessments hardly differ with regard to these factors, but approved applicants tend to regard the amount and duration as slightly more important than rejected ones do (see Table 44 in the Appendix).

Figure 6 Motivation to apply for an StG



Source: MERCI online survey (first wave survey), pooled findings for approved and rejected applicants (N=1,697)

Concerning the overall priority of application motives, these MERCI findings are consistent with other studies (see e.g. Langfeldt, Solum 2007), whereas the motivational structure appears slightly different. For the EURYI award, Langfeldt and Solum (2007) found that it is not only the sizeable amount of money and the prestige of a grant which trigger applications but primarily the opportu-

nities which this financial endowment provides for conducting research independently. The MERCI survey results, in contrast, do not corroborate this relation. Although the amount and duration of funding as motives are highly correlated (r=0.670, p=0.000), those respondents who rank the amount and duration of funding as a strongly relevant driver for their application do not simultaneously consider the possibility of setting up a group or pursuing their own research ideas as relevant criteria.[31] This suggests that the financial endowment and possibility of conducting research independently of hierarchical interventions instead represent independent dimensions of the motivation to apply for an StG.

Whereas for reasons related to the characteristics of the StG and the opportunity to carry out research independently the overall picture appears quite homogeneous among all respondents, larger disparities appear when it comes to the "individual necessity" of applying. The heterogeneous assessment of respondents with regard to funding their own position and a lack of alternative funding sources point to the fact that the StG is (also) utilised by a substantial group of respondents to cope with deficiencies in their individual employment situation or the specific features of the research funding landscape (which applies, for example, to StG applicants from Italy).

At the end of this section we will return to the question of the circumstances under which an StG application is primarily initiated as a means to cope with a lack of funding opportunities.

Reputation and symbolic capital as the reason for application

Aside from concrete features of the StG, its reputation also represents an important driver for applications, with approved applicants ranking this significantly higher (MW test: p=0.000). Since its implementation in 2007, there is no doubt that the ERC StG has been associated with considerable prestige. Besides the high amount of funding (up to € 1.5 million, in some circumstances up to € 2 million), its prestige is presumably derived from the low acceptance rates, fostering the exclusivity of StGrantees in the sense of being 'one of the happy few'. With regard to this, the qualitative interviews suggest that the high rejection rate does not necessarily discourage potential candidates from applying for an StG – on the contrary, StG applicants (including the rejected ones) regard themselves as belonging to the target group. The low success rates are deemed 'proof of excellence' due to a rigorous selection process – fostering tendencies of self-selection among StG applicants – rather than an impediment to applying (see Section 4.1.2).

However, it is debatable whether "scarcity" can suffice in the long term as a genuine expression of quality or as the most essential distinguishing feature between "excellent" young researchers, as the critical reflections of the StG applicants illustrate:

> *R: What I ask myself is what will be the future about the ERC, because now they are giving too many grants. So I wonder if the quality level of the ERC grantees in the future will be...kept to high standards. Because every year they give something like 250, 300, but I hope that this doesn't mean that then everybody will get ERC grant. Because then it will be a waste of money. […] Because I knew, I knew, I have in my mind that it is one or two people which have starting ERC grant which I don't think they fully deserve. […]*

31 For the correlation among all items, see Table 47 in the Appendix.

I: And what do you think how they got it? Because they went through the same procedures as you.

R: Yeah, uhuh. Because I think that this is something that could happen in the future but I'm not sure, it's just an impulse. It's that after the first round the very top people get selected, you know you sort of fish in the lower range, and even those become top. Because if every year 250 grants are given, after – so now I think there are more than 1,000 people holding ERC in Europe. (INT19MG)

Perceived chances of success

During recent years, the acceptance rate for the StG programme ranged between 3 and 16 percent (see Figure 1) and is hence also below the success rates of other funding schemes addressing "excellent" postdocs (for example the funding rate for the Emmy Noether Programme (DFG) amounts to around about 20 percent, and the same applies to the NWO Innovational Research Incentives Scheme ("Veni Vidi Vici").

On the one hand, low acceptance rates for the StG are perceived as an important source of the high reputation which the grant enjoys in the scientific community. On the other hand, anticipated chances of success are often deemed a relevant criterion for why researchers opt for or against an application (Laudel 2006; Böhmer et al. 2011). For example, a survey among German professors (Böhmer et al. 2011, p. 72) revealed that besides the thematic fit and perceived fairness of the review process, anticipated chances of success represented the most relevant criteria for a third-party funding application and – apart from the German Research Foundation (DFG) – were perceived as being far more relevant than the reputation of the granting agency. Interestingly, anticipated chances are deemed a highly relevant criterion across all types of funding bodies, which implies that perceived chances hardly vary even if actual acceptance rates might be low. As a consequence, we could argue that perceived individual success rates are not necessarily strongly related to "objective" chances of success but are moderated by different factors.

Empirical findings about the influence of acceptance rates on the StG application are ambiguous but provide some insights into the question of how researchers perceive their own chances of success. As the previous section suggests, the low StG success rates are deemed a 'proof of excellence' and of a rigorous selection process rather than an impediment to applying. However, the interview study also reveals that the applicants do self-critically judge their chances of success by assessing their track record. Most of the 40 interviewees had already set their sights on the first StG call in 2007; but while 19 actually applied in 2007, others decided against a precipitous application, mostly because they considered their track record to be insufficient or not strong enough at that time.

Since the MERCI study only targets former StG applicants, the question of whether high rejection rates deter researchers from applying can only be answered with the help of secondary data. In order to shed light on this blind spot, we refer to a recent scientist survey in Switzerland (see Lang-

feldt et al. 2014).[32] In this survey, roughly a quarter to one third (dependent on the research field) of the researchers mentioned high rejection rates as a reason why they abstained from applying for an ERC grant. Notably, compared to their colleagues working in other research fields, researchers in the Humanities more frequently mention the high rejection rates as a reason for not applying for an ERC grant and, in addition, they more frequently think that their kind of research would not be funded by the ERC anyway (cf. on this point Table 10).

Table 10 Reasons for not applying for ERC grants by research field (in %, multiple answers)

You have indicated that you have not applied for grants from the European Research Council (ERC). What are your reasons for not applying for these grants?	Natural Sciences	Engineering and Technology	Medical Sciences	Social Sciences	Humanities
I/my unit had sufficient funding from other sources	32.4	33.1	19.1	38.3	32.1
The rejection rate is too high to warrant an application	28.7	27.8	29.6	27.3	33.2
I do not think the ERC would fund my kind of research	21.8	21.2	36.4	32.8	42.2
The ERC does not offer grants relevant to my situation/to fund my research	20.1	16.6	19.1	19.2	26.0
I do not have information about ERC grants	10.8	15.2	17.6	20.9	13.0
My institution does not encourage me/ my unit to apply for ERC grants	6.5	9.9	10.6	14.8	10.5
N	850	151	341	454	277

Source: NIFU researcher survey for SNSF 2013. Cf.: Langfeldt et al. (2014, p. 94).

Note: this question was only posed to respondents who indicated that they did not apply for ERC grants. The table displays the percentages of the respondents within each research area who selected the options. Respondents could select as many options as they wanted.

Differences in motivation across research fields

We expected that the motivation to apply for an StG would vary across research fields: firstly, laboratory-based sciences usually demand larger amounts of funding to cover expenses for equipment and, consequently, applicants from these research fields might highly value the amount of funding provided by the grant.[33] Secondly, the range of alternative funding opportunities might vary across disciplines. Hence, we will discuss to what extent the StG application is driven by a lack of other

32 This survey approached researchers with a PhD or substantial research experience and who were affiliated with a Swiss research institution. In the scope of this study, 67 percent of the respondents did not apply for an ERC grant, 15 percent successfully applied and 15 percent were rejected. To further analyse the researchers' preferences and concerns in terms of different funding options, those who didn't apply for an ERC grant were asked to indicate their reasons for not applying.

33 However, according to a recent study, no noteworthy trend towards larger grant sizes in laboratory-based sciences compared to non-laboratory ones has been identified (cf. Bloch et al. 2014).

funding opportunities. Thirdly, especially for programmes that aim to establish or consolidate a research group, we need to keep in mind the organisation of different research cultures: whereas in Life Sciences there is a long tradition of working in groups, (formalised) research groups may be regarded as a relatively new phenomenon in other research cultures and disciplines; this is particularly the case for the Social Sciences and Humanities (cf. Fleck 1980 [1935]).

In line with the hypothesis that laboratory-based sciences are usually associated with larger budgets, the amount of funding is indeed deemed significantly more relevant in Life Sciences (mean=4.49 SD=0.84) than in the Humanities (mean=3.98 SD=1.15). A similar but less pronounced pattern has also been found for the duration of funding as an application criterion. While respondents across all research fields value the thematic breadth and freedom to determine their own research subjects as equally relevant for an StG application, those in Life Sciences and Natural Sciences in particular appreciate the ERC support for basic research, or "frontier research". Given the openness of the StG programme, the fact that across all research fields the thematic independence is highly appreciated is not really surprising. The opportunity to set up one's own research group provides a very strong motivation to apply for an StG, but it is significantly less relevant in Life Sciences. Here, research groups most likely already exist and the StG is, thus, instead utilised to complement the funding for an existing group, or to pursue specific research questions which cannot be implemented otherwise.

As our survey findings suggest, none of the research fields contrast strongly with regard to a lack of alternative funding opportunities and this factor is considered by far the least relevant for an StG application. Similarly, acquiring funding for one's own position is only of minor importance for most of the applicants, except for those in the Humanities. Here, 46 percent of the applicants fully agree that this is an important factor whereas in the other research fields less than a third does. Although the data do not further corroborate the hypothesis of a general lack of funding opportunities in specific research fields, in Section 3.2 we will discuss the role of the StG project in light of the overall funding portfolio.

Steering applications?

By elaborating on researchers' rationales for targeting specific funding sources, we implicitly assume that they make a conscious decision for or against a specific third-party funding application. However, the results from the MERCI interview study suggest that an StG application as such is not necessarily the result of an individual decision, but rather is prompted by institutions as part of an overall strategy to systematically explore and exploit potential funding sources. A couple of StG applicants reported that they did not have a 'real choice' about whether to apply for the StG or not, because the StG application was either a precondition for a job contract or they were 'preselected' by a superior (e.g. by the dean of the faculty) and, thus, 'asked' to apply. One interviewee described this procedure as follows:

> *Many here at the university didn't apply completely voluntarily. Because we are quite well funded anyway. But the superiors go around and say, you, you and you, you are going to apply for this. And when the dean of the faculty tells you to apply for something, then you do so. And I know of colleagues who, as me, got this order from the dean to apply, and they wouldn't have done so otherwise. (Int16MG)*

Undoubtedly, research organisations themselves have a genuine interest in attracting StG recipients: hosting an StG recipient may increase the attractiveness and reputation of an institution, or it may attract further ERC grant-holders and, thus, may help the institution to increase its productivity, scientific recognition, and international visibility for external evaluations. Overall, we could argue that the ERC StG funding scheme can be regarded as a 'currency' for establishing the double coincidence of wants: on the one hand, it enables researchers to create a "protected space" to pursue their own research goals by endowing them with a sizeable amount of financial resources. On the other hand, hosting StGrantees has become a sign of prestige for universities and research institutions. We will further elaborate on this factor in Section 3.3, in which we consider StG applications as a "collective endeavour" by focusing on the institutional supporting infrastructure.

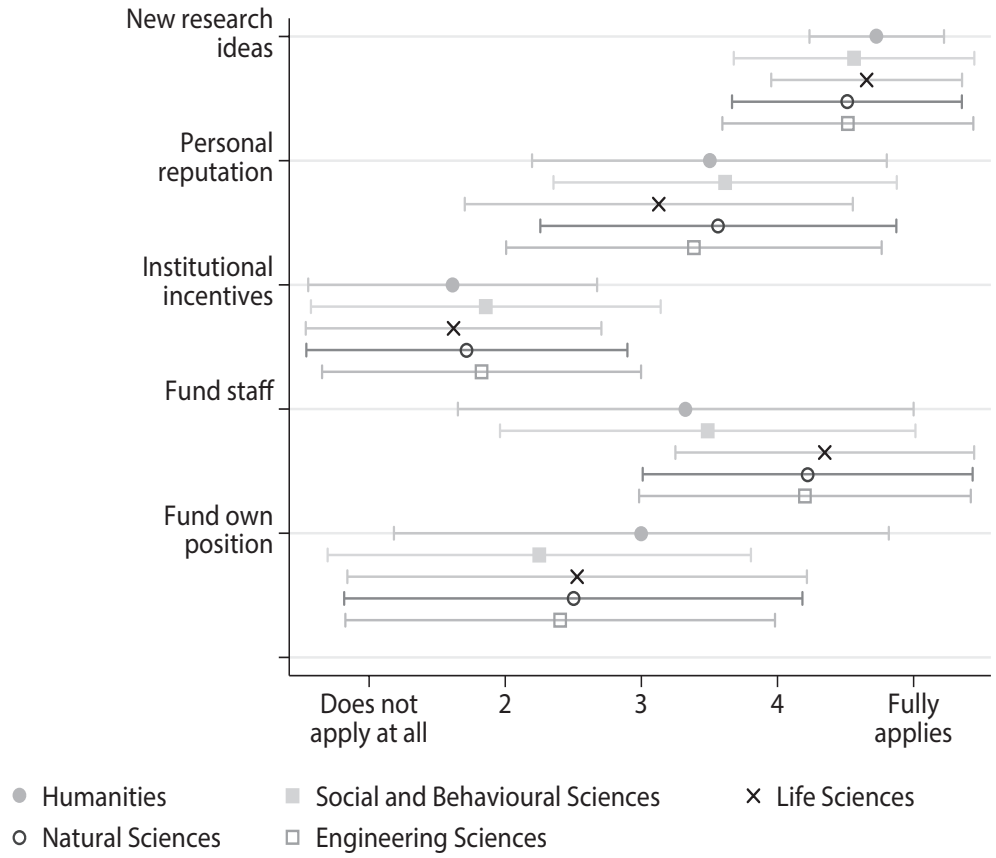
3.1.3 Motivation to acquire (further) third-party funding

According to our survey results, efforts to acquire (further) third-party funding are most strongly driven by the desire to implement new research ideas and the need to fund staff whereas the requirement to fund one's own position and institutional incentives (like additional remuneration or bonuses) appear to be the least relevant.[34] For an overwhelming majority (93 percent), new research ideas represent a strong or very strong motivation to apply for external funding while only 11 percent state the same with regard to institutional incentives. Four in five respondents primarily applied for external funding in order to finance staff. When it comes to the funding of one's own position as a motive for acquiring third-party funding, the assessments diverged strongly: on the one hand, this reason does not play any role for 48 percent of the respondents, but on the other hand is of utmost relevance for one quarter of the respondents. Interestingly, the motivation to apply for funding one's own position is much more strongly pronounced among the rejected applicants than among the StGrantees (42 percent vs. 17 percent). However, for the remaining motives, the assessments of approved and rejected applicants do not differ.

Figure 7 reveals that across all research fields, the efforts to acquire additional funding are first and foremost driven by the desire to implement research ideas, whereas institutional incentives play the least important role. Third-party funding applications in Life Sciences, Natural Sciences and Engineering are more frequently triggered by the need to fund staff, where larger research groups are more common, while the need to fund one's own position is especially relevant for applicants in the Humanities: 40 percent of them deem this a very strong motive.

34 In cases where the respondents stated that they had applied for further third-party funds since their StG application, they were asked to rate a set of specified reasons on a five-point scale (From 1 "Does not apply at all" to 5 "Fully applies"). Approved and rejected applicants were shown the same reasons, but the approved ones were additionally asked whether they had applied in order to continue the work of the StG research group. For summary statistics for approved and rejected StG applicants see Table 46 in the Appendix.

Figure 7 Reasons for (further) third-party funding applications since the StG application



Source: MERCI online survey (intermediate and second wave survey) pooled findings for approved and rejected applicants (N=865, number of valid answers varies across items)

Note: symbols indicate mean, capped spikes indicate standard deviation

Differences in the reasons to apply for (further) third-party funding are not only found between research fields but also between national research systems and career systems: 58 percent of the applicants who reside in Eastern and South-Eastern European countries and almost half of those who reside in Scandinavian countries state that the need to fund their own position was a major motivation.

As outlined above, a successful acquisition of research grants is often perceived as an indicator of scientific recognition (cf. on this point for example Youtie et al. 2013 or Langfeldt et al. 2014). This trend is confirmed by our survey results: more than half of the respondents apply for third-party funding in order to increase their personal reputation. However, this reason is significantly less relevant in Life Sciences (KW test: $Chi^2=12.8$, $p=.012$) which can most likely be explained by the fact that in Life Sciences the acquisition of third-party funding has become a 'routine job' and, thus, does not serve as a distinctive criterion to express high scientific reputation.

Motivation not to apply for (further) external funding

In the intermediate and second wave survey, respondents who did not apply for (further) third-party funding were given the opportunity to specify their reasons in an open answer text field ("Please explain briefly why you did not apply for third-party funding"). The reasons most frequently mentioned by *approved StG applicants* can be summarised as follows:

1. There is no need for further money.
2. There is no capacity for another research project with respect to the respondent's own work-load or alternatively with regard to the ERC working hours restriction (i.e. available working hours are 100 percent occupied).
3. There is an inclination to avoid management disputes that would accompany a new project.

However, especially when it comes to interpreting point 1), we need to keep in mind the point in time when respondents were asked this question. Taking into account the fact that the intermediate survey takes place roughly 2.5 years after the ERC funding decision (and the second wave survey one year later, thus, roughly 3.5 years after this decision) and that the bulk of the StGrantees are funded for (the maximum period of) five years, our respondents are in the middle of their funding period, which may imply that there is no pressing need for follow-up financing yet.

When asking the *rejected StG applicants* about their motives not to apply for (further) third-party funding, we are faced with both similar and dissimilar reasons. Rejected applicants refrain from acquiring external funds first and foremost because:

1. They do not need further funding at the moment (e.g. because funding from other sources has been obtained).
2. They perceive the anticipated chances of success for a specific funding scheme as being too low and deem a potential application a "waste of time".
3. They express a more general feeling of resignation or symptoms of fatigue with regard to competitive procedures for the allocation of research funding.

A recent study amongst scientists in Switzerland (see Langfeldt et al. 2014, pp. 42f.) and Laudel's (2006) findings indicate that complaints about third-party funding applications being "resource-hogging" work with an uncertain outcome are widespread among researchers, but attributable to different factors. Firstly, following the rationale of regarding a potential application as a "waste of time", the decision to refrain from an application may refer to a specific programme and is clearly attributable to specific criteria[35] - as illustrated by the following (open answer) statements gathered from the questionnaires of rejected StG applicants:

> *I have applied to the Austrian Science Fund (FWF) instead. Applications to the FWF are less complicated; decisions are transparent and well communicated to the authors. My project has been approved, and I am very satisfied with FWF.*
> *The risk is too great, given the low percentage of projects that get funding. I cannot afford to waste my research time like this. In future, I will only go for grants that have a reasonable rate of funding (at least 20 percent).*

35 For a discussion of risk-averse selection procedures see Laudel (2006).

Secondly, resignation and fatigue might express a sense of more general "incomprehension" and "suspicion" with respect to the way the selection and allocation procedures are organised. The quotation below illustrates this kind of resignation, expressed by a rejected StG applicant:

> *Because I don't have the feeling I will get anything (I don't feel you know how to distinguish between what's good and what's bad), although my proposal then has in the end been published in some of the most prestigious journal.*

In addition to the above-mentioned reasons, both groups of applicants refer to various private (e.g. marriage, pregnancy, young children) and project-immanent (e.g. status of the project idea) reasons for refraining from a third-party application at the given point in time.

For a more detailed discussion about the perception of selection procedures for the StG programme and other funding agencies, see Section 4.2.

The StG in light of competing alternatives

As discussed above, opting for or against a specific funding source firstly presumes that a range of conceivable alternatives to fund one's research exists and secondly depends on how these alternative funding sources are assessed in contrast to each other. Consequently, this section contrasts the motivation to apply for the ERC StG with the motives to apply for other funding sources.

For the assessment of the ERC StG, we rely on data from the first wave of the online survey, which was conducted roughly one year after the respondents applied for an StG. Data for other funding bodies was gathered from the intermediate survey for the StG 2011 cohort, and from the second wave survey for the StG 2010 cohort.[36] In these surveys, respondents were asked to list *further* third-party funding applications since their StG application. Of these further applications, one was assessed based on the same criteria as the StG. Due to the fact that the respondents refer to different funding bodies and that each respondent could only rate one additional application, the number of assessments per funding body is of course much lower than for the StG programme. For that reason, the results should be interpreted cautiously. The respondents were asked to state the exact name of the funding body and these were grouped as follows:[37] European Commission (EC); European Science Foundation (ESF); European Research Council (ERC); national/subnational government level; national research foundation; foundations; industry/business; institutional level (university or research centre).

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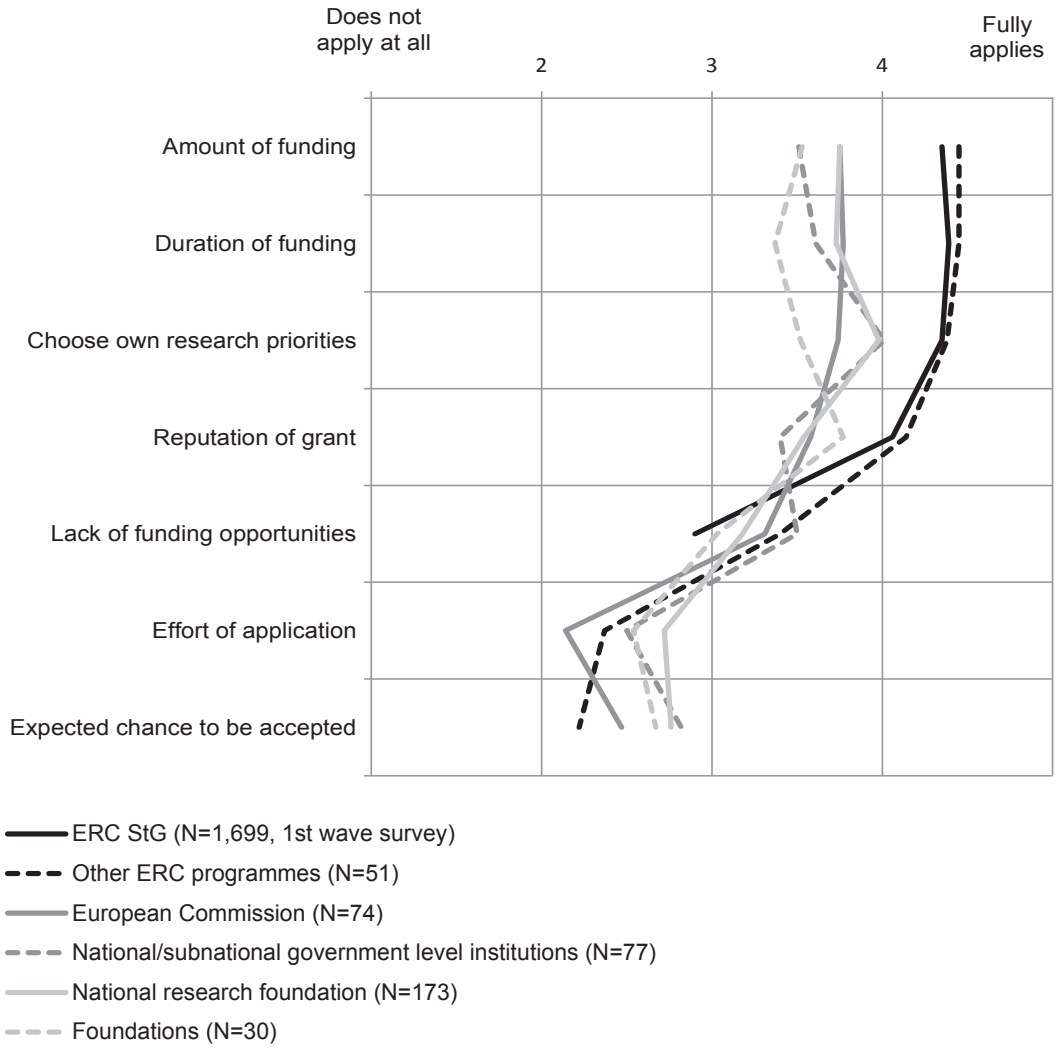
36 Unfortunately, for the StG 2009 cohort such information is not available since the respective items were only incorporated for the 2014 field phase (which only covered the StG 2010 and 2011 cohorts).

37 The classification has been derived based on Grimpe (2012) and the iFQ-Scientists Survey 2010 (Böhmer et al. 2011). "Governmental funding agencies" refers to both national and subordinated levels (e.g. ministries). "National research foundations" refers to agencies which are often self-governed by researchers in a specific country and provide funding at a national level only but represent a broad disciplinary scope and are not restricted to specific research fields (e.g. the German Research Foundation (DFG) or the Swiss National Science Foundation (SNSF)). Institutional level funding comprises applications which are allocated on a competitive basis but provided by research centres or higher education institutions themselves. A table with figures listing the number of applications for the different types of funding bodies can be found in the Appendix (cf. Table 45 and Figure 48).

Figure 8 shows the motives to apply for the StG compared to the motivation to apply to other funding bodies. The findings confirm that the StG (as well as other ERC programmes) is perceived as outstanding with regard to the amount of funding and the duration of the grant, which makes an application highly attractive. Foundations and (sub-)national funding agencies (e.g. ministries) score lowest here with regard to this dimension.

Figure 8 Motivation to apply for the StG compared to motivation to apply to different funding bodies



Source: MERCI online survey, assessments of the StG are based on the first wave survey, for the remaining funding bodies and other ERC programmes the assessments are based on the second wave survey. For the database see Table 48 in the Appendix.

Note: five-point scale ranging from 1 "Does not apply at all" to 5 "Fully applies"; the items "Effort of application" and "Expected chance to be accepted" were not included in the first wave survey.

Overall, our survey results show that in contrast to all other funding bodies considered here, the StG scores very highly with regard to the amount and duration of funding, the freedom to set one's own priorities in doing research, and the flexibility to choose one's own research priorities.[38] In general, the ERC funding – meaning the StG as well as other funding lines – is regarded as outstanding due to the amount and duration. In contrast, with regard to reputation, differences are

38 Summary statistics for each type of funding body are provided in Table 48 in the Appendix.

less pronounced. Here the foundations also seem to be attractive, although respondents regard them as much less attractive as the StG funding with regard to the flexibility, amount, and duration of funding. Applications to governmental agencies seem first and foremost to be driven by pragmatic reasons: they are more frequently approached due to a lack of alternatives; they do not offer high prestige or generous funding conditions, but apparently they do offer a reasonable degree of thematic freedom. The national research foundations – which Figure 8 suggests are the most relevant source of project funding across all research fields – are apparently deemed a 'good compromise': they offer the opportunity to set one's own priorities as well as good funding conditions, and require a comparatively low amount of effort in combination with higher chances of success. With regard to the latter factor, the EC in particular but also the ERC programmes are assessed as less attractive, whereas – as discussed in the paragraph "Perceived chances of success" in Chapter 3.1.2 – low acceptance rates may (also) be deemed a 'proof of excellence' and stimulate the self-ascription of 'being excellent'.

Conclusion about motives for an StG application

Regardless of their research field, their current host country, or their funding status, StG applicants are mainly driven by the endowment which the grant offers. This relates both to the amount of funding and its duration and to its thematic openness and the freedom it permits to set one's own research priorities. Contrasting the motivation to apply for an StG with the motivation to apply for other funding bodies reveals that these are also the characteristics of the ERC funding which are regarded as outstanding. The reputation of the StG also represents an important, but slightly less relevant, motive.

While it is almost unanimous consent among all applicants that the attractiveness of the StG mainly arises from its generous endowment and flexibility, for a minor but relevant group an StG application proves to be an essential attempt to ensure the funding of their own position or to compensate for the lack of other funding opportunities. These motives were considered most relevant for respondents from the Humanities, in Eastern European and Scandinavian countries and among the rejected applicants. These disparities, in conjunction with the finding that a considerable number of the researchers we surveyed refrain from third-party funding applications in general because they are well funded, raise the question of growing disparities in research funding: while there is on the one hand a substantial group of researchers who regard their current financial endowment as completely sufficient to implement their research goals, there is also a considerable number of researchers who struggle to even fund their own position.

A recent study of the situation in Switzerland describes a positive correlation between institutional basic funding and extramural funding and questions whether "obtaining third party funding gives easier access to institutional funding" (Langfeldt et al. 2014, p. 37). The findings from the MERCI survey may also direct attention to the inverse causal relationship, meaning that particularly those applicants who lack funding for their own position and who cannot draw on a range of alternative funding sources are less successful in obtaining an StG. There are numerous explanations that can be adduced for this relationship. Three of them will be discussed throughout this report:

– the cumulative advantage effect with regard to individual scientific recognition and past performance/track record (see Chapter 4),

– institutional reputation (see Chapter 4), and
– support for the StG application by different institutionalised and non-institutionalised players (see Section 3.3).

3.2 The StG project in the overall project portfolio – one project amongst others?

This section discusses the role of StG funding by embedding the StG project in the context of the overall funding portfolio of StG applicants and by comparing how funding portfolios differ between approved and rejected applicants.

In the second wave survey, StG applicants were asked a) whether they currently manage projects based on third-party funding, institutional funding, or individual fellowships, and b) to state the respective number of projects. Here, third-party funding relates to competitive funding acquired from national funding agencies, (sub-)national governmental agencies (e.g. ministries), the EC, the ERC, or industry. The comparison of approved and rejected applicants shows that the StG project usually comes 'on top', meaning compared to rejected applicants in the same field, StGrantees usually have *more* projects, with the difference most pronounced in Social Sciences and least in Engineering.[39]

Unsurprisingly, our figures reveal large disparities in the structure of the project portfolio across research fields: whereas in the Humanities the respondents usually focus on just one or two projects (mean=1.5 SD=0.9), in Life Sciences (mean=3.7 SD=2.6) and Engineering (mean=3.4 SD=2.7) they are responsible for quite a large set of projects. Furthermore, the figures suggest that only in the Humanities is this pattern homogeneous: 58 percent of the StG recipients in this research field exclusively manage their StG project, but among rejected applicants an almost equal proportion manages only one third-party funded research project, or even none. A similar but less pronounced pattern can be found in Social Sciences: Here, one third of the StGrantees do exclusively manage the StG project but half of the rejected applicants in the same field manage no project/one project.

In contrast, these proportions are much lower in Life Sciences, Natural Sciences and Engineering, but substantial differences are also observable within these research fields with respect to the number of projects pursued. It is striking that in Life Sciences only an absolute minority of the StG recipients exclusively manage the StG, while among the rejected applicants only one in eight is also responsible for no third-party funded projects or just one. This finding strongly suggests that at least in Life Sciences, the StG project is instead 'one project amongst others', indicating that applicants from this research field already have substantial experience in administering third-party funded projects. By contrast, given that in Social Sciences and Humanities a significant proportion of respondents manage no project or just one, single projects are presumably of greater impor-

39 When calculating the number of projects, only respondents who gave at least one valid answer were included in the analysis. Since StGrantees were asked to state the number of projects they manage besides their StG project, when calculating the total number of projects, the StG project was added in the analysis to ensure comparability with the rejected applicants.

tance for individual researchers. Natural Sciences and Engineering take an intermediate position between these two extremes: on the one hand, roughly one in five or one in four researchers respectively focus exclusively on their StG project, on the other hand in these research fields it is quite common (as in Life Sciences) to have a larger set of projects. This implies that in Natural Sciences and Engineering the StG funding obviously makes it possible to concentrate more intensively on a specific project.

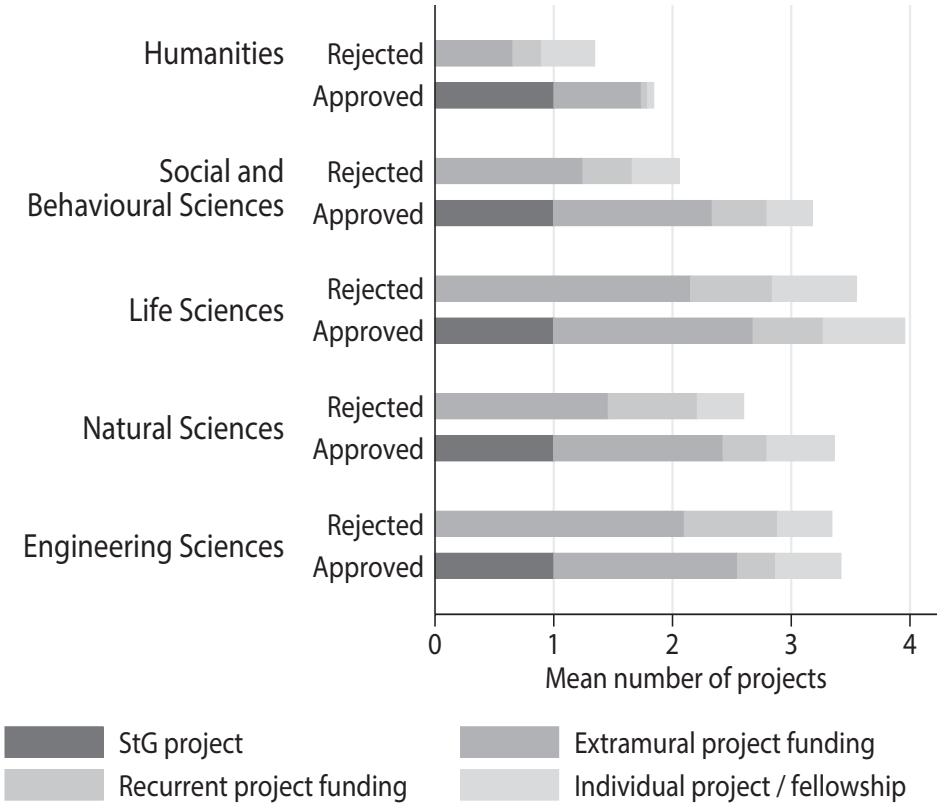
In the following, we will discuss whether this conclusion about distinct effects of the StG funding on the researchers' overall project portfolios is also observable when taking into account *different types of projects*. Consequently, throughout the next section we will discuss whether the strong focus on single projects, or the StG project, is a conscious decision and a typical characteristic of a specific research field or whether it is due to external constraints on funding sources (and if so: what consequences may arise from this for the implementation of research goals).

Diversification of funding sources

Figure 9 shows the current respondents' project portfolios and indicates the average number of projects financed by extramural funding, recurrent institutional funding, or individual fellowships which approved and rejected applicants manage in the respective research field. The figure impressively illustrates the overriding importance of extramural research funding in Life Sciences and Engineering, but it also suggests that the extent to which different types of funding sources are approached differs strongly across research fields: in Life Sciences, Natural Sciences, and Engineering between 45 and 47 percent of the rejected applicants rely solely on institutional basic funding, third-party funding or individual fellowships, whereas 56 percent in Social Sciences and 72 percent in the Humanities do so. By implication, researchers approaching more than one type of funding are more frequently found in Life Sciences, Natural Sciences, and Engineering. Especially in Life Sciences and Natural Sciences, researchers tend to diversify their funding sources: one in five Life Scientists and one in eight Natural Scientists make use of the 'whole pool' of funding sources, whereas none of the respondents in the Humanities do so and only half as many do so in the other research fields. This pattern barely changes for those receiving an StG. Even though in Social Sciences, Natural Sciences, and Engineering 19 to 29 percent of the StGrantees exclusively fund their research through the ERC, the majority of the StG recipients in these fields also rely on a combination of other funding sources. In contrast, in the Humanities, the StG project is most frequently the only third-party funded project (which is most frequently complemented by basic institutional funding).

The MERCI interviews corroborate the finding that the relevance of the StG funding differs across research fields: while in Natural Sciences, Engineering and Life Sciences the implementation of the StG project idea is still deemed possible *without* the ERC funding (potentially with some small adjustments due to a smaller funding budget), in Social Sciences and Humanities the StG funding seems *crucial* for the implementation of a specific research project and, thus, the career prospects of the Principal Investigator. In fact, in some cases the employment of the Principal Investigator would even have been endangered without the StG funding.

Figure 9 Researchers' project portfolios across research fields



Source: MERCI online survey (second wave survey), pooled findings for cohorts (N=641)

Screening the respondents' *further* third-party applications[40] during the StG funding (or since their StG application for the rejected applicants), Table 11 illustrates that not only does the relationship between projects based on third-party funds, recurrent institutional funding and individual fellowships differ across research fields, so too does the variety of funding agencies approached. The table shows that across *all* research fields the national research foundations are most frequently targeted while funding at the institutional level is of rather minor importance; only one in eight StG applicants submitted a proposal. The figures strongly corroborate the finding that respondents in Life Sciences and Engineering try to diversify their funding sources, whereas those in the Humanities – if they apply for competitive funding at all – strongly focus on the national research foundations. Foundations, in contrast, are first and foremost targeted in Social Sciences and Life Sciences, whereas in Engineering, the European Commission represents a much more important funding source than in other research fields. Research funding by the national government or similar subordinated governmental agencies is more frequently applied in the Life Sciences, Natural Sciences, and Engineering.

40 Respondents were asked to list only projects with a funding budget of at least € 50,000. If they applied for more than five projects, they were asked to name those with the highest funding budget.

Table 11 Percentage of respondents with at least one application to the respective type of funding agency after the StG application (in %, multiple answers)

	Humanities	Social Sciences	Life Sciences	Natural Sciences	Engin. Sciences	Total (N)
European Commission (EC)	25.0	27.8	25.1	28.2	52.3	30.7 (200)
European Science Foundation (ESF)	4.6	4.2	0.8	1.1	4.7	2.2 (14)
European Research Council (ERC)	13.6	20.8	13.4	22.1	19.6	17.7 (115)
(Sub-)national government level	18.2	25.0	43.7	38.1	39.3	37.6 (245)
National research foundation	54.6	62.5	61.5	61.9	56.1	60.4 (393)
Foundation	15.9	31.9	38.9	19.3	13.1	26.9 (175)
Industry/business	0.0	5.6	4.9	5.5	13.1	6.1 (40)
Institutional level	15.9	11.1	11.7	11.6	12.2	12.0 (78)
Other funding agency	9.1	8.3	17.8	7.7	8.4	11.8 (77)
$N_{responses}$	69	142	538	354	234	1,337
N_{cases}	44	72	247	181	107	651

Source: MERCI online survey (intermediate and second wave survey); the data includes only respondents who stated that they had made at least one third-party funding application since they applied for the StG.

StG funding – substitute or supplement?

Figure 9 fields allows us to draw some preliminary conclusions regarding the question of whether the StG funding serves rather as a substitute for or a supplement to other funding sources. In *Life Sciences,* receiving an StG does not appear to result in a general shift in the relevance of funding sources because StG applicants usually make use of a large variety of other sources. Here, the StG apparently neither compensates for a general lack of funding which would restrict the general expansion of research activities nor substitutes for other specific sources. In contrast, in *Natural Sciences and Engineering* the StG tends rather to substitute for recurrent funding, whereas the number of projects funded by third parties remains almost stable. Furthermore, in Natural Sciences the StG leads to an increase in the overall number of projects, whereas this trend is not observable in Engineering.

As Figure 9 illustrates, in *Social Sciences* the composition of projects barely differs between approved and rejected applicants. Regardless of whether the respondents receive the StG or not, third-party funding, recurrent funding, and individual fellowships are of equal relevance and the StG project is simply 'added' to the existing set of projects but does not trigger any general shift in funding sources.

In the *Humanities*, among StG recipients the proportion of projects funded by individual fellowships and recurrent funding is substantially lower than among the rejected applicants while the number of projects based on third-party funding remains almost equal. Thus, we conclude that the StG funding in this research field essentially substitutes for recurrent funding and fellowships. Since the number of projects in general remains low and the StG is often deemed to be an essential requirement to fund the position of the Principal Investigator in the Humanities, the StG does not serve as an additional resource to implement new research ideas but rather serves to enable the researchers to continue their research at all. The qualitative interviews strongly corroborate this conclusion and explain in greater detail why the StG takes such a prominent position in the overall funding portfolio: the interviewees stated that the StG is often used to implement a single, very ambitious project that has long been harboured by the Principal Investigator without an alternative funding option. Consequently, without the ERC grant, funding an equivalent or related project would be virtually impossible, taking into account that there are no comparable alternative funds available. This implies that rejected StG applicants are in most cases unable to realise their intended StG project otherwise.

The qualitative interviews provide more detailed insights into applicants' rationales for targeting funding sources and the role which is ascribed to the StG in this context. In Natural Sciences, Engineering and Life Sciences, the ERC grant is often part of wider research activities. It is, thus, used as *flexible funding* either for one big research project that is funded by several sources or for several (thematically related) projects. Generally speaking, in laboratory-based sciences, the funding for the potential StG project is available from several other funding sources. However, the StG offers a more prestigious, larger, and more flexible source of funding. Rejected applicants belonging to these research fields are normally able to fund their potential StG projects through other sources. In this context, some interviewees pointed out that the scientific work's progress as materialised in further publications can be included in a potential second StG application. Here, the grant holds much more importance for personal career progress, first and foremost with regard to the status (symbolic capital) and visibility of the Principal Investigator.

In conclusion, our findings illustrate that although the reasons for an StG application do not differ tremendously and that only a minority of researchers complain about a lack of alternative funding opportunities, the StG seems far more important for implementing a research idea in the Humanities and Social Sciences. Moreover, it is striking that the StG tends to substitute for recurrent institutional funding, which is most likely attributable to its funding duration, thematic openness, and flexibility.

3.3 Applying for the StG – a collective endeavour? The relevance of the supporting infrastructure

Receiving an StG can increase not just an individual researcher's reputation but also that of an institution. In fact, hosting an StG recipient may attract further ERC grant-holders, and help the institution to increase its productivity, scientific recognition, and international visibility for external evaluations. The StG host institution may get bonus funds for every research grant appointment, generating extra money for the institution. As a consequence, StG recipients are more and more used as figureheads by institutions, and intensified competition can be observed between research organisations with respect to gaining or retaining 'brilliant minds'. In this section, we will argue that StG

applications are increasingly becoming a "collective endeavour", meaning that besides the Principal Investigator the StG application also incorporates institutional influences – either in terms of mechanisms for "steering applications" (cf. p. 14) or support for applications. This is why in the following we will focus on direct support for preparing the StG application and discuss the hypothesis that StG applications increasingly involve institutional support, with special regard to two factors:

– How relevant are different types of advisory services and institutionalised support for the StG application?
– How does the utilisation of support affect the likelihood of success in the ERC selection process?

Is there a trend towards a professionalisation and institutionalisation of advisory services for grant applications?

During recent years a trend towards the professionalisation of third-party funding applications has been observable: numerous partners provide information and advice to researchers with respect to identifying appropriate funding sources, prepare and check proposals or offer interview training for presentations within the scope of the selection process of a funding body. Apart from the ERC and its National Contact Points (NCPs) – which were set up across Europe to provide information and personalised support to applicants in their native language – service points based at the research organisations themselves and freelance consultants appear to be gaining in importance for the StG application process.

In the following, based on data from the first wave online survey and the qualitative interviews, we will discuss to what extent advisory services are used by the StG applicants and whether the intensity of seeking advice for preparing the StG proposal has increased across the three surveyed StG cohorts. Overall, the survey findings and the interview data suggest that using advisory services is quite common. Across all surveyed StG cohorts, only a minority (9 percent) of the respondents refrained from using informal or formal support at all. In this context it is striking that especially in the Transitional Eastern and South-Eastern European countries significantly more StG applicants do not seek advice (17 percent) whereas this figure is much lower in the Anglo-Saxon countries (4 percent) ($Chi^2=24.85$, $p=0.000$). Whether this is attributable to a lower *availability* of institutionalised services will be examined in the next paragraph.

Table 12 gives an overview of the "sources of advice" the surveyed StG applicants approached when preparing their StG application. The table reveals that applicants usually draw on more than one source of advice and that peers play the most important role when it comes to improving StG applications. Moreover, the applicants slightly prefer services at their institution compared to those directly offered by the ERC itself or by the NCPs.

Table 12 Utilisation of advisory services for the preparation of the StG proposal (in %, multiple responses possible)

	2009 call	2010 call	2011 call	Total
ERC	48.3	40.0	41.1	43.1
NCP	39.3	40.2	37.0	38.9
Service point at old institution	49.8	53.2	55.2	52.7
Service point at new institution	19.3	21.0	20.4	20.2
Colleagues	54.8	65.8	68.4	63.0
Freelance consultants	6.5	6.5	9.9	7.6
Other	2.9	1.5	1.7	2.1
Total in %	220.8	228.1	233.7	227.5
Total $_{responses}$	1,157	1,193	1,206	3,556
Total $_{cases}$	524	523	516	1563

Source: MERCI online survey (first wave survey), N=1,563

The relevance of the ERC itself as a contact point for applicants has obviously decreased over the years: whereas for the StG 2009 call nearly every second applicant directly sought advice from the ERC, for the two subsequent StG calls this proportion dropped to roughly two fifths. This trend might be attributable to the increased familiarity with this ERC funding scheme both in the scientific community and at the research organisations. Against this backdrop, advice by peers gained substantially in importance across the cohorts during preparations for the StG application. If it is taken into account that from the StG 2009 call to the 2011 call, the possibility that an applicant might get to know other (former and preferably successful) applicants with 'first-hand' ERC experiences has risen continuously, this development is not surprising at all. All in all, external advice by professionals has only played a minor role in preparations for the StG proposal to date (even when taking into account the slight growth in this proportion from 2009 to 2011).

Overall, we do not observe an overall intensification in the usage of advisory services across our surveyed StG cohorts (2009 to 2011 cohorts). However, these trends are most likely not reflected in the data firstly because the time span is simply too short to monitor structural changes and secondly because the 'great leap' in the establishment and expansion of formalised support probably already took place directly after the StG programme was launched in 2007, as findings from the qualitative pre-study suggest. For example, the introduction of "mock interviews" illustrates how much attention is paid to single grant applications. Before participating in the personal interviews in Brussels, nearly all of our interview partners participated in training interviews offered by their institution, faculty or department, the EU office of the university or one of the NCPs.

Institutionalised support aside, insights by peers in particular provide valuable input for preparing proposals, as illustrated by our interview material: it is apparently a common practice for StG applicants to contact former StG winners to use their applications as a kind of blueprint for their own application, with special regard to the section on information about the Principal Investigator – a procedure which one interviewee described as follows:

R: I had, which is probably done by a lot of people, especially for that part I had a successful application from a former winner. Also a StG application. Of course from another field. But for this part, this part on: why am I such a great guy? I copied the style and the whole outline from this other applicant. (…) I copied this exactly. And then I added some more of my own. And that was actually quite straightforward then. But really only, because I had this application, because there was a successful applicant here at the university, and he was really nice and let me have his application. (Int16MG)

However, it is not only StG winners but also people who are (or were) members of the ERC panels and other senior scientists with experience of EU funding who are contacted with regard to the preparation of the StG application:

R: I actually spoke to my PhD supervisor, he's now become quite ... he enjoys the EU aspect of things. He doesn't submit grants, but he sits on panels, he's part of the EU [ASSOCIATION]... he's the EU [ASSOCIATION] representative for [COUNTRY]. So he now has a much better idea of how to write these things. So I sent him my first proposal, and also the second proposal for him to comment. And he said the second was a lot better because you set it out in a lot more... in a lot more of a structured way and an EU-friendly way. (Int33MR)

On the one hand, such statements provide insights about what is subsumed under the label "advice by colleagues" and why it might be of utmost relevance for the applicants. On the other hand they indicate that advice primarily focuses on adapting the style and structure of the proposal to successful examples or to what is deemed to work well by 'insiders', but less on the actual content or research idea of the proposal. This, in conjunction with the observation that the vast majority of applicants rely on institutional support and a range of specific activities (e.g. "mock interviews" or specific workshops), suggests that both institutions and individuals put a lot of effort into adapting to the rationales of the application process in order to improve their chances of success. This, in turn, raises the question of the extent to which these efforts bring a return in terms of the likelihood of being approved and whether unequal access to support (both informal and institutionalised support) systematically increases or reduces the chance of success.

How does the utilisation of support differ across countries?

Strong differences are apparent concerning the utilisation of support with preparations for the proposal across countries. Seeking professional advice or advice among peers is much more common among applicants located in the group of Anglo-Saxon and Scandinavian countries where, on average, not only do researchers use significantly more services than in the Transitional Eastern and South-Eastern European countries, but the proportion of applicants who do not seek support at all is also much lower. Whereas the NCPs are utilised to the same extent across all groups of countries, it is striking that applicants from Transitional Eastern and South-Eastern European countries in particular more frequently (57 percent) refer directly to the ERC while service points at the current or future host institution are used very rarely in this group of countries compared to all other country groups.[41] Scandinavian countries represent the only group where freelance consultants are involved in preparing the StG application to a notable extent: 23 percent of the applicants located in one of these countries make use of this type of support, whereas only 8 percent in the Anglo-Saxon and 5 percent in the European Continental countries do so. Colleagues are consulted

41 See Table 50 in Appendix.

most frequently in the Anglo-Saxon countries (75 percent) and least in the Transitional Eastern and South-Eastern European Countries (46 percent).[42] Whether these patterns point to different cultures of collaboration among colleagues in general or simply indicate that fewer colleagues in the personal network or direct working environment have experiences with ERC programmes and are thus able to provide the desired kind of input cannot be answered in this context. Given the relevance ascribed to adjusting the style of the proposal based on the advice of experienced peers, it seems plausible to assume that a lack of such contacts would represent a disadvantage when it comes to preparing the StG proposal.

Furthermore, our results reveal that while the accessibility of services at the national or supranational level does not seem to be a limiting factor across countries, support at the institutional level tends to be less established in the Transitional Eastern and South-Eastern European countries. However, whether a lack of access to institutionalised support or support by peers is actually translated into lower chances of success for applicants from these countries in the ERC selection process needs to be assessed using a multivariate model which simultaneously controls for the country group, the use of advisory services and other factors when comparing chances of acceptance for individual applicants.

To what extent does institutional and informal support foster the chances of being accepted?

In view of the varying extent to which researchers seek advice with regard to preparing the StG proposal, the question arises as to whether using institutional or informal support actually has an effect on the likelihood of succeeding in the ERC selection process and whether this effect varies across the different types of support.

Our survey data shows that approved applicants on average use significantly more advisory services than rejected ones ($mean_{approved}$=2.22; $mean_{rejected}$=2.53 t=– 4.23 p=0.000). Among the rejected applicants 11 percent refrain from consulting professional services or colleagues at all whereas among the StGrantees only 5 percent do so. As Table 13 suggests, approved and rejected applicants differ not only with regard to the intensity with which they rely on support when writing their StG proposal, but also with regard to the type of support they utilise. Both groups utilise the service points at their current or future host institution to an equal extent. The rejected applicants more frequently contacted the ERC directly, but they contacted the NCPs less frequently, while the reverse is true of the StGrantees.

The findings indicate that colleagues are not only the most important "source of support" but probably also the most effective one: 71 percent of the successful applicants asked their colleagues for advice whereas only 60 percent of the rejected ones did so.

42 For the sake of completeness, Table 50 in the Appendix provides an overview of the utilisation of advisory services across countries of residence.

Table 13 Utilisation of informal and institutionalised support by approved and rejected StG applicants (in %, multiple answers)

	Approved	Rejected	Total
ERC	36.3	46.0	43.1
NCP	46.6	35.6	38.8
Service point at old institution	54.7	51.9	52.7
Service point at new institution	21.5	19.7	20.2
Colleagues	70.6	59.7	63.0
Freelance consultants	6.7	8.0	7.6
Other	36.3	46.0	43.1
Total in %	238.4	222.9	227.5
Total $_{responses}$	1,111	2,445	3,556
Total $_{cases}$	466	1,097	1,563

Source: MERCI online survey (first wave survey), N=1,563

Logistic regressions of the funding decision which simultaneously controlled for the group of countries, the position at the time of application, the research field, the age when obtaining the PhD and gender revealed that the use of specific advisory services is associated with increased chances of success even though the explanatory contribution of the advisory services in general is not very high.[43] Holding all covariates constant, applicants who consult the NCPs or their colleagues during their StG application phase have a significantly higher chance of success. Given that the effect of support by the research institutions themselves appears not to be relevant for the funding decision, we arrive at the conclusion that a potential lack of institutional support, as in the Transitional Eastern and South-Eastern European countries (see Table 50 in the Appendix), most likely does not prove to be a relevant structural disadvantage for applicants from these countries. In brief, the multivariate model confirms what has already been shown by the bivariate results: supporting services only slightly increase the likelihood of being approved, but the NCPs and advice by peers in particular play a significant role in the preparation of a successful application.

Conclusion

Our survey results and the qualitative interviews reveal that only a minority of StG applications are written without any external support and that there is some empirical evidence for an expansion and further differentiation of professional support for StG applications. While the infrastructure of the NCPs seems to be approached to an equal extent across countries, the survey results point to the fact that the support offered by research organisations themselves is less developed in the Tran-

43 The quality of the proposal and other performance-related indicators are not included in the model as predictors since these indicators are not available for the whole group of applicants. Here, the model is not displayed in detail since it only served as an approach to take account of the influence of advisory services on the funding decision while controlling for covariates. The complete model is displayed in the Appendix, see Table 51.

sitional Eastern and South-Eastern European countries in particular. Whether this represents a structural disadvantage for applicants from these countries was assessed based on a multivariate model showing that those applicants do have a lower chance of being accepted – however, one needs to be careful when interpreting this result given that the lower chances of success are most likely not exclusively attributable to a lack of support in the application phase.

Across all four groups of countries, advice by colleagues or the NCPs significantly increases the chances of succeeding in the ERC selection process – but only to a minor extent. While these findings suggest that individual researchers' acceptance rates are not very strongly moderated by the availability and usage of external support, the qualitative interviews suggest that especially informed peers might provide useful input for a successful StG application. Even in view of an expansion of institutionalised support, informal advice by experienced peers apparently still plays the most important role in preparing StG applications. However, the support tends to focus on the question of how to design and adjust a proposal so that it fits the norms. This observation in conjunction with the increasing efforts by the institutions to 'preselect' promising StG candidates, offer training for oral presentations and take other specific measures leads to the conclusion that at least in some cases the StG is indeed becoming a "collective endeavour". This does not necessarily challenge the rationale of investigator-driven research in general (since seeking advice arguably does not concern the content of research), but the way research ideas should be presented to the reviewers. This, in turn, strongly suggests that applications are apparently being 'streamlined' to an implicit norm of what StG applications ought to look like.

4. Thematic focus II: the ERC funding decision

Following the ERC's eligibility criteria, the right track record is a conditio sine qua non for being awarded an StG and is often treated as a quantifiable and objective instrument for evaluating the "excellence" of young researchers. In this chapter we will systematically shed light on the ERC funding decision by distinguishing between two levels of analysis: first, we will discuss the determinants of the funding decision by focusing on past publication performance and presenting our bibliometric results. Second, we will change perspective and look at the ERC funding decision from the applicant's point of view, examining the StG applicant's assessment of the ERC selection process. As in the previous sections, whenever possible we will combine survey data with interview data. A short introductory explanation of the ERC selection process is intended to provide context to this chapter.

4.1 Discussion of determinants of the funding decision

4.1.1 The ERC selection process in brief[44]

According to the ERC's guide for applicants (cf. European Research Council 2014), "excellence" is the sole criterion of evaluation – it is jointly applied to the evaluation of the research project and the Principal Investigator.

After the first StG call in 2007 when the ERC was faced with an extremely high number of applications (see Section 1.2) and a correspondingly enormous proposal management workload, the StG application process was modified for the second StG call in 2009. The ERC implemented a *two-phase evaluation process:* all documents, including the full proposal, need to be submitted at the same time, although the full proposal is only evaluated in the second phase of the selection process.[45] In both stages there is an initial remote evaluation by some of the reviewers, which is then followed by an evaluation by the whole panel. The remote evaluations and panel evaluations result in a grade (A, B or C – in each instance referring both to the PI him/herself and the StG project idea).[46]

Proposals submitted to the ERC are evaluated by independent experts within the scope of an internationally focused peer review procedure. These experts are chosen by the Scientific Council on the basis of their scientific reputation. To structure the evaluation process the Scientific Council has established 25 thematically focused panels, which are streamlined into three domains:

1. Social Sciences and Humanities: six panels
2. Physical Sciences and Engineering: ten panels
3. Life Sciences: nine panels

Each panel consists of a chair and 10 to 15 members. In addition, there are also external experts involved in the evaluation process. The names of the panel chairs will be published on the ERC website before the end of the deadline for the StG application. The names of the other panel members will also be published, but only after the end of the evaluation process.

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44 The rules for the ERC selection process are annually published by the ERC in the "Information for applicants" which is available on the ERC website (http://erc.europa.eu/funding-and-grants/apply-funding/call-proposals). The information is also distributed by the ERC's National Contact Points (NCP). In this section, we refer to the description of the ERC selection process which can be found on the website of the German NCP: http://www.eubuero.de/erc-evaluation_en.htm

45 For the first call in 2007 a full proposal for the StG research project needed to be submitted only if an applicant successfully reached the second round of the evaluation process.

46 StG applicants submitting proposals may request that up to three specific persons do not act as peer reviewers in the evaluation of their proposal. Such a request is made at the time of proposal submission via the online administrative forms (see European Research Council 2014, p. 22).

The StG proposal is composed as follows:

– Extended synopsis (max. five pages)
– Curriculum vitae (max. two pages) } Part B1
– Track record (max. two pages)
– Scientific proposal (max. 15 pages) – Part B2

Inter- or multidisciplinary projects are funded in all three ERC domains. Researchers can draw attention to the interdisciplinarity of their project by specifying more than one panel. The first panel will then give these proposals to a second panel for evaluation or ask reviewers from that panel for their evaluation.

During the **first step of the evaluation** only part B1 of the proposal is evaluated, by at least three evaluators (mostly panel members). Their assessment report forms the basis for the panel discussion. The result of the panel discussion is a ranking of the submitted proposals.

To reach the second step of the evaluation a proposal needs to have a minimum evaluation score. The result of the first step will be communicated to the researchers:

– A. Project is of high quality and passes to step 2
– B. Project is of good quality but not sufficient to pass to step 2
– C. Project is not of sufficient quality to pass to step 2

In the **second step of the evaluation** the complete scientific proposal is evaluated by the panel, and if needed additional external experts are called in. Additionally, applicants have to present their research proposal in front of the panel. Afterwards, the proposals are again assessed by the panel and a ranking of proposals is produced. At the end of the panel evaluation the panel chairs for each domain decide on the final ranking list of all proposals.

To be recommended for funding, a proposal must have a very good evaluation result and at the same time be within the scope of the panel's budget. Proposals which are below the budgetary cut-off will be put on a reserve list. The results of the second step are communicated to the researchers as follows:

– A. Project is recommended for funding
– B. Project is not recommended for funding

The text box below provides an overview of the ERC's two-phase evaluation process for the StG programme.

The ERC's two-phase selection process (since StG 2009)

Phase 1: The *CV, track record and extended synopsis of the StG project are evaluated by at least three reviewers from one of the 25 panels.* At the end of phase 1, on the basis of the assessment of Part B1 of the proposal applicants are informed that their proposal:

A = is of sufficient quality to pass to stage 2 of the evaluation;
B = is of high quality but not sufficient to pass to stage 2; or
C = is not of sufficient quality to pass to step 2 of the evaluation.*

Phase 2: The full proposal of the StG research project is *evaluated* by consulting external reviewers and the *applicant is interviewed in Brussels.* At the end of step 2, on the basis of the assessment of the full proposal, applicants are informed that their proposal:

A = fully meets the ERC's excellence criterion and is recommended for funding if sufficient funds are available;
B = meets some but not all elements of the ERC's excellence criterion and will not be funded.

* For example: PIs evaluated as category C under Work Programme 2014 may not submit a proposal to the Starting Grant, Consolidator Grant or Advanced Grant call under Work Programme 2015 and 2016.
° For example: PIs evaluated as category B under Work Programme 2014 may not submit a proposal to the Starting Grant, Consolidator Grant or Advanced Grant call in 2015.

4.1.2 The role of past performance and publication strategies[47]

As mentioned above, significant publications in major international peer-reviewed scientific journals (track records) are a central eligibility requirement established by the ERC for the StG application. At a general level, our bibliometric analyses aim to show the extent to which the applicants meet this requirement. At an individual level, we intend to find out whether higher past publication performance is associated with a higher chance of being funded by the ERC. In order to control for the StG applicants' publication strategies, in addition to their published output we combine empirical results from the bibliometric analyses and online survey for the StG 2009 cohort.

Evaluation studies of comparable funding schemes providing individual research grants usually introduce bibliometric indicators as objective and reliable measures of individual applicants' peer-reviewed scientific output which address the question of whether the 'best' applicants were selected (cf. Bornmann et al. 2008, Campbell et al. 2010). For example, while investigating the publication performance of applicants for the Social and Behavioural Sciences section of the Netherlands Organisation for Scientific Research (NWO) (van den Besselaar, Leydesdorff 2009; Bornmann et al. 2010; van den Besselaar, Leydesdorff 2014), the authors found a higher average number of

47 This is a slightly modified (in terms of language, not content) version of an article first published in Research Evaluation. See Neufeld et al., 2013.

publications and citations for the group of approved applicants than for the rejected applicants. This difference is ascribed to a lack of "low performers" amongst the group of approved applicants. The authors argue that the selection mechanism is able to identify and discard "[…] the tail of the distribution. However, within the top half of the distribution, neither the review outcomes nor past-performance measures correlate positively with the decisions of the council" (van den Besselaar, Leydesdorff 2009, p. 285).

Melin and Danell (2006) give an example of a highly selective programme in their investigation of the publication performance of applicants for the Individual Grant for the Advancement of Research Leaders (INGVAR) provided by the Swedish Foundation for Strategic Research (SSF). The authors compared applicants who reached the final stage of the selection process (top eight percent), of which half went on to receive funding (overall success rate of 4 percent). In terms of productivity measures (whole and fractional counting), there were no major differences between the two groups – in fact, rejected applicants on average exhibit slightly higher values. However, with respect to a normalised[48] journal impact factor, approved applicants outperform their rejected counterparts.

In the case of the Emmy Noether Programme (ENP, German Research Foundation) Neufeld and Hornbostel (2012) instead reveal small differences between the groups of approved and rejected applicants. They argue that the relative lack of discrimination between the two groups depends to a certain extent on the selectivity of the programme (expressed in the eligibility requirements), on the performance level in the addressed target group, and, consequently, on the level of self- or 'pre-' selection amongst potential applicants. If nearly all applicants exhibit 'sufficient' past publication performance – i.e. the distribution of performance indicator values amongst all applicants lacks 'low-performers' – other criteria become effective and funding decisions become bibliometrically 'invisible'. Certainly, the 'quality of the proposal' is supposed to play an important role in this regard, but further factors have to be taken into account too.

Based on the current state of research, we want to answer the following questions regarding the StG programme:

1. Is there an effective self- or preselection process amongst potential applicants regarding the decision of whether or not to apply, or do StG applicants exhibit an above-average publication performance?
2. Do approved applicants exhibit a higher past performance than their rejected counterparts?
3. To what extent are different publication strategies reflected in bibliometric impact measures?

Bibliometric indicators (methods)

We approach these questions by applying a set of bibliometric indictors. Publication performance is usually defined by the two dimensions *output* and *impact,* where output is reflected by using various methods of counting articles and impact is modelled by citation-based measures. In order to get an impression of the StG applicant's output, we first refer to the *number of articles* published during the period before application (publication window 2003–2009). As the main measure of impact we

48 The authors divided the relative journal impact factor (JIF) by the median JIF of the respective WoS journal category.

chose the *field-normalised citation rate* (FNCR)[49]: at the level of publications citation scores are normalised with regard to WoS subject categories in order to account for field-specific citation and publication behaviour. Then, for each applicant, the average of the normalised citation scores is calculated.

Another impact measure is the number of highly cited papers amongst StG applicants. This describes the number of publications in the top ten percentiles of cited papers worldwide in the respective WoS subject category (cf. Waltman et al. 2011).

Our selection of indicators is not exclusively oriented towards bibliometric adequacy, but also reflects the approach of bibliometrically reconstructing the reviewers' or board's funding decisions. This especially applies to the journal impact factor (JIF). The current impact factor of a journal is calculated by dividing the number of citations received in the current year for items published in the journal during the past two years by the number of these items. As the distribution of citations in a specific journal is usually extremely skewed (few items receive most of the citations), the JIF provides little information on the impact of a single article. Therefore, the JIF is not seen as an objective measure for research performance: "Typically, when the author's work is examined, the impact factors of the journals involved are substituted for the actual citation count. Thus, the JIF is used to estimate the expected count of individual papers, which is rather dubious considering the known skewness observed for most journals" (Garfield 2006, p. 92). Nevertheless, as the results of the survey show, for applicants in the Life Sciences in particular the JIF plays a significant role when deciding which journal to submit a manuscript to. It may therefore correspond to the reviewers' assessment of the prestige or 'relevance' of the journals an individual applicant has published in and may therefore influence reviewers' overall judgment. We included the JIF in our analyses for these reasons.

Our main analytic levels are the scientific domains *Life Sciences* (LS) and *Physical Sciences and Engineering* (PE). We will also present results at the level of ERC panels,[50] but due to the rather low number of cases per panel those results need to be treated with care.

Figure 10 shows the distribution of the number of articles applicants from PE have published in the years 2003–2009. The delineation of scientific domains is rather rough for bibliometric purposes, but when changing to the level of ERC panels, the number of cases drops dramatically. Nevertheless, Table 14 shows comparisons of medians between approved and rejected applicants as well as the results of the Mann–Whitney U test for each panel of PE as well as for PE in total (bottom line). The first thing that becomes evident is that the whole group of PE applicants lacks 'low-performers'. In both groups of applicants the mode of the distributions is about 15 publications while the of applicants with five or fewer international WoS-listed publications is very small low (4 percent or less).

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49 $FNCR_j = (1/p_j)\sum_{i=1}^{p}(c_{ij}/[\mu_f]_i)$

p_j Number of publications of applicant *j*

c_{ij} Number of citations for publication *i* of applicant *j* (three-year citation window)

μ_f Expected number of citations per publication in WoS subject category *f* (same document type and year)

50 Cf. on this point Annex I.III.

Figure 10 Number of publications 2003–2009 in Physical Sciences and Engineering (PE) – Starting Grant 2009 applicants, classified data (grouped percentages)

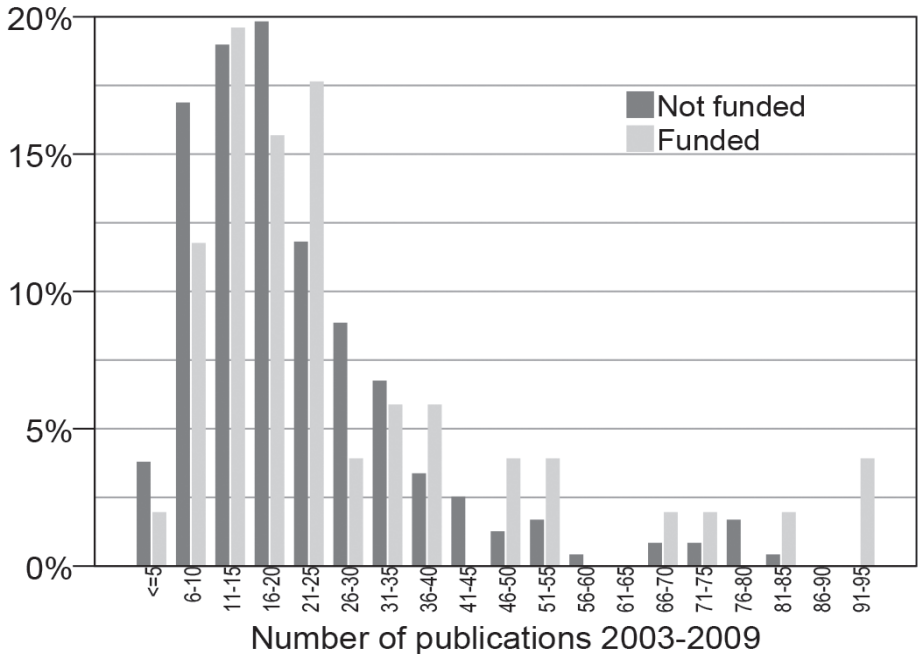


Table 14 Comparison of medians and Mann-Whitney U test regarding the number of publications prior to application to PE sub-panels

ERC Panels - Physical Sciences and Engineering	Median number of publications			N	Mann-Whitney U Test sign.
	Not funded	Funded	Total		
Mathematical foundations	10,0	16,0	12,0	35	0,377
Fundamental constituents of matter	23,0	37,0	23,0	29	0,082
Condensed matter - physics	27,0	45,0	27,0	43	0,109
Physical/ Analytical Chem. sciences	21,5	30,0	22,5	26	0,457
Material and synthesis	19,0	19,5	19,0	39	0,556
Comp. sciences and informatics	10,0	15,5	10,0	35	0,064
Systems/ communication engineering	14,0	9,0	14,0	21	0,740
Products and process engineering	25,5	31,0	26,0	17	1,000
Universe science	23,0	37,0	25,0	25	0,243
Earth system science	14,5	24,5	17,0	18	0,192
Total	18,0	22,0	18,0	288	0,103

Characterising applicants with less than six WoS-listed publications as 'low-performers' may seem arbitrary but is overall in line with the results Neufeld and Hornbostel (2012) revealed when they compared *actual* against *potential* applicants to the Emmy Noether Programme (medicine and biology). It was noted that in the group of *potential* applicants (former postdocs who actually pursued a scientific career) the lowest category (three or fewer publications) was the most highly occupied (approx. 43 percent) whereas only around 10 to 20 percent of the *actual* applicants had published so little.

Clearly, there is a large overlap between the distributions of approved and rejected applicants. Many rejected applicants exhibit a considerably higher output than a large number of the approved ones

and vice versa, although the latter exhibit slightly more publications in total. Consequently, the number of publications does not seem to be a reliable predictor of a successful application in PE. This result corresponds to the findings of Neufeld and Hornbostel (2012) as well as to the results of Bornmann et al. (2010). However, when looking at the differences in medians at the level of panels in PE (Table 14), we see that in nearly all panels the medians of the approved applicants are noticeably higher than those of the rejected ones, but due to the low number of cases the differences are not significant in terms of the Mann-Whitney U test as they are not at the level of scientific domains.

In LS, the number of publications has the same distribution pattern as it has in PE (Figure 11). Again, there is a wide overlap between the distributions of approved and rejected applicants with no significant differences in medians, either at the level of scientific domains or at the level of panels (Table 15). The only exception is the panel of 'evolutionary population and environmental biology', in which the median of the rejected applicants is significantly higher than that of the approved ones. Furthermore, the proportion of applicants with five or fewer publications is quite small – about nine percent in both groups – indicating effective self- or preselection amongst potential applicants. Apart from an overall statistical non-significance in LS, in five out of nine sub-panels the median in the rejected group is higher than in the funded group (Table 15).

Figure 11 Number of publications 2003–2009 in Life Sciences (LS) – Starting Grant 2009 applicants, classified data (grouped percentages)

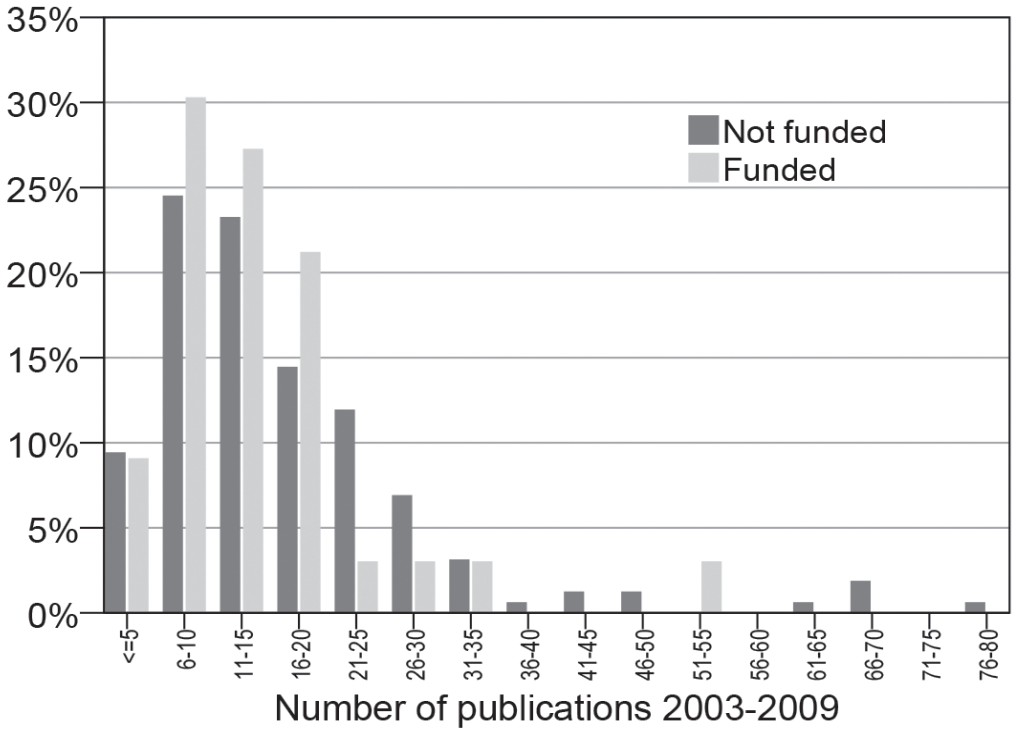
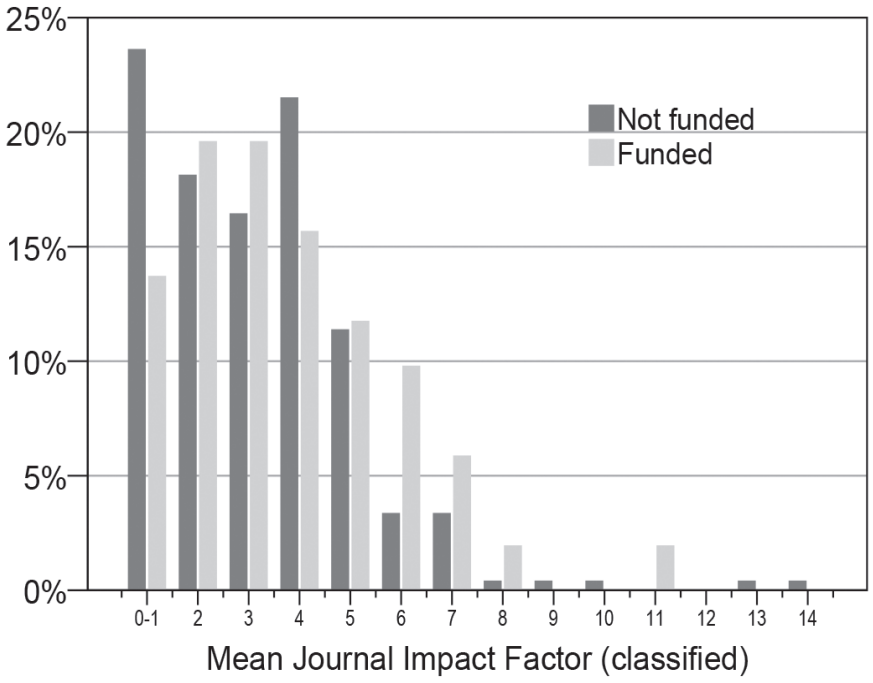


Table 15 Comparison of medians and Mann-Whitney U test regarding the number of publications prior to application in LS panels

ERC Panels - Life Sciences	Median number of publications			N	Mann-Whitney U Test sign.
	Not funded	Funded	Total		
Biology/ Biochemistry	15,0	8,5	13,0	19	0,292
Biology/ Genetics/ Bioinform.	13,0	18,0	13,0	26	0,950
Cellular/Developm. Biology	8,5	8,0	8,0	23	0,763
Physiology/ Endocrin.	17,0	19,0	19,0	15	0,633
Neurosciences	13,0	15,0	13,0	22	0,586
Immunity and infection	9,0	14,0	9,0	20	0,500
Diagn. tools, therapies and public health	17,0	9,5	16,0	29	0,253
Evolutionary, population and environm. biol.	23,0	12,0	20,0	22	0,021
Appl. LS/ biotech.	17,0	10,0	14,5	16	0,052
Total	13,0	12,0	13,0	192	0,253

Figure 12 Physical Sciences and Engineering – mean impact factor 2003–2009, classified data (grouped percentages)



In summary, we can note that the eligibility requirement for 'significant publications in major international peer-reviewed scientific journals' (in terms of the number of publications) is met by most of the applicants in both of the scientific domains PE and LS and that differences between the groups of approved and rejected applicants at the level of panels can be found predominately in PE.

However, the eligibility requirement includes the adjectives 'major' regarding the journals and 'significant' regarding the requested publications. These adjectives indicate more or less directly the *impact* of the applicants' articles and the *reputation* of the journals they have published in.

As mentioned above, the journal impact factor is not an adequate indicator for measuring the 'quality' of an article published in a specific journal and should thus not be used in order to assess an individual's performance. However, the JIF reflects the kind of 'relevance' a specific journal has in the scientific community. This reputation results in part from the assumption that journals with a high JIF are supposed to have a more rigorous peer review and therefore accepted manuscripts should have passed a certain quality threshold. Thus, the JIF might at least reflect the relevance of a journal. Consequently, it cannot be ruled out that the JIFs or at least the reputation of the journals an applicant has published in may influence the reviewers' judgment in a certain way.

Figure 12 shows the distribution of the mean JIF of applicants' publications in PE. Here again, the distributions of approved and rejected applicants overlap widely. The difference in the distribution of the number of publications is that the lowest category (mean JIFs from 0 to 1) is quite well occupied, predominantly by rejected applicants. At the level of panels, the medians in the funded group are significantly higher than in the non-funded group in four out of ten panels (Table 16).

Table 16 Comparison of medians and Mann-Whitney's U test regarding the mean journal impact factor prior to application in PE panels

ERC Panels - Physical Sciences and Engineering	Median mean impact factor			N	Mann-Whitney U Test sign.
	Not funded	Funded	Total		
Mathematical foundations	1,1	1,6	1,2	35	0,005
Fundamental constituents of matter	3,3	3,4	3,3	29	0,784
Condensed matter - physics	4,0	3,5	4,0	43	0,702
Physical/ Analytical Chem. sciences	4,1	5,0	4,3	26	0,355
Material and synthesis	3,7	5,5	4,1	39	0,003
Comp. sciences and informatics	0,9	1,3	1,0	35	0,160
Systems/ communication engineering	1,6	1,9	1,7	21	0,600
Products and process engineering	2,1	2,8	2,4	17	0,027
Universe science	5,0	4,8	5,0	25	0,974
Earth system science	2,9	5,7	3,3	18	0,035
Total	2,9	3,0	2,9	288	0,052

Figure 13 Life Sciences – mean journal impact factor 2003–2009, classified data (grouped percentages)

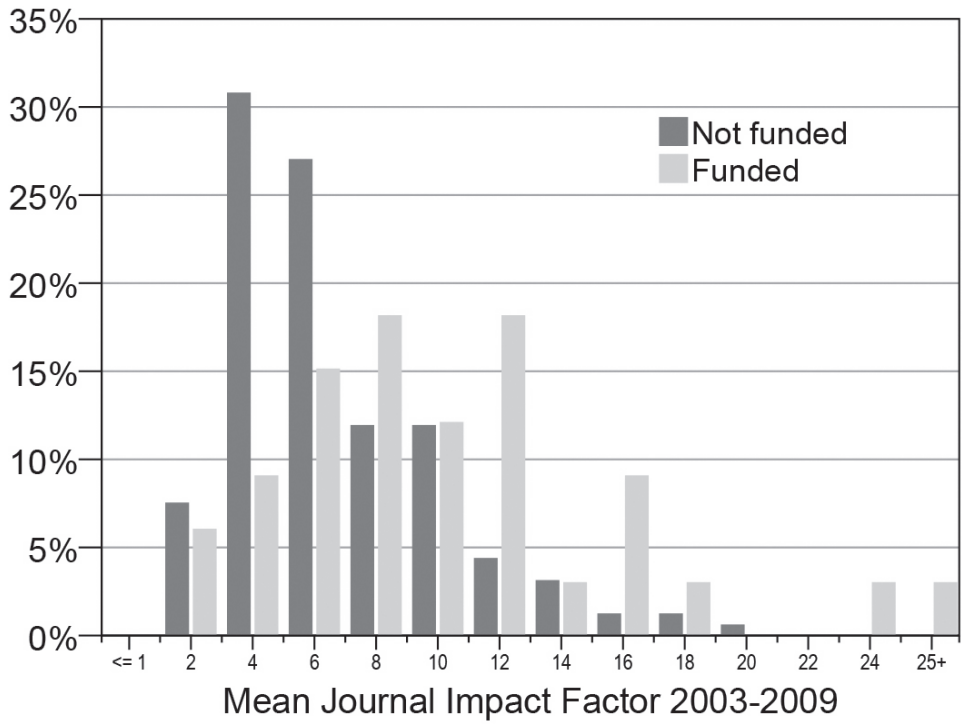


Table 17 Comparison of medians and Mann-Whitney's U test regarding the mean journal impact factor prior to application in LS panels

ERC Panels - Life Sciences	Median mean impact factor			N	Mann-Whitney U Test sign.
	Not funded	Funded	Total		
Biology/ Biochemistry	6,0	16,7	6,0	19	0,047
Biology/ Genetics/ Bioinform.	5,9	12,4	8,6	26	0,067
Cellular/Developm. Biology	7,5	11,9	7,7	23	0,035
Physiology/ Endocrin.	5,7	8,0	6,3	15	0,180
Neurosciences	5,8	8,7	6,1	22	0,132
Immunity and infection	6,2	10,7	6,9	20	0,500
Diagn. tools, therapies and public health	3,5	10,1	3,7	29	0,160
Evolutionary, population and environm. biol.	3,5	6,9	4,2	22	0,004
Appl. LS/ biotech.	4,4	4,3	4,4	16	0,913
Total	5,5	8,6	5,8	192	0,000

In contrast to PE, in LS the distributions of the mean JIFs regarding approved and rejected applicants differ considerably in favour of the approved ones (Figure 13). At the same time, the lowest category (JIFs < 1) is not occupied at all, and even the next highest category (JIFs from 1.5 to 2.5) is rather poorly represented at 6 to 7 percent. Accordingly, the medians differ clearly, for the LS in total as well as in nearly every panel. They are considerably higher for the approved applicants; however, again due to the small number of cases, the Mann-Whitney's U test fails for some panels (Table 17).

Figure 14 Field-normalised citation rate – Life Sciences and Physical Sciences/Engineering by funding decision

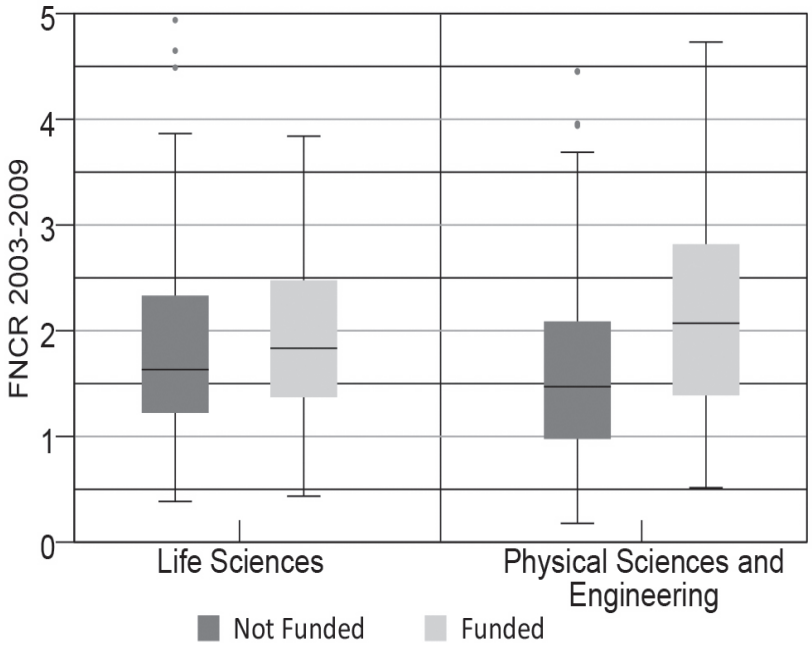
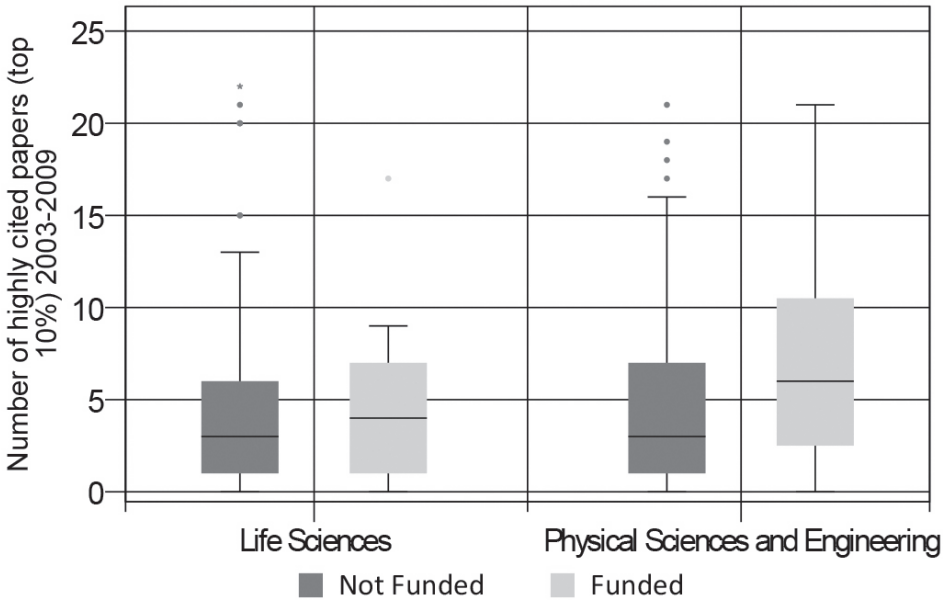


Figure 15 Number of highly cited paper – Life Sciences and Physical Sciences/Engineering by funding decision



We will now investigate the 'significance' or the i mpact of the applicants' research. We will compare the mean FNCR and the number of highly cited papers (number of papers in the top 10 percent of

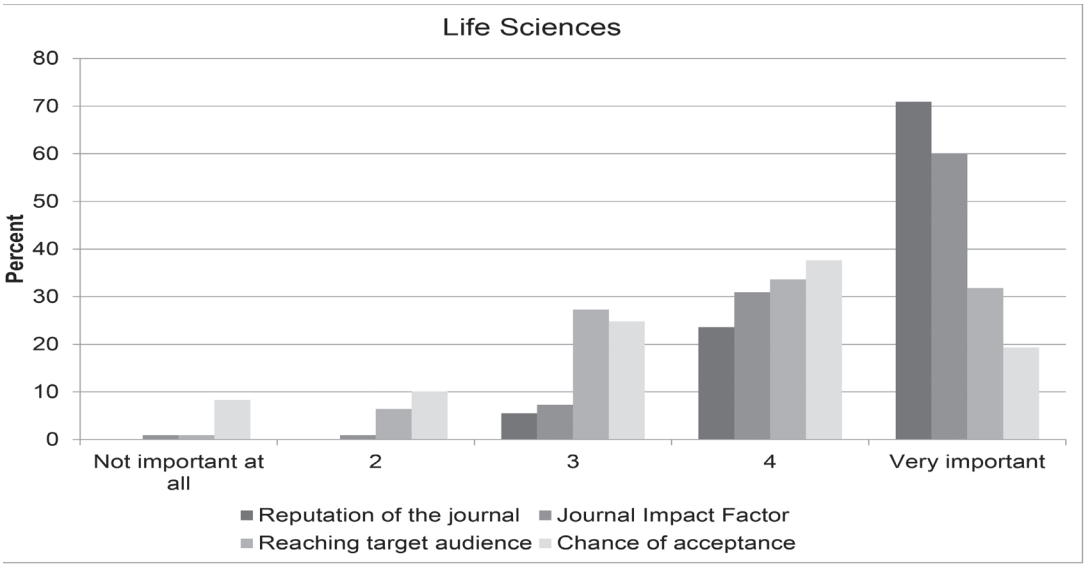
highly cited papers in the respective WoS subject category). As both measures are normalised according to scientific fields, we no longer refer to the ERC panels, but continue to differentiate between PE and LS. Figure 14 shows FNCR box plots for both domains differentiated by funding decision. Surprisingly, the FNCR exhibits almost the opposite pattern to the mean JIF. In PE, the differences between approved and rejected applicants are strong and highly significant, while in LS they are instead weak and non-significant. Regarding the 'number of highly cited papers' (Figure 15), the same picture emerges: a clear and significant lead by funded applicants over non-funded ones in PE and at the same time a marginal and non-significant median difference in LS.

Table 18 Comparison of medians and Mann-Whitney's U test regarding Life Sciences and Physical Sciences/ Engineering by funding decision

Indicator	Scientific domain	Median		N	Mann-Whitney U test sign.
		Not funded	Funded		
FNCR	Life Sciences	1,63	1,83	192	0,265
	Physical Sciences	1,47	2,07	287	0
Number of highly cited (top 10%)	Life Sciences	3,00	4,00	192	0,883
	Physical Sciences	3,00	6,00	287	0,001

As already noted above when discussing the relevance of the JIF in this study, publishing in journals with a high JIF is no guarantee of high citation numbers for the individual paper. The remarkable differences in the mean JIFs obviously do not induce a higher FNCR for the approved applicants in LS. Furthermore, in PE – despite the equal distribution of mean JIFs between approved and rejected applicants – the papers from the approved applicants exhibit a significantly higher impact. In simplistic terms, in LS the success of an application is statistically associated with the (mean) JIF, while in PE it is associated with the impact or relevance of the applicants' research.

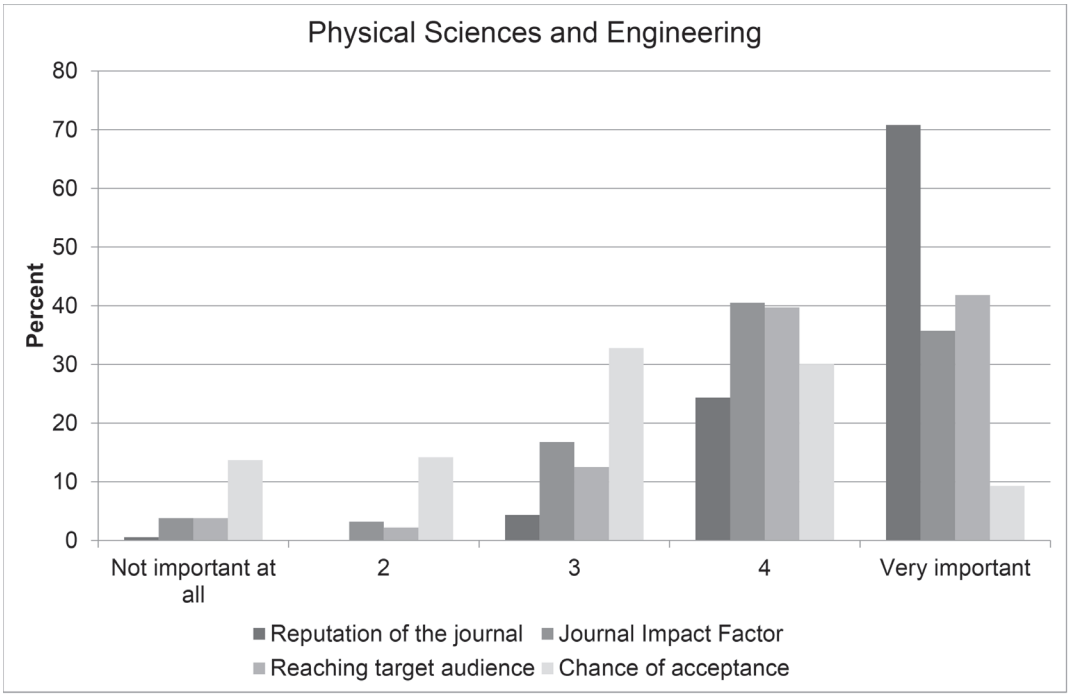
Figure 16 The importance of various criteria for choosing a journal – LS. 'In your case, how important are the following criteria when choosing a journal for submitting a manuscript?' (grouped percentages)



Against this background, it would be interesting to examine how the applicants' own publication strategies correspond to these results. We therefore asked our survey participants to assess the importance of various criteria when choosing a journal. The results are displayed in Figure 16 (LS) and Figure 17 (PE). For applicants from both domains the journal's reputation is the most important selection criterion; the differences between the two domains are only marginal. In both domains about 70 percent see the reputation of a journal as a very important criterion. Other criteria are of lesser importance e.g. only 40 percent in PE and 30 percent in LS assign similar importance to the criterion 'reaching the target audience'.

While applicants from both groups value the criterion 'reputation of the journal', 'reaching target audience' and 'chance of acceptance' very similarly, they differ with respect to the importance of the JIF. In LS, the JIF is a very important criterion for about 60 percent, but in PE only 30 percent share this view. We can conclude that the JIF does not necessarily correspond to a journal's reputation in the perception of the applicants. In the view of the applicants in LS, the JIF is explicitly of very high importance. Together with the positive correlation between the JIF and a successful application, this might be an indication that the reviewers in LS also have a high regard for the JIFs of the applicants' publications.

Figure 17 The importance of various criteria for choosing a journal – PE. 'In your case, how important are the following criteria when choosing a journal for submitting a manuscript?' (grouped percentages)



The third question we raised was: to what extent do different publication strategies correspond to bibliometric measures? Although the term 'publication strategies' encompasses a broader concept which cannot be entirely covered by the 'importance of the criteria for choosing journals', we conducted a linear regression of the mean FNCR of the importance measures of the four criteria. The results are presented in Table 19 for LS and Table 20 for PE.

Accordingly, regarding both domains there is almost no journal selection 'strategy' which has a significant effect on the mean FNCR of the published papers. In LS, we found no effect of 'the importance of impact factor' on the mean FNCR. This was expected given the fact that approved applicants in LS exhibit higher mean JIFs than rejected applicants, but do not obtain a higher impact (mean FNCR). Surprisingly, in LS it is the 'importance of a journal's reputation', rather than the impact factor, that has a positive and significant effect on the mean FNCR (B = .525, Beta = .235, Table 18). Obviously, in the applicants' perception, the JIF of a journal is not equivalent to the journal's reputation. This is also reflected in a rather low Pearson correlation between the two variables (LS: $r_{JIF,rep.}$= .280, PE: $r_{JIF,rep.}$= .341).

Table 19 Linear regression – Life Sciences: mean FNCR of applicants' publication strategies – 'In your case, how important are the following criteria when choosing a journal for submitting a manuscript?' (n = 109)

Life sciences (LS) Dependent Variable: FNCR mean 2003-2009	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0,610	1,277		-0,478	,634
Reputation of the journal	,525	,229	,235	2,296	,024
Impact factor of the journal	-,099	,181	-,057	-,547	,586
Reaching target audience	,144	,139	,105	1,030	,305
Chance of acceptance	,024	,108	,021	,220	,827

Table 20 Linear regression – Physical Sciences and Engineering: mean FNCR of applicants' publication strategies – 'In your case, how important are the following criteria when choosing a journal for submitting a manuscript?' (listwise deletion of missing values)

Physical Sciences and Engineering (PE) Dependent Variable: FNCR mean 2003-2009	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1,642	,591		2,778	,006
Reputation of the journal	-,049	,128	-,032	-,384	,701
Impact factor of the journal	-,011	,076	-,012	-,146	,884
Reaching target audience	,082	,077	,084	1,061	,290
Chance of acceptance	,009	,062	,010	,138	,891

Regarding the applicants in PE again, the importance of a single criterion has no significant effect on the mean FNCR (Table 20). Although our operationalisation of 'publication strategies' is limited with regard to the extension of the concept and we do not know to what extent the applicants finally manage to implement their strategies, our results suggest that journal selection has little influence on the impact the publications will have.

Discussion and conclusion

Our first question addressed self- or preselection amongst potential applicants regarding the decision of whether or not to apply for an StG. In other words: do StG applicants exhibit an above-average publication performance? MERCI's bibliometric analysis of past publication performance reveals that self- or preselection amongst potential applicants with respect to the number of publications and impact (FNCR) is effective. Most of the applicants exhibit an above-average output: in LS more than 90 percent and in PE about 96 percent published at least six international WoS-listed articles during the period 2003 to 2009.

With regard to the impact of their research, the StG applicants demonstrate high-level performance as well: 76.7 percent of applicants in PE have their publications cited with above-field-average frequency. In LS, this subgroup amounts to 82.3 percent, with 85.8 percent of all applicants in the sample having at least one paper in the top ten percent group of highly cited papers.

Even if it is not clear how the self- or preselection works – it may be that the programme's demanding eligibility requirements directly influence a potential applicant's decision as to whether or not to apply, or maybe institutionalised preselection processes come into play (e.g. preselection/encouragement by dedicated mentors, institutional support, etc.) – the amount of 'low- performers' in a bibliometric sense is very low amongst the StG 2009 applicants.

We went on to ask whether approved applicants exhibit a higher past publication performance than rejected applicants. Regarding the number of papers, we found that the distributions showed a wide overlap between approved and rejected applicants. This seems to be a typical pattern, especially for funding programmes with effective self- or preselection. If nearly all actual applicants pass a certain threshold, other reasonable funding criteria (e.g. the quality of the proposal, the originality of the proposed project) may dominate the funding decision.

However, the two scientific domains differ regarding the relation between the mean JIF/the mean FNCR and the funding decision. In this context, the following points are worth mentioning:

1. The noticeable and statistically significant advantage of the mean JIF for approved applicants in LS suggests its relevance to the reviewers' judgments. This assumption is affirmed by the results of our online survey which reveal that in LS applicants place great emphasis on the JIF, particularly when it comes to deciding on where to submit a manuscript – far more than they place on the criterion 'reaching the target audience' and far more than applicants in PE do.
2. The higher mean JIFs obtained by the approved applicants in LS do not lead to a higher impact.
3. In PE, the impact (mean FNCR, number of highly cited papers) of the applicants' publications (before application) is significantly higher for approved than for rejected applicants. In LS approved applicants exhibit only slightly and non-significantly higher impact measures than the rejected group.

The suggested relevance of the JIF in LS might be an indication of the reviewers' intention to apply objective quality criteria, although the JIF is not a good choice in this respect. However, in PE, peer review is successful in selecting applicants with higher impact levels. In order to counter the JIFs' suggested relevance, the ERC could guide the reviewers to pay more attention to content-related factors or to attend to single articles in more detail. However, the ERC has revised the evaluation

criteria for the StG programme. The original evaluation criteria for the StG 2009 were as follows: "Quality of research output/track-record: How well qualified is the Principal Investigator to conduct the project (reviewers are expected to evaluate the quality of the prior work such as published results in top peer review journals as well as other elements of the Principal Investigator's CV)" (European Research Council 2008, p. 15). In contrast, the revised evaluation criteria for the StG 2013 (outlined in the FP7 IDEAS work programme 2013) explicitly asked the applicants to highlight five representative publications, including the number of citations these papers have received: "Publications in major international peer-reviewed multi-disciplinary scientific journals and/or in the leading international peer-reviewed journals, peer-reviewed conference proceedings and/or monographs of their respective research fields, highlighting five representative publications, those without the presence as co-author of their PhD supervisor, and the number of citations (excluding self-citations) they have attracted (if applicable)" (European Research Council 2012, p. 20).

The request to highlight a small number of publications appears to be appropriate: if it leads reviewers to take a closer look at the applicant's concrete/selected work, this should diminish the relevance of the JIF in Life Sciences. However, the request for citation numbers may lead to the 'bibliometric component' of reviewers' judgments being more impact-based but otherwise foils the aim of achieving judgements that are more related to the quality of the content. Last but not least, one can argue that high citation numbers for past publications are hardly an indication of 'cutting-edge', 'novel' or 'groundbreaking' approaches but rather of well-established mainstream research.

4.1.3 International cooperation and perception[51]

In this section we take a closer look at the internationality of the StG 2009 applicants from a bibliometric point of view. Two different aspects of internationality will be considered in this context:

– international cooperation (StG applicants' internationally co-authored publications), and
– international perception (reception of StG applicants' publications by others in foreign countries).

For an operationalisation of these aspects we refer to the address records in publications where the authors' institutional affiliations are given. Within each address record a relevant country-level data element can be determined, as shown in the following example:

'University of Bielefeld, Fac Math, Bielefeld, Germany'

The first aspect, international cooperation, can be measured by taking into account internationally co-authored publications. Counting co-authorships is a widely used practice in bibliometrics for the measurement of collaboration, although this approach may not provide a perfect solution in all cases. Katz and Martin (1997) discussed problems associated with the concept of collaboration and came to the conclusion that co-authorship is only a partial indicator of collaboration. It is therefore appropriate to also look at the second aspect mentioned above: international perception. This can be investigated by focusing on the reception (citation) of applicants' publications by other authors from foreign countries. In order to decide if a publication has been noticed in 'foreign' countries,

51 This chapter was written by Christine Rimmert and Matthias Winterhager from Bielefeld University.

we need to define a 'country of origin' for each applicant. We use the attribute 'NATIONALITY' from the applicant's data here.

Details of the indicators used for the two aspects will be given in the following sections.

Indicators and results

Preconditions

Addresses and therefore also country entries are not standardised in the WoS and, thus, a data cleaning process needed to be carried out in order to unify the countries of author addresses in publications. For instance: DEU, Deutschland, Germany, GER → GER.

It is well known that publication behaviour is different across different research fields, especially in terms of cooperation – for example, in high energy physics many authors are involved in a typical publication, whereas publications with only one or two authors are common in mathematics. The following table gives an example for the WoS categories 'Mathematics' and 'Physics, 'Particles & Fields' (publication year: 2011, document type: article).

Table 21 Differences in publication behaviour: number of authors per publication

Research field	Minimum number of authors per publication	Maximum number of authors per publication	Average number of authors per publication
'Physics, Particles & Fields'	1	3.172	23.51
'Mathematics'	1	11	1.90

When comparing the groups of approved and rejected StG applicants with respect to their publication behaviour it is important to check whether results depend on different distributions over applicants' research fields in the two groups. In the case of StG 2009 applicants the distribution over research fields (PE1–10 and LS1–9) is nearly the same in both groups; therefore we do not have to expect any spurious influence on the results from this direction.

In addition, we had to examine the distribution of all publications over countries of author addresses. The total set of publications does not seem to be peculiar with regard to the countries involved and their frequency of occurrence, nor do the two groups exhibit any noteworthy differences with regard to these two factors.

Overview: indicators

Firstly, a brief overview of the indicators used here and some general remarks are given – all indicators are described in detail in the following sections. As already mentioned, two kinds of indicator

groups are used: indicators concerning cooperation (based on publications of the StG applicants) and indicators concerning perception (based on citations of publications of applicants). The following table gives an overview of the indicators:

Table 22 Indicators of international cooperation and perception

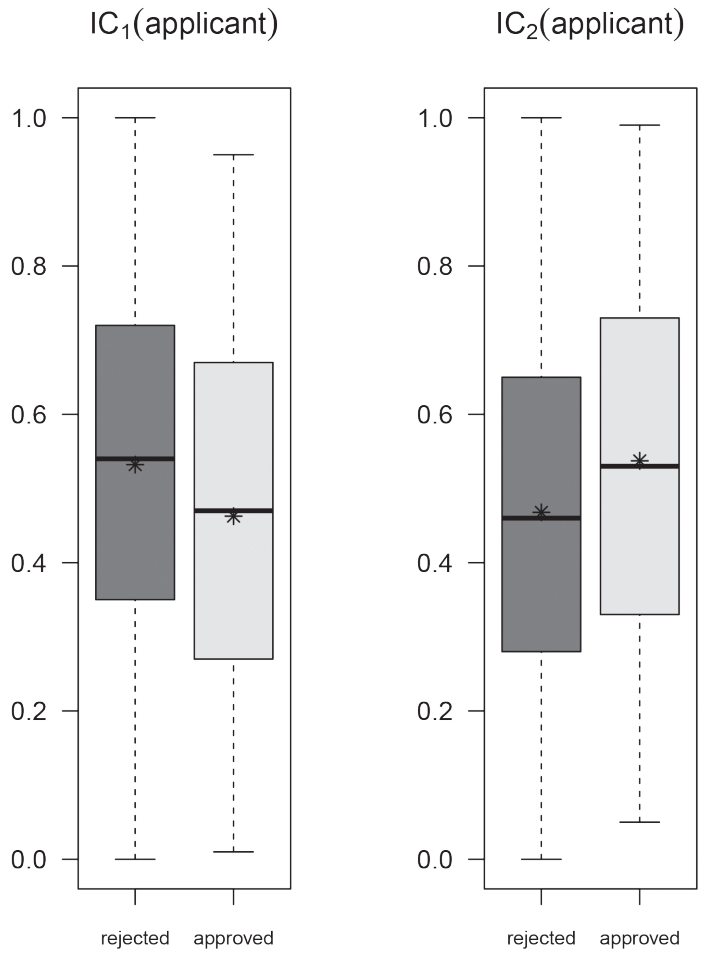
	Notation	Description in general	'National'	'Inter-national'	'Very international'
International cooperation (based on publications)	IC	# Publications with *** different countr(y/ies) /# Publications in total (per applicant)	IC_1: only one	IC_2: more than one	IC_3: more than two
	ICE	# Publications with *** different *foreign* countr(y/ies) /# Publications in total (per applicant)	ICE_1: none (only country of origin)	ICE_2: at least one	ICE_3: more than one
International perception (based on citations)	IPE	# Citations with *** different *foreign* countr(y/ies) /# Citations in total (per applicant)	IPE_1: none (only country of origin)	IPE_2: at least one	IPE_3: more than one

All indicators are based on the 'applicant level', not on the level of publications. Consequently, every applicant's indicator is calculated by taking into account the set of publications/citations of the respective applicant.

Every group of indicators (IC, ICE and IPE) consists of three indicators with indexes 1, 2 and 3 where index 1 in each case provides a certain ratio for the part' (of publications or citations), index 2 shows the 'international part' and index 3 the 'very international part' (in the respective context).

The national and international part/ratio sums up to 1 for every applicant in every case (IC, ICE, IPE): the total set of publications of an applicant is a disjoint union of the set of publications with only one country and the set of publications with multiple countries. Thus, IC1 and IC2 sum up to 1 (and therefore IC1=1–IC2 for every applicant; IC1 shows only a kind of 'contrary' of IC2). In the box plots this becomes visible: box plots of IC1 can be derived from the respective box plots of IC2 by mirroring around the horizontal line at 0.5 (cf. Figure 18). Therefore, it is not necessary to examine both IC1 and IC2 – one of these is sufficient. Analogously, this applies to ICE1/ICE2 and IPE1/IPE2.

Figure 18 Comparison of box plots for IC1 and IC2 (example)



Hence, in the following only box plots of the indicators with index 2 and 3 (IC2, ICE2, IPE2 and IC3, ICE3, IPE3) will be displayed, while the ones with index 1 (IC1, ICE1, IPE1) will be omitted.

Significance tests have been calculated for the indicators with index 2. In all tests the significance level is alpha=0.05 and the arithmetic mean is used as test statistics. In order to find the suitable test a variance analysis (by means of an F-test) was carried out in advance in each case.

Indicators of international cooperation

The indicators of international cooperation are based on publications of StG applicants. International cooperation in this context is measured through publications with addresses from at least two different countries. This not only includes the case of at least two authors from different countries publishing together but also cases in which one author has at least two addresses (e.g. authors working at two different research institutions) in different countries, which also indicates a kind of 'international cooperation'.

For a certain applicant the set of publications is considered, as for every publication all countries of author addresses are collected. For indicators IC1–3 the number of different countries is calculated for each publication to obtain the following ratios for every applicant a:

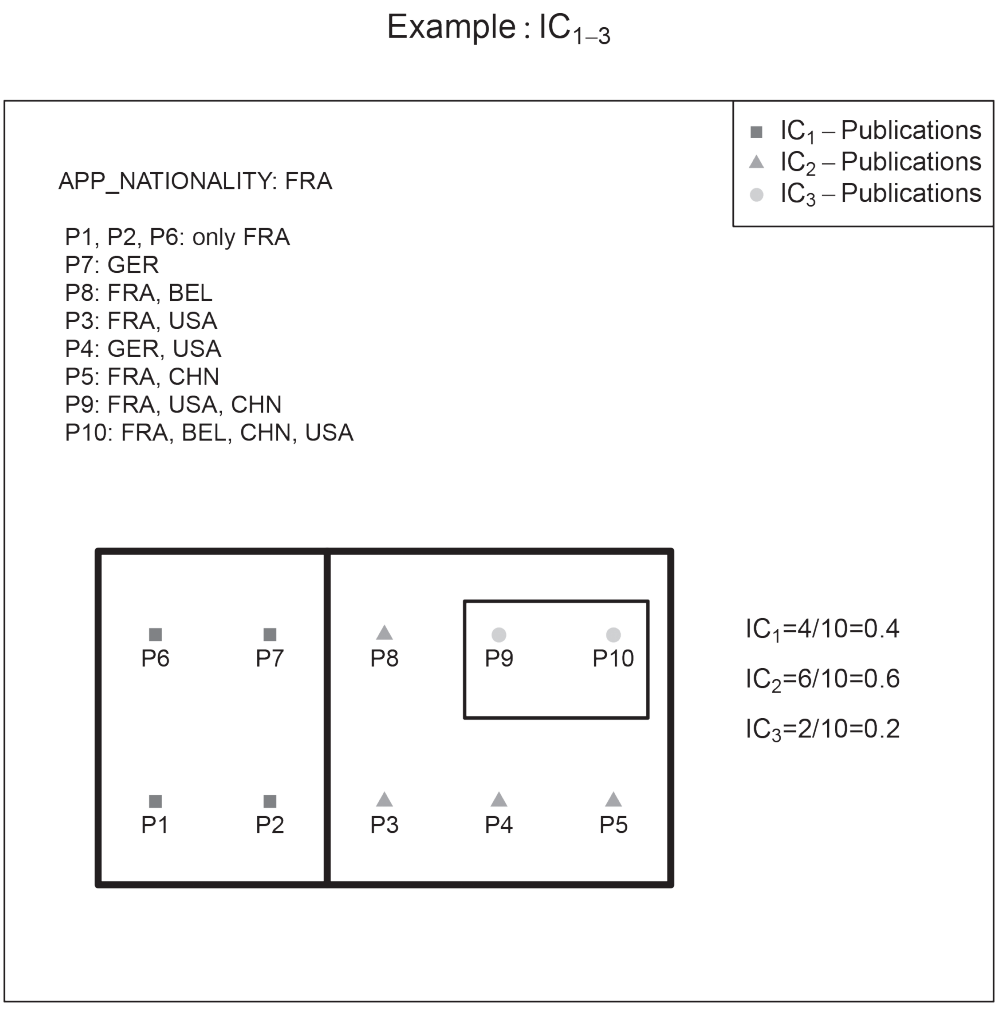
IC1(a):= # publications of a with only one country / # publications of a in total
IC2(a):= # publications of a with more than one country / # publications of a in total
IC3(a):= # publications of a with more than two countries / # publications of a in total

Notation: publications that count as IC1 are called 'IC1 publications' in the following (and analogously for IC2-publications and IC3-publications). Thus, IC1-publications are publications with author addresses belonging all to the same country whereas IC2-publications have author addresses from at least two different countries. IC3-publications carry author addresses from at least three different countries.

The union of IC1- and IC2-publications forms the set of all publications. The set of IC3-publications is a subset of the set of IC2-publications. Therefore IC1(a)+IC2(a)=1 and IC2(a)<=IC3(a) for every applicant a (cf. Figure 19).

Figure 19 Example for calculating the indicator group IC

A



high value for IC2(a) (and therefore a low value for IC1(a)) shows a high proportion of 'international' publications and indicates 'a high degree of international behaviour' – i.e. we can assume this applicant is intensively cooperating with international partners. A high value for IC3(a) hence indicates 'a very high degree of international behaviour'.

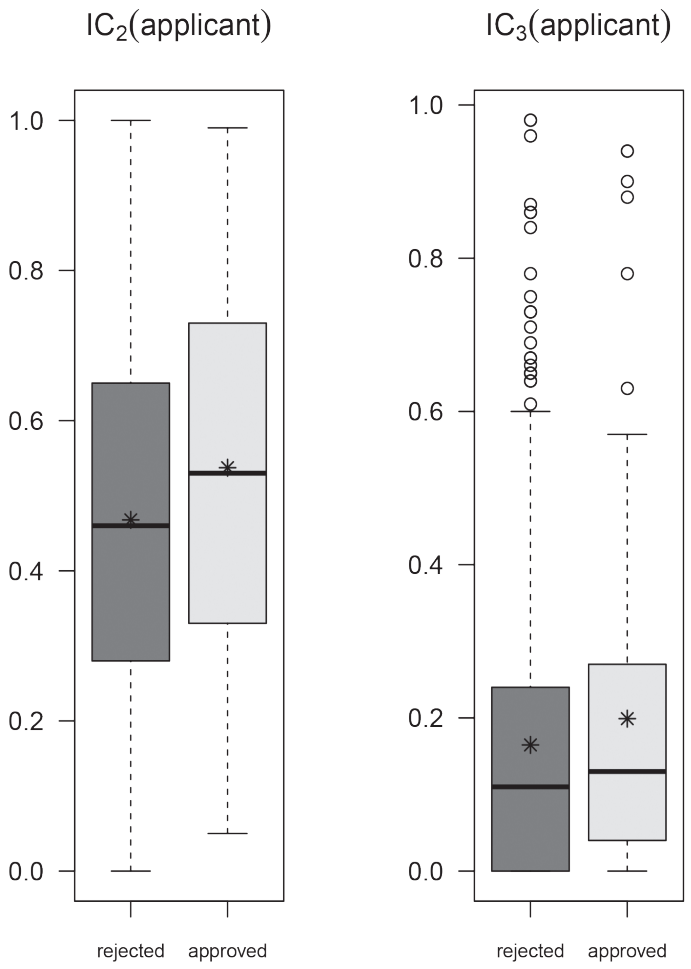
In the example, an applicant X has 10 publications and his/her country of origin is France. The publications of X are represented by dots in the figure, denoted by P1 to P10. The upper left-hand corner displays the (distinct) countries appearing in the author addresses for each publication. Especially due to the fact that 'countries that appear' are counted here, the frequency of a country within a publication does not matter.

Dots are coloured in line with the publication type with regard to the indicator set IC. Hence, P1, P2, P6 and P7 are IC1 publications (coloured in green) because there is only one country given in the author addresses. The other publications have more than one country in their addresses – so they are IC2 publications. Hence, the set of all publications splits up into two parts (represented by a vertical line): the 'national' and the 'international' part. Within the set of IC2 publications there are cases with even more than two countries in the author addresses: P9 and P10. These are IC3 publications (coloured in blue). Of course, every IC3 publication is also an IC2 publication.

To calculate IC1, IC2 and IC3, the relevant publications are counted and divided by the total number of publications of X: IC1(X)=4/10=0.4, IC2(X)=6/10=0.6 and IC3(X)=2/10=0.2.

Figure 20 compares the groups of approved versus rejected StG applicants in terms of IC2 and IC3. As mentioned above we can omit IC1 because all information is already included in IC2 since IC1=1–IC2. Every data point represents an applicant and displays his/her value for IC2 and IC3 respectively.

Figure 20 IC2 and IC3 values for approved vs. rejected applicants

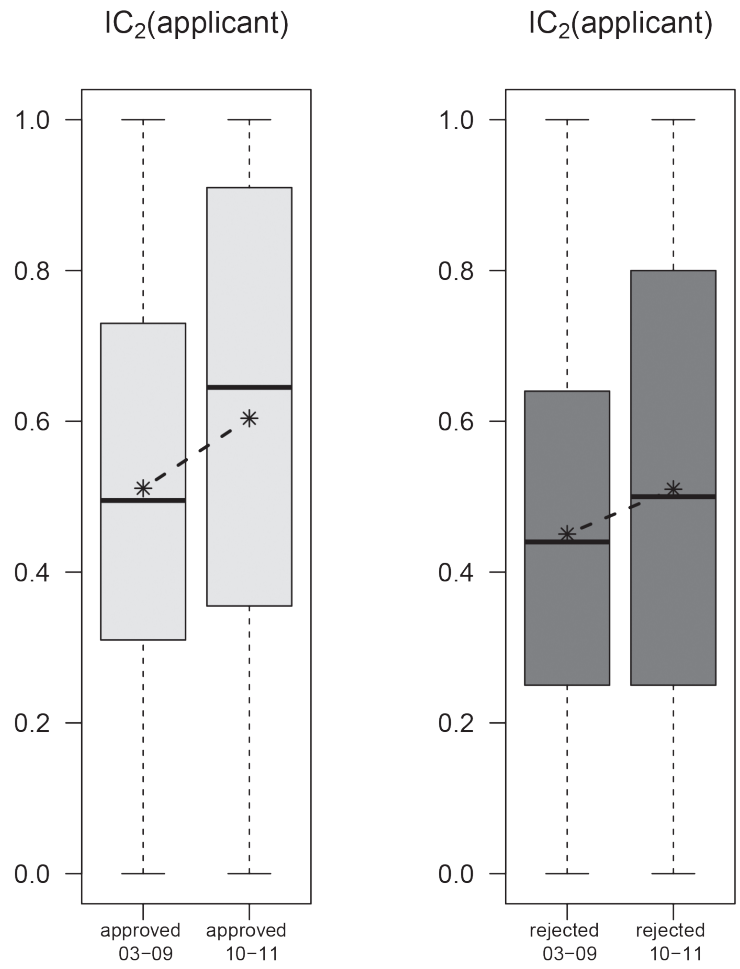


IC2 and IC3 values both seem to be higher for the group of approved applicants with respect to the position of the data in general, median (line within the box plot) and arithmetic mean (denoted by*).

The results are statistically significant at a significance level of alpha=0.05 (unpaired one-sided t-test, equality of variances, p-value=0.002084). So the accepted applicants 'behave more internationally' in terms of cooperation.

Another interesting issue is the development of the values over time – especially the comparison of the IC values up until 2009 and afterwards (before and after the funding decision). Do StG applicants 'behave more internationally' after 2009? And – if this is the case – is there a difference between approved and rejected applicants? The following figure, Figure 21, shows the IC2 values for approved and rejected applicants divided into the time periods 2003–2009 and 2010–2011 (with respect to the publication year of the underlying publications). Applicants with no publications in the respective time period are excluded.

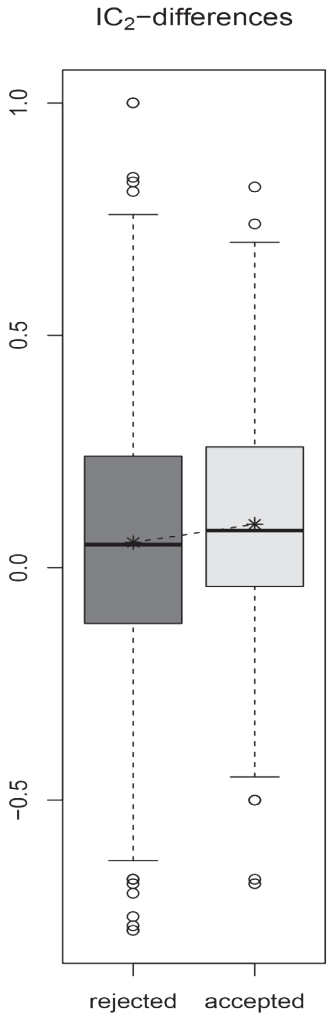
Figure 21 Development of IC2 values over time



Rejected and approved StG applicants both exhibit an increase in IC2 values, so they are becoming 'more international' over the course of time. These effects are statistically significant for both groups at a significance level of alpha=0.05 (one-sided paired t-test, no equality of variances, p-value = 4.241e-06 for rejected applicants, p-value = 0.000373 for accepted applicants). Due to the paired test the p-values can convey a contradictory impression to the figure above: while the figure only displays IC2 values and their median and mean without taking into account the relation between single values (one cannot detect which value from the left belongs to which one on the right – in other words which one relates to the same applicant) the test considers the paired values for every applicant.

Furthermore, the impression created is that the approved applicants exhibit a greater increase than the rejected applicants with respect to the mean (dashed red lines). To investigate this we analysed the differences in IC2 values per applicant and carried out a test on those differences (significance level of alpha=0.05 as before). The appropriate F-test in order to compare the variances indicates no significant difference with respect to variances, so a one-sided unpaired two sample t-test based on equal variances was carried out. StG applicants with no publications in one of the time periods are excluded in the following.

Figure 22 Differences of IC2 values between the time periods (IC2 value for 2010–2011 minus IC2 value for 2003–2009)



As is already visible in Figure 22, the test shows that this effect is not statistically significant (p-value=0.0928). Hence, all applicants exhibit more 'international behaviour' in more recent times, but there is no significant difference in the rise of mean values.

The calculation of values for the indicator group IC is based on the term 'international cooperation', measured through publications with at least two different countries in the author addresses. But what about an applicant who carried out research in more than one country? For example, an applicant may have studied in Germany, done his/her PhD in France and worked in Greece and Italy afterwards, doing all of this for a few months or years. A publication he/she worked on (together with some other researchers from Italy) in his/her time in Italy would be an IC1 publication (the only country in the author addresses is Italy) – although one could argue that he/she has done something even 'more international' than getting in contact with people in other countries via email or meeting them: instead of only working together and staying in his/her own country he actually moved abroad to work with people from other countries.

To include this factor in the definition of 'international cooperation' in the set of IC1 indicators we define the country of nationality of an applicant as his/her 'country of origin' and coin a new definition of international cooperation with respect to this – leading to the indicator group ICE ('international cooperation enhanced'). We now measure international cooperation through publications (of the respective StG applicant) with at least one foreign country in their list of countries of author addresses (where 'foreign country' is defined as any country other than the country of origin of the applicant).

We therefore end up with two kinds of 'international behaviour' in this context:

– an applicant cooperates with people from foreign countries, or
– the applicant appears with an author address belonging to a 'foreign country' – which could mean he/she is living abroad to carry out research in a 'foreign' country (with people doing research there).

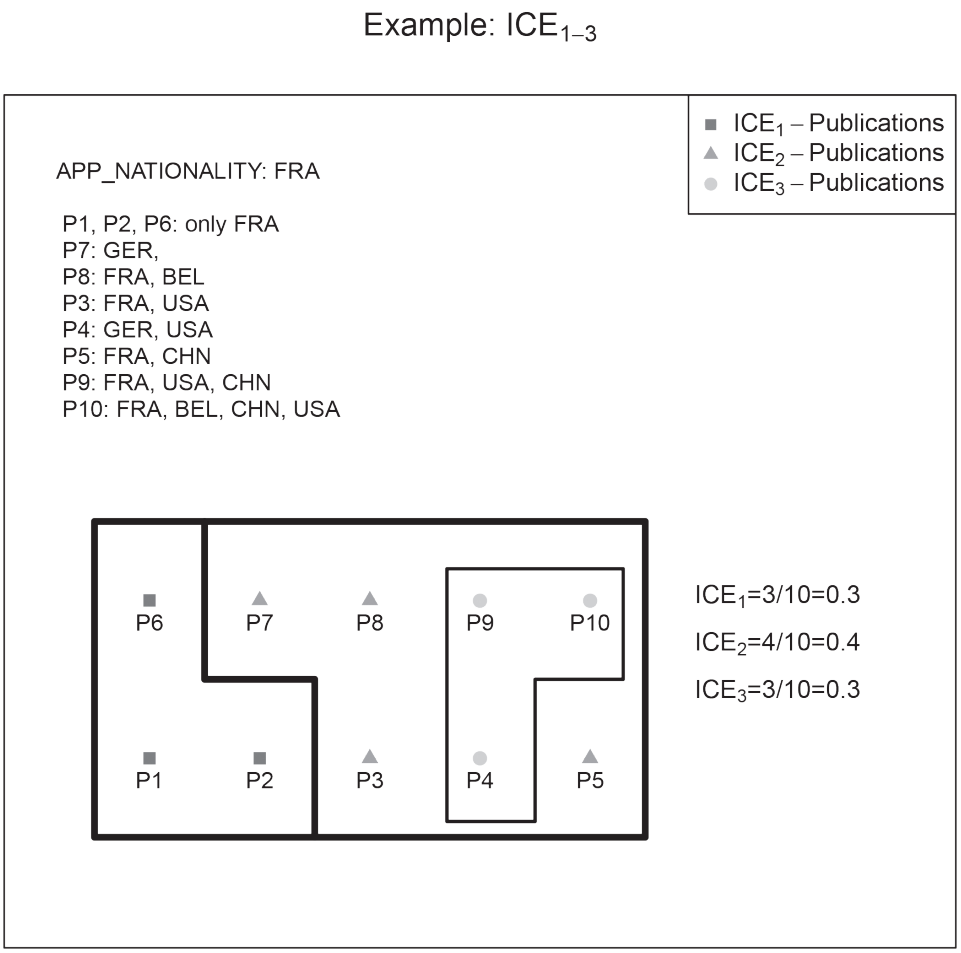
The second would not count as 'international behaviour' with respect to the indicator set IC – but it seems to be appropriate to include it in the definition of 'international behaviour'. To ensure that the effect detected above by using the IC indicators does not only occur due to an overly restrictive definition of 'internationality' we therefore calculate – analogously to IC – the following ratios for every applicant a:

ICE1(a):= # publications of a with only one foreign country / # publications of a in total
ICE2(a):= # publications of a with more than one foreign country / # publications of a in total
ICE3(a):= # publications of a with more than two foreign countries / # publications of a in total

This definition makes the following difference for ICE1 (and therefore also ICE2) compared to IC1/IC2: a publication with only one country which is not the country of origin is an IC1-publication but not an ICE1-publication, as a foreign country is included. In contrast to the indicator group IC the indicators ICE1-3 depend on the applicant – a single publication cannot be an IC1-publication for one applicant and IC2-publication for another, however, it can be an ICE1-publication for one applicant and ICE2-publication for another if they have different countries of origin.

The example in Figure 23 below is the same as given above in the section on indicator set IC, in order to show the differences between indicator set IC and ICE.

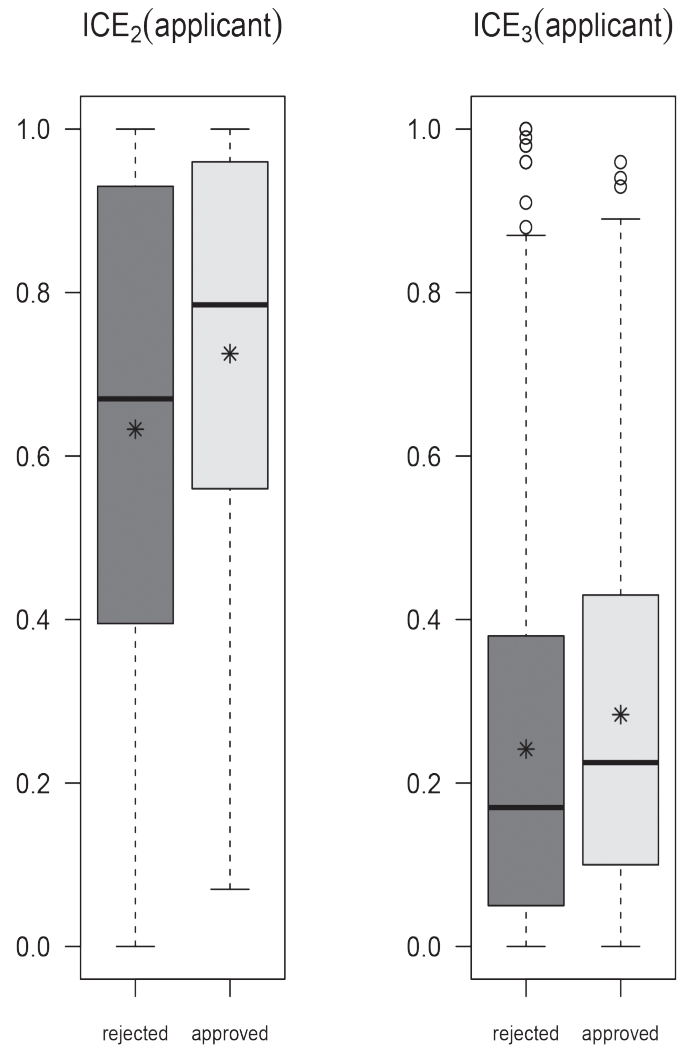
Figure 23 Example for calculating the indicator group ICE



P7 is an IC1 publication but also an ICE2 publication, because the only country in the addresses is different from the country of origin of the applicant. P4 is not an IC3 publication but it is an ICE3-publication: two foreign countries appear in the author addresses.

Figure 24 shows a comparison between approved and rejected StG applicants with respect to their ICE2-values analogous to the comparison with respect to IC2-values.

Figure 24 ICE2- and ICE3-values for approved vs. rejected applicants



As seen above for IC2, the values in this respect seem to be higher again for approved than for rejected StG applicants. The corresponding test confirms this impression (Welch Two-Sample t-test, no equality of variances, p-value = 0.0001876, p-value = 0.0001876). So approved applicants 'behave more internationally' than rejected ones in terms of means of ICE2 values – which is consistent with the result of the IC indicator group shown above.

Indicators of international perception

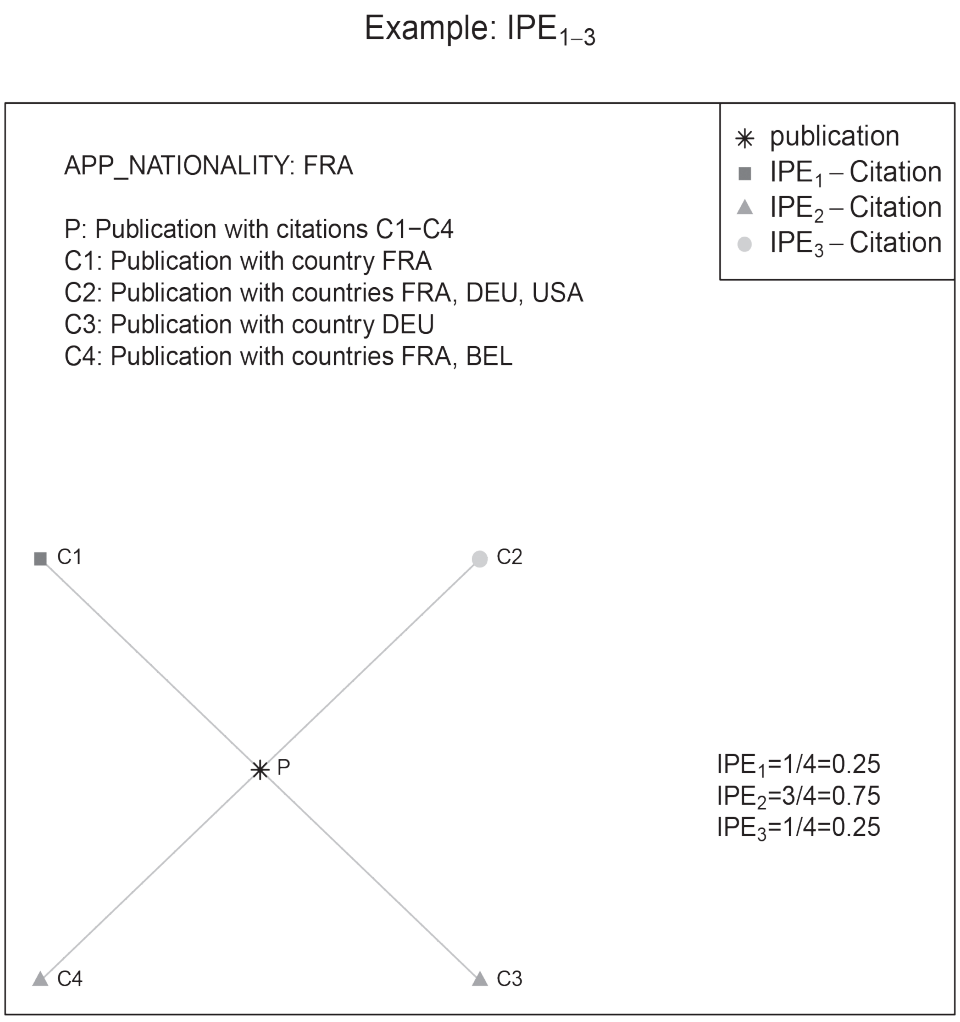
Taking perception into account based on citations of publications of applicants could be thought of as counting citing publications with one or more foreign countries. The problem with this approach is that there are often many citing publications for a publication and so almost every time there is a citing publication with a foreign country. So for almost every applicant the 'national' part would be very close or equal to 0, while the 'international part' would be close or equal to 1 – therefore this approach does not seem to be appropriate.

Instead it is better to look at the total set of citations (citing publications) for an applicant a (not taking into account which citation belongs to which publication). As we are interested in the perception in 'other' countries we again use the definition of 'country of origin'. This leads to the following definitions for the indicator group IPE (international perception enhanced):

IPE1(a):= # citation of a with only one country / # citations of a in total
IPE2(a):= # citations of a with more than one country / # citations of a in total
IPE3(a):= # citations of a with more than two countries / # citations of a in total

The term 'citation' in this case is used for reasons of brevity. The correct description would be 'citing publication of any publication of a'. The following figure shows an example calculation of the IPE indicators. For the sake of clarity an example with an applicant with only one single publication is given (Figure 25). Usually, for applicants with more than one publication, the set of citations/ citing publications would be based on several different publications.

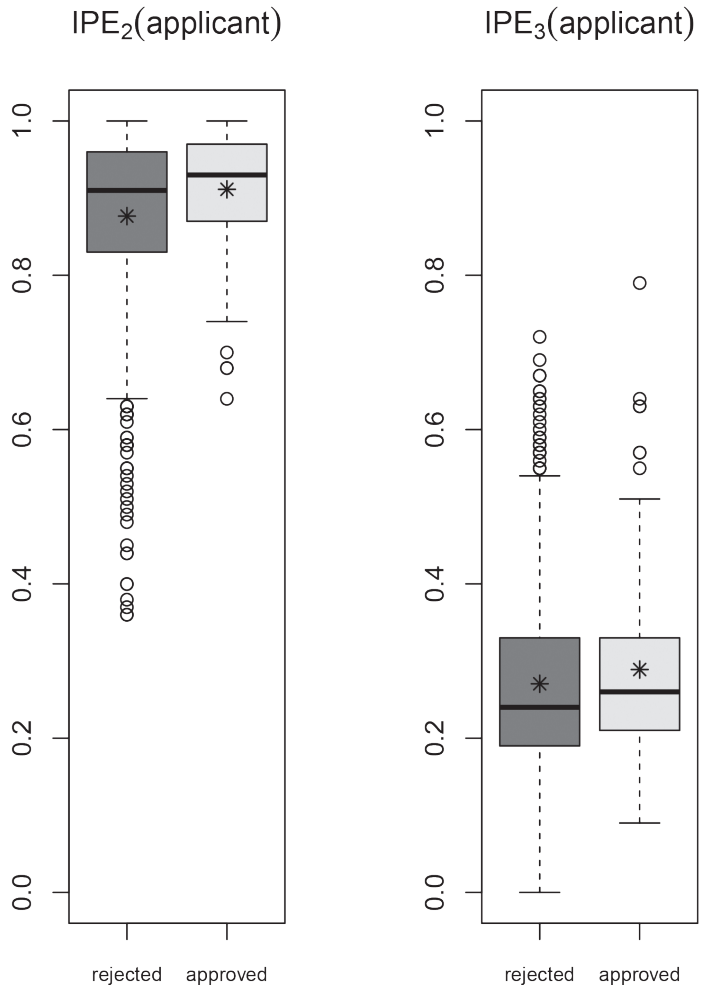
Figure 25 Example for calculating the IPE indicator group



The example applicant X has only one publication (cited publication) which has been cited by four publications (citing publications): C1, C2, C3 and C4. Citing publication C1 leads to an IPE1 cita-

tion for X because the only country in the author addresses of C1 is France (country of origin of X) while C3 leads to an IPE2 citation for X because the only country is different from the country of origin of X. Applying the definitions we find C4 as leading to an IPE2 citation and C2 as leading to an IPE3 citation (of course C2 is also an IPE2 citation). The total number of citations of X is 4, so the indicators can be calculated as in the figure. Figure 26 below shows the respective box plots:

Figure 26 IPE2 and IPE3 values for approved vs. rejected applicants



Once again, the impression arises here that approved applicants have higher values (here for IPE2). This effect can be confirmed by a Welch Two-Sample t-test (no equality of variances, significance level alpha=0.05, one-sided, unpaired), which leads to a p-value of 2.217e-05. Therefore, approved applicants exhibit a 'higher international perception' than rejected ones.

Analysing and comparing the time periods 2003–2009 and 2010–2011 is not sensible here because publications appear to 'need more time to collect (international) citations'. Thus, such an analysis results in lower values for the time period 2010–2011, which are strongly influenced by the given time frame ('time to collect citations'), which is much smaller for a publication from 2011 than for a publication from 2003.

Conclusion

In order to look at the internationality of StG applicants (and differences between the groups of approved vs. rejected applicants) two aspects of internationality have been analysed: international cooperation and international perception. Our results show that for both aspects approved applicants achieve higher indicator values than their rejected counterparts. These results are not influenced by different distributions over research fields or by an overly restrictive definition of internationality in the case of international cooperation.

A comparison of time periods (before and after the ERC funding decision) with respect to international cooperation showed that the respective values are rising over time for both groups of StG applicants, but there is no statistically significant difference in the level of the rise between approved and rejected applicants. Due to the fact that the set of publications is limited from the publication year 2003 to the publication year 2011 (implying that the time period after receiving the StG is rather short) it would be appropriate to investigate this effect again at a later stage.

Overall, the following points need to be kept in mind when interpreting the bibliometric results that have been presented with regard to international cooperation and perception:

- the data includes only publications covered in the WoS; publications in journals which are not listed in the WoS are, thus, not in our data,
- the data includes only the document type 'article' (which for some research fields is not the most important publishing channel),
- due to the time delay between publication and entry into the database, the data set for the most recent publication years might not be complete, and
- the data includes only citations recorded in the WoS with complete assignments (cited publication to citing publication) – so any citations in or of non-WoS publications are excluded.

4.2 Assessment of the ERC evaluation procedure

This section seeks to go beyond the narrow operationalisation of researcher's track record in terms of bibliometric data and asks which other factors (might) affect the ERC funding decision based on findings from the qualitative interviews and the online surveys. We will, thus, change perspective to look at the funding decision from the StG applicant's point of view and examine the applicant's assessment of the ERC selection process accordingly. In particular, we will focus on potential changes in perception across StG cohorts and the question of how the ERC procedures are assessed in contrast to other research funding organisations.

4.2.1 The funding decision from the applicant's point of view

The interview data suggests that receiving the StG is seen as *recognition of* the track record and international mobility achieved in earlier career stages. Almost no StGrantee in the interview sample has less than two stays abroad in their curriculum vitae, often for extended periods of time, and often at highly renowned institutions in the UK and the USA like Oxford, Cambridge, Stanford or Harvard. Some had received prestigious scholarships like the Humboldt Scholarship or the Marie Curie

Scholarship, and some came from very prestigious laboratories, for example laboratories of Nobel Prize winners. In conjunction with a high-level publication record this creates a promising track record, which is essential for being awarded the ERC grant. However, as we have shown with our bibliometric analyses, this does not enable discrimination between approved and rejected StG applicants – the latter exhibit quite similar characteristics compared to their approved counterparts: they also have impressive track records, publication outputs, and international work experience. Both groups are very proactive, driven and successful at 'selling' their ideas and themselves as up-and-coming researchers and constantly on the lookout for all kinds of options, especially career and research funding opportunities. At least this seems to be the case for those interviewees who went through the second stage of the ERC selection process.

The most tangible differences between rejected and approved applicants appear to be slightly (un) fortunate timing or a 'lack of luck' in having a breakthrough publication just before or during the StG application process – a circumstance which the following quote taken from an interview with an StG recipient may impressively illustrate:

> *R: And then I had a bit of luck. And this luck came from the fact that just before the interview I had what is called a "feature" in [IMPORTANT JOURNAL]. (…) And obviously at the interview I did a Xerox copy of that paper and I just stapled it to my presentation. I didn't show it but it was stapled. Maybe it helped a little bit. And I had, in fact I was quite lucky because I had this thing in [IMPORTANT JOURNAL] and I had also been solicited to write a [ARTICLE FOR IMPORTANT JOURNAL] and it got out that week as well. So there was a bit of luck there: Well, maybe that guy, he's known appar ently. It could have not happened, but probably it helped. (Int10MG)*

Similar patterns amongst applicants to a highly prestigious funding programme with regard to a high level of strategic acting and leaving nothing to chance have been identified in the evaluation of the Emmy Noether Programme and labelled so-called "proactivity hypotheses" (see on this point Böhmer et al. 2008, p. 100).

As outlined in Section 4.1.1, "excellence" is by definition the sole criterion for the evaluation of StG proposals, applied to both the StG research project idea and the Principal Investigator's track record. Among approved and rejected interviewees there are some who actually wish to give the track record even more importance. One rejected applicant expressed this request as follows:

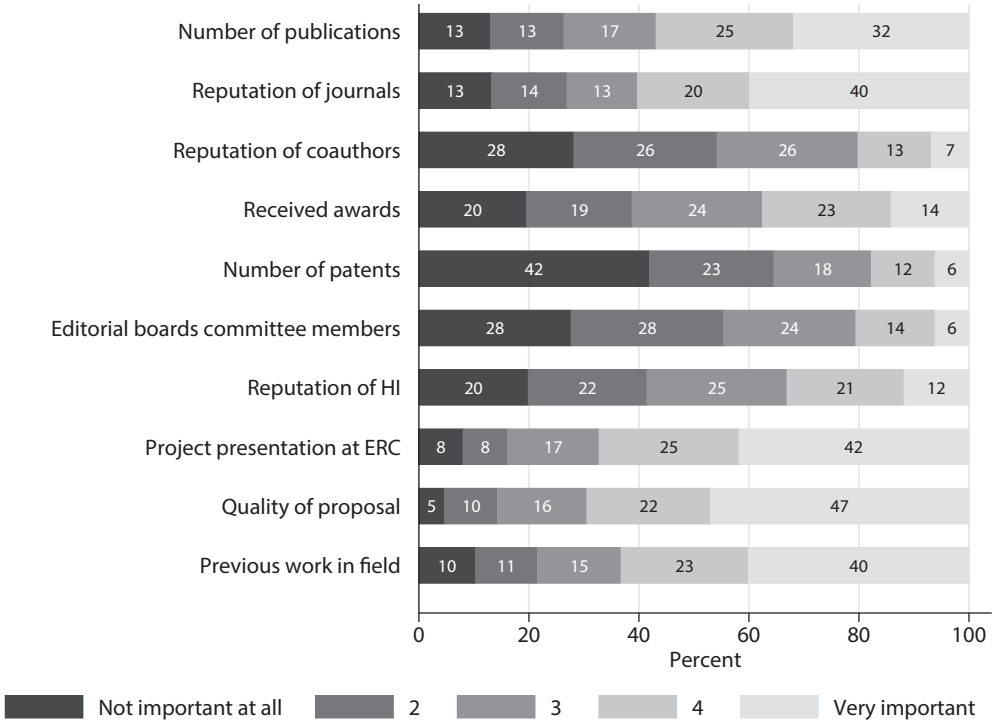
> *R: So the ERC does quite a good job, compared to any other EU funding body, of making excellence the main criterion. I mean I think they could do a better job in the sense of reducing weight on originality and putting more weight on track- record. (Int24MR)*

Against this view, other interviewees criticised the fact that in the ERC's two-step selection process the track record is given a slightly higher weight than the StG project proposal itself – especially given that the latter is only evaluated to a full extent if the second step of the selection process is reached.

> *R: […] but the problem is that they evaluate firstly my position and they made the evaluation on the basis of what they see now so they have not the possibility to read the entire project of the second step in which there was explained, models and theory and so on in which till now researcher have worked. And what is innovative and creative in this one. (Int21MR)*

As described by the StG recipients themselves, many of the funded StG project ideas share one of the following two characteristics: 1) multidisciplinarity (with respect to both the project idea and the Principle Investigator's scientific profile) and 2) transferral of existing techniques or research methods to new areas of application. These two characteristics are not only described as necessary elements of the project proposal by the applicants, but as strategies to secure success with the ERC StG application. Our survey results are fairly similar in this respect. Here, it is striking that aspects related to individual research and project performance – like the quality of the proposal, the project presentation at the ERC, and previous work in the field – are deemed most important by the respondents, whereas the number of patents and memberships in editorial boards or committees and co-authors are deemed less important as Figure 27 illustrates.

Figure 27 Influence of different factors on the evaluation of the proposal as preceived by StG applicants



Source: MERCI online survey (first wave survey), N=1,630 (number of valid answers ranges between items)

A principal components analysis provides more insights into the underlying structure of the assessment criteria: Table 23 reveals that from the applicants' point of view performance-related criteria do indeed explain a large proportion of the variance in the importance ascribed to the proposal evaluation criteria, but genuine publication performance in terms of the number of publications and the reputation of the journals represents only one dimension, which needs to be complemented by additional performance indicators such as awards, patents, or memberships of scientific associations which can serve as credentials of scientific recognition.

Compared to performance-related criteria, reputation plays a less relevant role in explaining variance in the evaluation of the applicant's proposal. Unsurprisingly, the reputation of the host institution is perceived as a criterion for the evaluation of the proposal which is independent of individual

performance and explains less variance than performance-related criteria. However, the reputation of co-authors has been identified as a separate factor which is independent of genuine publication performance and underscores that StG applicants obviously make a clear distinction between indicators identifying their own scientific performance and merits and indicators related to reputational factors which are externally attributed to a particular institution or specific researchers.

Individual performance and external ascriptions of reputation aside, the StG project idea has been identified as a third factor which explains 15 percent of the variance and hence much less than the genuine performance indicators. This factor is represented by the quality of the proposal but also by previous work experience in this field.

Table 23 Principal components analysis (PCA) of criteria deemed relevant for the evaluation of the StG proposal

Factor	Item	Factor loading	Explained variance
Publication performance	Number of publications	0.652	23.6%
	Reputation of journals	0.624	
Other performance indicators (not related to publications)	Awards received	0.430	20.9%
	Number of patents	0.668	
	Membership in editorial boards and committees	0.577	
Project idea	Quality of proposal	0.869	15.0%
	Previous work in field	0.484	
Host institution	Reputation of host institution	0.987	11.4%
Co-authors	Reputation of co-authors	0.977	11.2%

Source: MERCI online survey (first wave), item for oral interview has been excluded because it has not been applied to all applicants (N=896)

Note: varimax rotation, number of factors restricted to five, average Kaiser-Meyer-Olkin measure 0.833 indicating high sampling adequacy to perform PCA

The interview data provides ambiguous evidence about the role of the previous work in the field of the StG project. Some interviewees reflected critically on the 'novelty' of funded StG projects: on the one hand, broad work experience and corresponding output is regarded as necessary proof of the StG applicant's experience in the research field. On this point we can regard the StG project idea as part of an individual research programme established by StG applicants on the basis of their PhD, implying that postdoctoral researchers pursue their cognitive career by continuing their PhD topic and broaden the research by expanding new questions or new methods (cf. on this point Laudel, Gläser 2008, pp. 397f.). On the other hand, precisely these circumstances are sometimes considered the cause for a rejection. Approved applicants in particular reflected on how pioneering the StG project ideas are required (and 'allowed') to be. One StG recipient reported the advice he received from former grant winners regarding the term "groundbreaking frontier research":

> *R: So it is very strange using the word frontier research, so I asked a few colleagues who won during the first year whether, how much it is frontier because I can have really dreams, but not sure if I can fulfil it. And they said that you need to stand on the ground. So you cannot promise anything you wish because your colleagues will evaluate you. So that's very, very important that they should believe that you can do what you promise. I think it's very important.*
> *I: Standing on the ground means... that you know that you can do it?*
> *R: Yes, exactly.*

I: And frontier would be what, for example?
R: The origin I think in the call there is some sentence which requires that this project should change the world - it's a kind of a really fancy sentence. But if you take this seriously then you can start to dream about projects which can be too risky to be feasible and my general experience now with grant agencies and other peoples' experience is that you really need to work on the most difficult and most important question on your field and not to jump here or jump there. (Int31MG)

Another StGrantee argued that the ERC presumably is more likely to fund mere continuation of research rather than truly groundbreaking and pioneering frontier research projects given that continuation is more calculable and, thus, more 'worthwhile' investing in. In contrast, work that genuinely explores new ideas can fail easily, cannot be planned in detail and is rather challenging to present within the scope of a project proposal. In the perception of this interview partner, the ERC aims to avoid the possibility of potential failure of projects and accordingly ranks proven excellence, as measured by track record, more highly than the originality of the proposed project idea. In this context he emphasised:

I: Why do you think your project was chosen?
R: Well, I think the main reason is the track-record. What have you published, where do you come from? (…) I don't believe that it's possible to judge a really innovative application in terms of: Is it good? Is this going to work? Is it going to produce results? What essentially the task of the evaluation is supposed to be. But I think this is really hard to accomplish.
I: And why is that?
R: Because science is not predictable. (…)
R: In the sense of real discovery. There is progress and there is real discovery.
I: And, what the ERC wants is real discovery?
R: Yes. But what it rewards is progress. And, for that there is no alternative, I don't blame them, there is no other way. (Int16MG)

With respect to the factors deemed important by applicants themselves concerning the evaluation of the StG proposal, the role of the institution's reputation and the role of awards are assessed ambivalently (Figure 27). When focusing on the role of the host institution, our survey data indicates that the reputation of the institution is not the most important criterion in the evaluation process. However, it is perceived as an influential factor by the group of approved applicants in particular. One may thus raise the question of whether approved applicants just retrospectively ascribe this importance to institutional reputation or whether they utilise the reputation of an institution as a strategic asset for their StG application. At least some remarks gathered from the qualitative interviews are in line with this assumption. In the perception of the vast majority of our interviewees, the prestige of the (potential) host institution plays an important part in the success of their proposal. One rejected applicant remarked that he plans to use his current host institution for his next StG application, because it has a much better reputation than the university he wanted to choose as a host institution in his first StG application. Interestingly, the interviewees brought another factor into play with regard to institutional prestige: at very prestigious institutions (such as the University of Cambridge or the University of Oxford) being awarded an ERC StG is not necessarily greeted with the same enthusiasm as elsewhere. Here, obtaining this kind of funding is simply what is expected from a member of the institution, and will not attract enthusiastic attention or any additional rewards. This understated attitude towards excellence is obviously an important and stimulating structural characteristic of highly successful StG host institutions.

In conclusion we cannot say what role the reputation of a host institution actually plays in the ERC selection process. But from another CSA project we at least know that the university ranking of the host institution seems to be a very important factor for an StG proposal being approved or rejected (cf. DBF 2013, p. 74).[52]

4.2.2 Overall assessment of the evaluation process

In the first wave survey, conducted roughly one year after the StG application, the respondents were asked to assess the ERC evaluation process according to seven criteria. The criteria are intended to reflect different dimensions or stages of the evaluation process ranging from the organisation of the applications and the review process to contracting after a positive evaluation. Moreover, it included a general item which relates to the overall set-up of the evaluation procedure.

A principal components analysis of the criteria (excluding the "capture all" item) confirms the underlying three-dimensional structure of the assessment dimensions. Table 24 reveals that the administrative organisation accounts for roughly a third of the variance in an assessment of the evaluation procedure while the review process accounts for 28 percent. This suggests a quite balanced contribution of formal-administrative and review-related criteria to the overall satisfaction with the evaluation procedure and that consequently equal priority should be given to both factors when striving for further improvements.

Table 24 Principal components analysis (PCA) for the assessment of the StG evaluation procedure

Factor	Item	Factor loading	Explained variance
Organisation of the application process	Swiftness of the evaluation process	0.599	35.7%
	Information given on the status of the evaluation process	0.652	
	Documentation of the evaluation process provided by the funding agency	0.458	
Review process	Composition of the review panel	0.735	28.4%
	Quality of the evaluation report on the proposal	0.658	
Contractual negotiations	Process of contract negotiations with the funding agency after the funding decision	0.995	17.0%

Source: MERCI online survey (first wave), only approved applicants included (N=550)

Note: varimax rotation, number of factors restricted to three, average Kaiser-Meyer-Olkin measure 0.829 indicating high sampling adequacy to perform PCA

Subsequently, we focus on the applicants' assessments in more detail. Overall, as Table 25 reveals, this process is assessed fairly positively from the beginning by all three surveyed StG cohorts, whereas for the StG 2009 call the review process and contractual negotiations were especially criticised. On average, the two factors assessed most negatively (though still deemed satisfactory) across the StG cohorts concern the quality of the evaluation report and the information given on the status of the evaluation process.

52 The DBF project ("Development and Verification of a Bibliometric Model for the Identification of Frontier Research") was carried out between 09/2009 and 02/2013.

When we look more closely at the assessment across the three StG cohorts, a quite positive trend is observable for almost all factors, with the strongest improvement between the StG 2009 and 2010 calls for application: indeed, all factors are assessed considerably more positively by the StG 2010 cohort than the StG 2009 cohort, with the largest improvement with respect to the composition of the review panel. Here, it is especially striking that despite the positive trend for the second step of the selection process, namely the interview, the quality of the written evaluation report is still perceived as the most critical factor – even though for the 2011 call and across all cohorts it was assessed most heterogeneously. The figures also suggest that contract negotiations between the ERC and the host institution have run much more smoothly over the course of time.

In general, the assessment of the ERC evaluation procedure for the StG 2010 and 2011 calls remained largely stable. Here – similarly to the supporting infrastructure discussed in Section 3.3 – we would expect that substantial changes already took place between the very first StG call in 2007 and the second one in 2009.

Table 25 Assessment of the ERC evaluation process across StG cohorts

	2009 call		2010 call		2011 call		Total		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	N
Swiftness of the evaluation process	3.33	0.96	3.52	0.95	3.52	0.95	3.46	0.96	1,687
Information given on the status of the evaluation process	3.04	1.11	3.39	1.04	3.36	1.04	3.26	1.07	1,695
Documentation of the evaluation process provided by the funding agency	3.40	1.01	3.66	0.93	3.64	0.99	3.57	0.99	1,688
Composition of the review panel (if an interview took place)	2.90	1.02	4.04	0.93	4.03	0.85	3.54	1.10	665
Quality of the evaluation report on the proposal	2.92	1.25	3.40	1.22	3.19	1.26	3.17	1.26	1,686
Process of contract negotiations with the funding agency after the funding decision (only approved applicants)	2.87	0.96	3.66	1.18	3.73	1.11	3.41	1.16	560

Source: MERCI online survey (first wave survey)

Note: five-point scale ranging from 1 "Very poor" to 5 "Excellent"

Unsurprisingly, across all dimensions approved applicants tend to assess the selection procedure more positively than their rejected counterparts – a finding which is in line with findings from other evaluation studies (see for example Böhmer et al. 2008, p. 55). The largest differences between the two groups can be observed with regard to the quality of the proposal's evaluation report and the overall set-up of the evaluation procedure. Moreover, our interview data does not specifically corroborate differences between approved and rejected StG applicants with respect to the assessment of the ERC evaluation procedure: critical points and positive feedback were raised by both groups. None of our rejected interviewees explicitly felt 'mistreated' by the ERC funding decision.

4.2.3 Assessment of the review process

It is noteworthy that 19 of our 40 interviewees were rejected in 2007 and that 16 of these 19 reappliers were awarded the StG on their second attempt. Nearly all of them reapplied with an improved version of their former proposal and they emphasised the expertise of the reviewers and the high quality of the reviews accordingly. Moreover, in our interview study it was revealed that the number of reviews obtained by the ERC is assessed as quite impressive and that critical remarks by the reviewers are given high importance. StG applicants apparently often took these points of criticism into consideration when preparing further applications or, if granted, implemented them into the StG project. Especially for the reappliers, the review report appears to be extremely helpful for improving the second StG proposal. The reviewing process and the access to the reviewers' comments have the side effect of improving applications for the subsequent StG calls accordingly. This finding is all the more noteworthy when we compare it with the survey findings gathered from a Scientists Survey in Austria (cf. on this point Neufeld et al. 2014): here, *inter alia*, respondents were asked to assess the reviewers' comments from the Austrian Science Fund (FWF).[53] Interestingly, only 28 percent of the professors and 31 percent of the postdocs assessed the reviews as "helpful/extremely helpful". The majority of professors, assistant professors, postdocs and even respondents without a PhD rated the reviews as not very helpful or as neutral (see p. 85 in the appendix of tables in Neufeld 2014).

Some interview partners critically pointed out that the reviewers are sometimes too bound by the status quo and fully subscribe to established lines of thought, meaning they miss new approaches and dismiss them for being irrelevant or too risky or infeasible. Furthermore, problems seem to occur when an StG project proposal is so 'out of the ordinary' that no appropriate reviewer can be found or when there are diverging views between the applicants and reviewers. For instance, one interviewed StGrantee remarked that he and his reviewer disagreed on the question of whether the phenomenon to be explored exists or not and whether this phenomenon can be targeted by research at all. In the interviewee's opinion, the reviewer simply refused to take the opposing view into account, which led to a very negative review.

In contrast to the overall fairly positive estimation of the external reviewers, the work of the panels and the panel members as well as the personal interview in Brussels are assessed less enthusiastically. Firstly, some of the questions raised by the panel members are regarded as inconsistent by the interviewees: the necessity and contribution of a pre-existing team and its treatment in case of an ERC funding decision is controversial. Sometimes already being established or fully funded counts as an argument for, sometimes as an argument against a successful funding decision; in some cases preliminary results and publications on the topic are required, in other cases not, etc.

> *R: I think it's inappropriate to ask somebody: Well, you're at [Host Institution], why do you need more funding? I think that's wholly inappropriate. I think the point of the ERC grant is to award excellence, and excellent institutions like [Host Institution] are going to have the infrastructure to enable excellence. That does not mean that other institutions will not enable excellence but it's done in a different manner and I think to kind of hold somebody to a higher degree of what is excellence is an inappropriate concept. (Int22MG)*

53 To be precise, respondents were asked to assess to what extent the reviewer's comments, criticism and notes helped them to improve their research or research proposal on a five-point scale ranging from 1 "not helpful at all" to 5 "extremely helpful".

R: Yeah, they said it was a really... it was a very grand idea, grand challenge which would fit with the EU's idea of funding these things but there's not much in the way of preliminary results.
I: Ok, you said that already.
R: That's the bit that killed it, I think. So I think if I... if I had students and time to build some results up, then I think it would have been, it may have been more successful. May have got to the next round. (Int33MR)

Secondly, those panel members who are not proven experts on the research topic (as proposed by the StG applicant) apparently often rely on questions raised in the external reviews – this seems to be especially the case for multidisciplinary projects. Some interviewees hence questioned the ability of the panel members to comprehensively assess their answers. Two quotations taken from the interview study should serve to illustrate this issue. One StG recipient told us:

R: (…) But, err, and then the interview… I think I liked the interview. It was really short but in my case I had an interdisciplinary proposal and the panel was [A DIFFERENT FIELD OF] Science, so err the panel they told me that they didn't really know much about my field. That's ok. But umm, I mean their questions were ok. I think they used the questions raised by the external reviewers. So I'm not sure how they could really assess my answers, but… umm… (Int04MG)

Another interviewee (rejected StG applicant) reported in this context:

I: Tell me about the interview.
R: I didn't like it. (laughter) The impression I got was, umm, first I think my referee in the committee wasn't in the room. I know that there was one person in the committee who is a very famous [RESEARCH TOPIC] person, so it would have been logical that that person was my internal referee. That person was at a meeting, she wasn't in the room. So I think that was problematic. So I entered the room and I made my presentation. They looked bored but I think when you see people in a row it's hard to look a bit... And then at the end I had one guy with a piece of paper with three questions written on this paper and he just asked it in the most neutral, you know, in the most neutral tone that you can imagine and I was completely unsettled by that because I felt, you know, uninterested, basically. Uninterested and nobody here to show, or to ask me things. You know these were very general questions, which– they were completely reasonable, I'm not saying they were not, but...
I: The questions were prepared before?
R: Yes. (…)
R: So, no I think he had questions prepared because there basically were three points that were from the referees that I read.
I: Yeah.
R: So, my understanding is that he got questions because the other referee wouldn't be there. She summarized three questions. (…)
I: And these three questions from the one person, was that all?
R: Yup.
I: No other questions?
R: No, it was less than the normal 20 minutes that...
I: That you would have had.
R: Yup. (Int25FR)

Thirdly, some applicants criticised the fact that panel members hold rather outdated views on the topic discussed in the StG proposal. One approved applicant emphasised that this applied to the chair of his panel: "This man is in his early seventies, and he is very well known. (…) And he holds scientific views that are thirty years old, and that are no longer state-of-the-art." (Int15MG)

Fourthly, some applicants articulated doubts about the perception of innovation by the panel members – doubts that were nurtured for instance by the impression that the innovative element of the StG proposal is perceived as dispensable while a mere improvement of a pre-existing method in the same proposal may be regarded as cutting-edge.

Fifthly, there is some criticism of the structure of the ERC panels. It seems that in some disciplines established disciplinary and subdisciplinary boundaries are reflected which may limit or hinder the submission and success of new project ideas. To give an example: a research subject might traditionally be seen as applied research rather than basic research even though this is a misconception of the actual state of the discipline, so that the actual development of the discipline would not be reflected in the panel structure nor considered in the choice of reviewers and in the reviews if this traditional view prevails.

> *R: Actually afterwards I checked that there were very, very few successful proposals in the field of software engineering. (…) I think they said that software... in a certain sense I made the impression that they regarded software engineering as a whole as not a foundational science. So basically, whatever you propose, maybe if there's something foundational in your actual field of software engineering and this was actually acknowledged by the reviewers of the project, so they didn't have problems with the novelty. Even in this respect it's... somehow I made the impression that finally that they didn't regard software engineering as such as foundational. So I...I really had no idea how I could twist the proposal in such a way that it... (Int30MR)*

Rather surprisingly, given the broad experiences and professionalism of StG applicants, the interview in Brussels was sometimes described as an intimidating or even terrifying experience – not necessarily attributed to the 'fine line' between possible success or failure, but to the following factors: signing the StG attendance list and having to read the names of the other candidates, having to meet the competitors (often acquaintances) in the waiting area before the interview, knowing that only a very few will succeed, the sheer number of panel members, the room location and the small size of the room, and the arrangement of seats and desks to create a physical confrontation between the panel members on the one hand and the applicant on the other.

In contrast, rather unsurprisingly other respondents found the interview in Brussels to be an entirely smooth and even enjoyable experience, and they were full of praise for the panel members. One StG recipient described her experience as follows:

> *R: Very good, very, very good and I was really impressed by the interview because I expected something very different, something much more bureaucratic, whereas it was really – I mean there were people really knowing what they were asking me. It was amazing. And among them there were people I could recognize from conferences where I'd been. I mean it was top, top, top people. (…) I was really impressed by the quality of the people that were judging us. It was amazing. (…)*
> *R: So yes, I had the feeling that it was the first time in my life that a project was really refereed by people who knew what they were doing.*

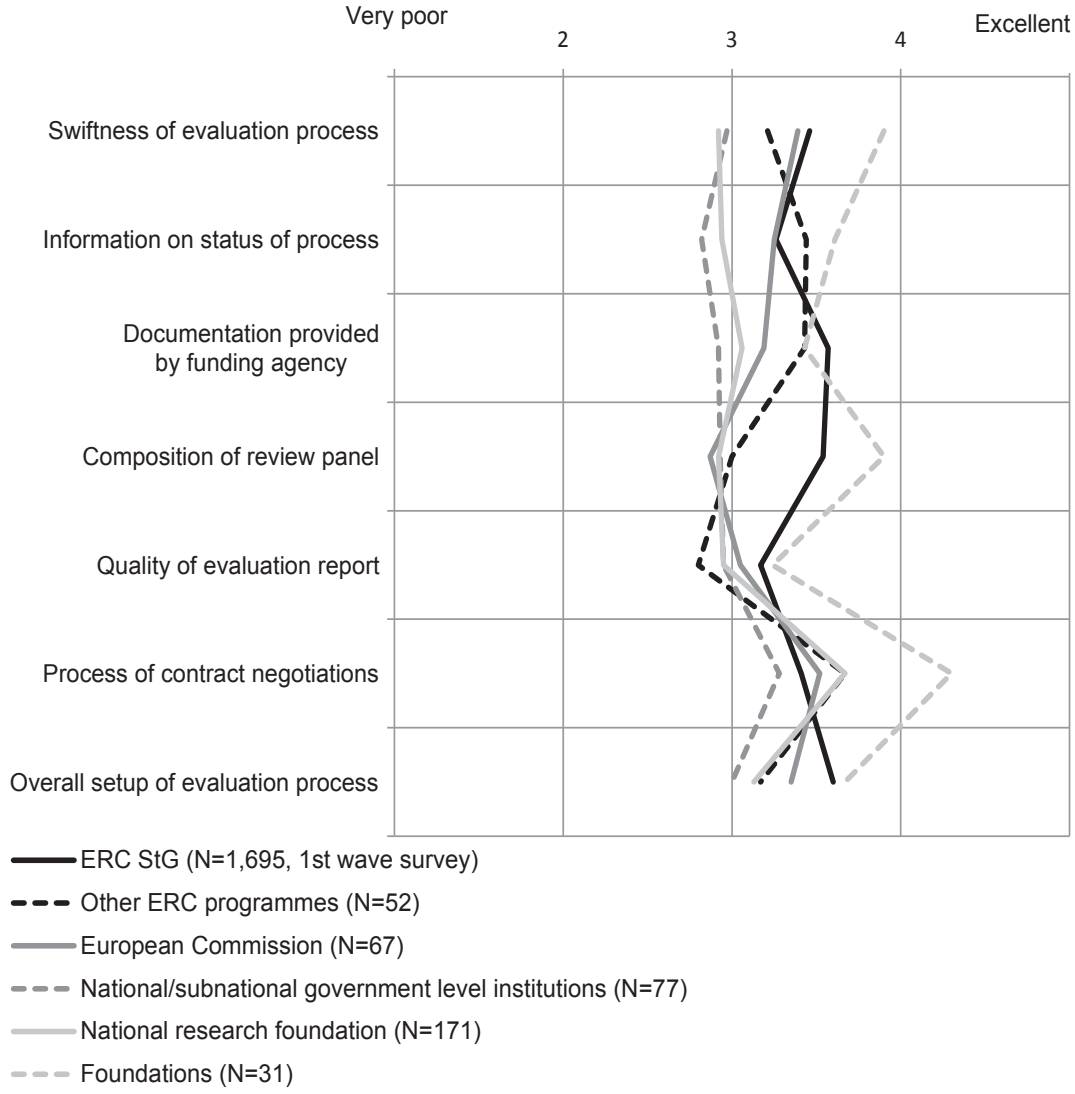
I: The first time?
R: Yes, I guess. Yes, I mean, it can happen, but even... yes, it was really... even though I didn't know whether they'd decided positively, I remember specifically going home, going back to [HOME] and saying: this trip was worth it because this is the first time that they're doing something serious. Then I don't know if they get me but it's extremely serious. Whereas with Marie Curies or similar you always have the impression that they are going to take a share, say, people from Italy because they need to take that share of people from Italy and here it was really different. (Int18FG)

4.2.4 Assessment of the ERC evaluation procedure compared with the procedures of other research funding organisations

The following section contrasts respondents' assessments of the ERC StG evaluation process with the procedures of other funding bodies. Data about other funding bodies was gathered from the intermediate survey for the StG 2011 cohort and from the second wave survey for the StG 2010 cohort respectively. In these surveys, respondents were asked to list further third-party funding applications since their StG. Out of these further applications, one was selected[54] and assessed with respect to its evaluation process. This assessment referred to the same criteria as the assessment of the StG.

54 The respondents were asked to select the application with the highest funding amount from their list of funding applications. Due to the fact that the respondents refer to different funding bodies and that each respondent could only rate one additional application, the number of assessments per funding body is of course much lower than for the StG programme. Funding organisations mentioned by the applicants were grouped as shown in the legend for Figure 28 (see footnote 8 for further explanation). Thus, the results presented below should be interpreted with utmost caution.

Figure 28 Assessment of evaluation procedures for StG programme compared to other research funding organisations



Source: MERCI online surveys: assessments of the evaluation of the ERC StG programme were gathered from the first wave survey; for other ERC programmes and other funding bodies information was gathered from the intermediate and second wave survey.

Note: five-point scale ranging from 1 "Very poor" to 5 "Excellent"

Figure 28 illustrates that, in particular, the evaluation procedures of foundations are perceived as very positive compared to other funding bodies, whereas national and subnational level governmental funding bodies (e.g. ministries) score lowest across all dimensions ranging from the organisation of the applications process through to the review process and contractual negotiations.

With regard to the *application phase*, the StG programme does not exhibit strong weaknesses but is instead characterised as average. While information provided in terms of documentation seems sufficient, in contrast to other funding agencies a need for improvement for the StG programme line probably consists in swift and transparent information about the status of evaluation process itself.

Interestingly, assessments of the two dimensions of the *review process* diverge quite strongly for some funding agencies: while the quality of the written evaluation reports is generally characterised as average across all funding bodies – with the foundations and the StG programme performing only marginally better – the composition of the review panel is assessed much more positively for the foundations and the StG programme. The question of why a substantial gap appears between the assessment of the evaluation procedure of the StG programme and other ERC programmes cannot be answered here.

As the above-mentioned findings showed, the assessment of the composition of the review panels for the StG has been quite volatile across time and research fields. As a consequence, one potential explanation for the quite positive assessment of foundations' review panels might result from their stronger disciplinary focus. In fact, most of the foundations approached by the StG applicants are focused on Life Sciences, which probably enable them to recruit reviewers in a more focused manner than would be possible for programme lines which are generally open for all research fields. However, given that this problem holds especially true for the StG programme, the comparatively positive assessment of its review panels suggests that the ERC has done a quite good job to date in selecting its reviewers.

5. Thematic focus III: the StG recipient at the host institution

Given that the StG programme aims to establish or consolidate a research group to independently conduct research at a host institution of the applicant's choice located in one of the EU Member States or associated countries, in this chapter we will explicitly focus on the StG recipient and his/her experiences with the host institution. Focusing on the relationship between StGrantees and their StG host institution seems particularly important against the background of the intensified competition between research organisations with respect to acquiring or retaining "excellent" (young) researchers (cf. on this point Section 3.3).

In this chapter we will paint a detailed picture of the implementation process and the working conditions at the host institution. Firstly, we will shed light on reasons for choosing an institution as an StG host institution and the corresponding mobility patterns of StGrantees. Secondly, we will focus on the implementation phase with special regard to the negotiations between an StG recipient and his/her host institution. Thirdly, we will elaborate on the StGrantee's integration into the host institution by also touching upon the question of how well the integration into existing institutional structures and hierarchies succeeds. Last but not least, we will give our attention to the perceived impact of the StG programme on researchers' working conditions.

5.1 Mobility patterns of StGrantees

Mobility plays an essential role in scientific exchange and the production of scientific knowledge (cf. for example Jöns 2003). Moreover, from an individual perspective mobility turns out to be highly relevant for building up or consolidating networks (Ackers 2005, p. 310). In addition, research stays abroad often serve as catalysts which strongly shape scientific careers (cf. e.g. Enders, Bornmann 2002; Melin 2004). However, mobility has often been found to serve as an "instrument" for improving career prospects rather than the actual start of a foreign country career (Musselin 2004; Cantwell 2011). In general, the increased numbers of research stays abroad and the internationalisation of academic staff corroborate the finding that international mobility has become a "biographical norm rather than an exception" (Bauschke-Urban 2010). Besides temporary and short-term mobility, foreign country careers have been deemed "an exception due to 'accidental' opportunities" (Musselin 2004), indicating that academic careers are still strongly oriented towards national career systems.

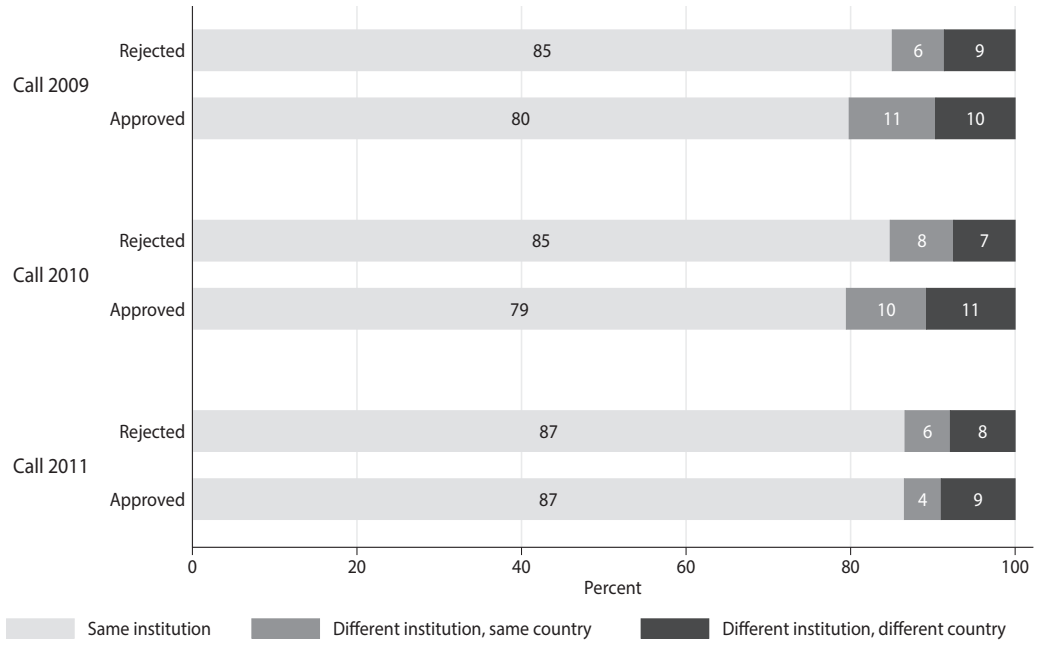
Thus, the question arises whether the StG funding does indeed facilitate foreign country careers in the medium term and whether the MERCI data does provide evidence for consolidating the ERA at the level of staff mobility. The fact is that the StG allows for mobility, but does not demand that researchers change their institution. While quantifying mobility patterns in terms of incoming and outgoing StG recipients at a national and institutional level (host country) has become a routine habit in the context of ERC statistics[55] which are used for national-level benchmarks, little evidence has so far been provided on the question of which factors actually drive researchers to either keep on working at the same institution or to leave it. Since mobility records at country level are already provided based on administrative ERC data, in this report we will primarily focus on the question of the extent to which mobility is driven by the desire to improve the working conditions for conducting "excellent" research. Here, the grant, in conjunction with the opportunity to carry out research at an institution of one's choice, creates a kind of quasi-experimental setting to study what role research conditions or specific institutional settings play with regard to attracting top researchers.

In order to explore mobility patterns at the level of StG recipients and their chosen host institution, *three patterns* have been defined:

1. "Same institution" refers to the situation where an StG applicant stays at the same institution from which he/she applied for the grant.
2. "Different institution, same country" refers to a situation where an StG applicant changes the institution to implement the grant, but remains in the same country and career system.
3. "Different institution, different country" refers to a situation where an StG applicant moves to a research institution outside the country in which he/she was working when initially applying for the StG.

55 See on this point the indicative statistics on the ERC website: http://erc.europa.eu/statistics-0

Figure 29 Mobility patterns of StG applicants (at time of application)



Source: MERCI online survey, N=1,637

Note: no significant differences with respect to mobility for approved and rejected applicants at the time of the StG application: Chi²=3.22 p=.199

The survey data suggests that the vast majority of StG recipients and rejected applicants remain at the same institution where they applied for the ERC funding and that the StG is utilised to improve the working conditions at their current institution accordingly (Figure 29). Since no significant differences between approved and rejected applicants appear ($Chi^2=3.22$ $p=.199$), we conclude that the StG hardly affects mobility patterns in general. As Figure 29 shows, the vast majority of the MERCI respondents prefer to stay not only in the same country where they were living when applying for the StG, but even stay at the same institution. Less than 11 percent of the StG recipients use the grant in order to move to an institution in another country. Our survey data suggests only slight differences between the three surveyed StG cohorts, and even suggests there is a slight decrease in mobility from the StG 2009 to the StG 2011 cohorts.

There are several conceivable reasons which might deter researchers in the (advanced) postdoc stage from seeking employment abroad or alternatively which might facilitate the decision to go abroad, or to return to their country of origin. In the following paragraphs we will focus on reasons which are specific to the postdoc stage, the relevance of personal mobility obstacles due to family obligations and country-specific patterns.

Mobility patterns by position

Although many efforts have been undertaken to abolish mobility obstacles and to create a European academic labour market (e.g. the "European Charter for Researchers"), career systems in the higher education sector are still oriented nationally and characterised by high formal incompatibility

(cf. Musselin 2004). The existing initiatives primarily strive to ensure formal compatibility and the recognition of degrees, employment periods, and professional experience, but – especially in advanced career stages – well-established procedures to ensure (re-)entry to national career systems are lacking (cf. European Commission 2004). The overall trend towards an immobility in the advanced postdoc stage may be attributable to the specific conditions of the postdoc period in the academic career: unlike the PhD period, when it is crucial to become acquainted with other research cultures and to build up an international network, in the postdoc phase being specialised, established and well connected seems most important. Postdoctoral researchers strive for a professorship and pool their strengths to obtain one. This means that mobility is not per se (as it is often considered) an 'utterly positive' or 'desirable' endeavour or one that is 'worth supporting'; it might also imply negative effects such as difficulties concerning the institutional (re)integration of returnees or the transfer of knowledge that has been gained. A Swedish study revealed that 10 to 20 percent of the postdocs assessed their research stays abroad as disadvantageous rather than advantageous because they feared a loss of productivity when changing research context or found that their positions had been occupied by other researchers in their absence (Melin 2005; see also Richardson, Zikic 2007).

Following the argumentation outlined above, those StG applicants who already hold a professorship are expected to be less mobile. Although the interview data suggests that positions play a crucial role in the decision to leave the current host institution, interestingly the survey data does not confirm a decreasing inclination to become mobile once a full or associate professorship has been obtained. However, as illustrated by Table 26, international mobility in particular is more widespread among respondents who have not yet obtained a professorship, which indicates that especially in advanced career stages it becomes more difficult to pursue one's career track in a distinct career system.

Table 26 Mobility at time of StG application across positions (in %)

	Position at time of application				
	Full/associate professor	Assistant professor/ group leader	Senior researcher	Researcher	Total
Same institution	88.5	84.94	88.3	84.2	85.7
Different institution, same country	5.3	5.71	3.5	7.4	6.1
Different institution, different country	6.2	9.3	8.3	8.5	8.2
Total	100.0	100.0	100.0	100.0	100.0
N	322	385	145	638	1,490
$Chi^2 = 6.6$ p = 0.356					

Source: MERCI online survey (first wave survey), approved and rejected applicants pooled

Moreover, it should be kept in mind that mobility here refers to a short time span of 1 to 1.5 years since the time of the StG application. During the time before receiving the StG, our survey data suggests that the StG recipients had been extremely mobile in earlier career stages. In addition, the interviews revealed that receiving the StG is instead seen as a *gratification* for previous international mobility. In fact, almost no StG applicant in the interview sample had less than two stays abroad in their CV. Moreover, many StGrantees expressed a sense of loyalty towards their institution and they often feel that they are already at the best place for their research needs.

However, this does not mean that StG applicants do not think intensively about the most suitable host institution, at least during the application phase; in their perception the prestige of the host institution plays an important part in the success of their proposal. For example, one rejected applicant highlighted that he plans to use his current host institution for his next ERC StG application because it has a much better reputation than the university he formerly wanted to choose as host institution in case of success (on this point cf. also Section 4.2.1).

Mobility patterns by country

As noted above, we are faced with the phenomenon that most StGrantees prefer to stay not only in the same country where they were living when applying for the grant, but even to remain at the same institution. This gives us reason enough to ask whether there are some specific patterns across our groups of countries. Table 27 shows that applicants living in Scandinavian countries in particular tend to stay at the same institution (90 percent), while those in countries classified as Transitional Eastern and South-Eastern European and Anglo-Saxon become mobile most frequently. Applicants from the Transitional Eastern and South-Eastern European countries tend to leave their country instead of moving to a different institution in the same country.

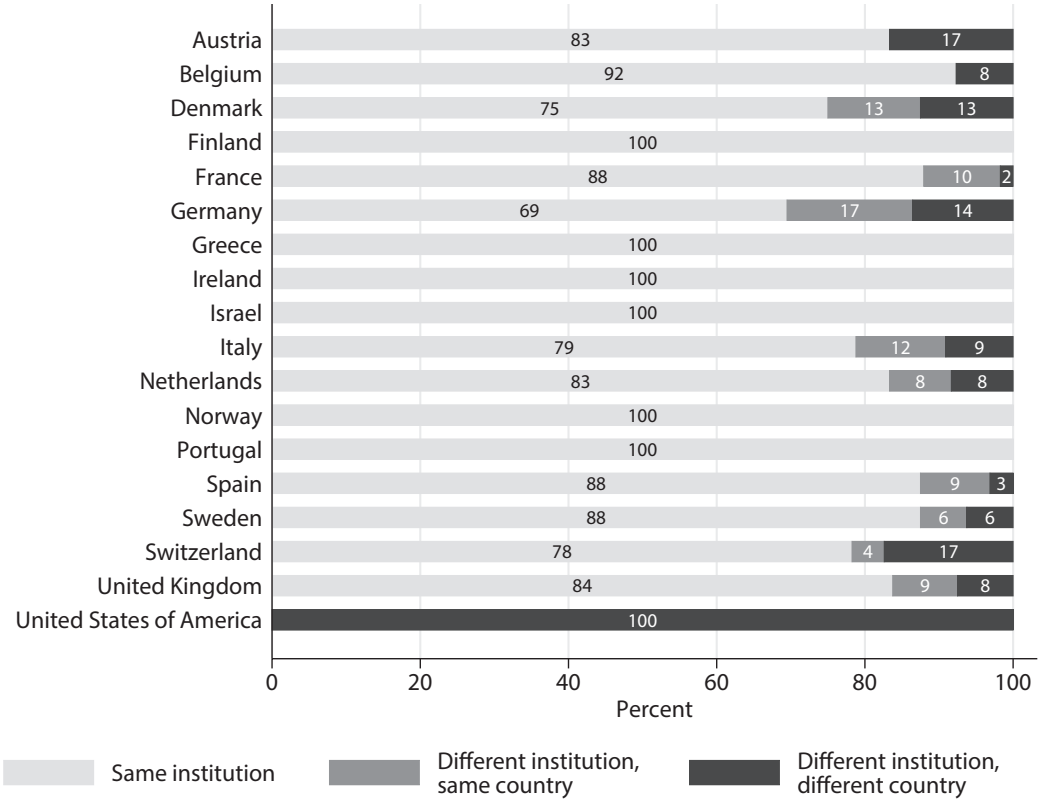
Table 27 Mobility at time of StG application across country groups (in %)

	Country during application (grouped)				
	European Continental	Anglo-Saxon	Scandinavian	Transitional Eastern and South-Eastern European	Total
Same institution	83.9	83.0	90.1	86.0	84.6
Different institution, same country	8.6	6.1	4.5	2.0	6.8
Different institution, different country	7.5	11.0	5.5	12.0	8.6
Total	100.0	100.0	100.0	100.0	100.0
N	758	446	201	100	1,505

$Chi^2 = 17.3$ $p = 0.008$

Source: MERCI online survey (first wave survey), approved and rejected applicants pooled

Figure 30 Mobility patterns of approved applicants by host country at time of application



Source: MERCI online survey (first wave), N=438, only approved applicants are included

Figure 30 shows that all StGrantees from Greece, Ireland, Israel, Norway, Finland, and Portugal remain with the StG at the same institution where they were employed before. Apparently, the ERC funding offers them a welcome opportunity to improve the conditions at their current host institution or to cope with the recent economic crisis and ensuing cutbacks in the higher education and public research sector. Furthermore, we can identify a second group of countries (Denmark, Germany, France, Netherlands, Spain, Italy and the UK) where the StG also enables mobility within a country and a third group of countries (Austria, Belgium, Switzerland) where receiving the StG is utilised to leave the current host country rather than seeking employment at a different institution there.

Due to the small number of cases no generalisable conclusions can be drawn about the mobility patterns of StG applicants for numerous other countries, but apart from Hungary it appears that moving to another institution within the host country was not a conceivable option. The extent to which mobility is driven by the desire to improve one's own research environment will be discussed in Section 5.2.

Personal reasons for immobility

Last but not least we need to take into consideration the family situation of StGrantees and the corresponding willingness or unwillingness to be mobile. As shown in Table 6, the average age of

our respondents is 37.6 years and roughly two in three respondents have children. Without a doubt, having children, especially of compulsory school age, may reduce the willingness to move (cf. Jöns 2003). However, the survey respondents with and without children differ only slightly with regard to the inclination to go abroad and not at all when it comes to mobility within a specific country. Interestingly, the difference is much more pronounced among the approved applicants than among the rejected ones: while 16 percent of the grantees without children leave their country of residence, only 7 percent of those with children do so. For the rejected applicants this difference only amounts to a slender two percentage points. We conclude, therefore, that the StG funding instead fosters mobility among those respondents who aren't bound to family obligations yet.

5.2 Choice of host institution[56]

As mentioned above, StGrantees are free to choose a host institution (EU or associated country) to set up or consolidate their own research group. Consequently, we are interested in applicants' criteria for choosing an StG host institution. As Table 28 reveals, familiarity with the research institution and its reputation are of utmost importance for the StGrantees' decisions. Overall, three in four StGrantees deem reputation an important or very important factor, but especially in the Humanities and in Life Sciences reputation counts for the most.

The reputation of an institution and the grantees' previous institutional affiliation seem to be crucial when it comes to choosing an StG host institution. Clearly less decisive factors are the host institution's proximity to the applicant's place of residence and whether it offers the best contractual conditions. "Receiving one's PhD from the institution" and "providing family support" also only play a minor role when it comes to choosing an StG host institution, as Table 28 shows.[57]

56 Since it is possible to change the StG host institution during the ERC funding period (grant portability), we need to point out that in this section we are first and foremost referring to the choice of the first StG host institution based on the survey data. The motivation to (potentially) change the host institution during the StG funding period is touched upon based on the interview data.

57 As the last column of Table 28 reveals, the share of missing values varies considerably across the distinct reasons and raises the question of whether this is due to the fact that the respondents do not have an opinion about these issues or else due to the fact that the reasons offered in the MERCI item battery are not deemed applicable. Alternatively, non-response here might result from social desirability which causes researchers to skip items which are not directly related to genuine research activities.

Table 28 Reasons for choosing the host institution (in %)

	Not important at all	Rather not important	Partly important / partly unimportant	Rather important	Very important	Total(N)
Reputation of host institution	6.1	5.0	15.0	27.3	46.6	100.0 (440)
Family support mechanism/dual career	66.6	9.3	8.8	7.3	8.0	100.0 (386)
Worked there before	20.1	3.2	5.9	11.2	59.6	100.0 (438)
Did PhD there	73.0	6.2	8.9	4.9	7.0	100.0 (370)
Best contractual conditions	34.5	13.5	21.1	16.5	14.5	100.0 (394)
Best research infrastructure	14.5	5.7	19.2	26.1	34.6	100.0 (422)
Close to place of residence	45.7	12.6	10.9	16.0	14.9	100.0 (350)
Contacts among researchers there	15.5	6.8	12.9	24.0	40.7	100.0 (425)

Source: MERCI online survey (first wave survey)

Note: only approved applicants included

Familiarity with the institution in terms of previous work experience or contacts among researchers are crucial criteria for selecting the host institution (especially for the majority of non-movers, as will be discussed below) but clearly the attachment to the institution is not directly related to the fact that researchers obtained their PhD at the same institution. Compared to existing relationships and institutional reputation, research infrastructure is deemed slightly less important. Moreover, contractual conditions to be negotiated based on the StG funding do not, in particular, score highly. One third of the respondents regard them as completely unimportant for their decision, which would contradict the hypothesis that excellent research and employment conditions are a conditio sine qua non for attracting researchers and instead suggests that familiarity with the institutional setting might compensate for potential deficiencies with regard to contractual conditions or the research infrastructure.

How do reasons for choosing the host institution differ between mobile and non-mobile StGrantees?

Comparing StG recipients according to mobility patterns and reasons for choosing their host institution shows that, in particular, those who selected their host institution due to its good reputation, optimum contractual conditions and optimum research infrastructure not only moved to another research institution, but also more frequently moved to another country to implement their StG project. The strongest mean differences appear with regard to the individual contractual conditions, which suggests that moving to different countries might first and foremost be related to the desire to improve individual employment conditions. In line with this rationale, familiarity with the future host institution and well-established contacts among researchers are ranked as less important reasons by mobile researchers. Furthermore, for those who keep on working at the same institution

after receiving the StG, family support plays a minor role. In contrast, this factor appears more relevant for StGrantees who changed their research institution within the same country and especially for those who changed both the institution and the country.

Table 29 Reasons for choosing the StG host institution by mobility type

	Same research institution			Different research institution, same country			Different research institution, different country		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Reputation of host institution	4.01	1.18	357	3.94	1.22	36	4.27	1.07	45
Family support mechanism/dual career	1.71	1.23	312	1.91	1.47	33	2.59	1.63	39
Worked there before	4.20	1.36	362	2.47	1.78	36	2.08	1.70	38
Did PhD there	1.72	1.26	296	1.46	1.12	35	1.47	1.20	38
Best contractual conditions	2.49	1.41	315	3.09	1.54	34	3.27	1.48	44
Best research infrastructure	3.56	1.37	340	3.63	1.59	35	3.87	1.32	45
Close to place of residence	2.49	1.55	314	1.80	1.28	35	-	-	0
Contacts among researchers	3.77	1.39	344	3.14	1.72	37	3.31	1.57	42

Source: MERCI online survey (first wave survey)

Note: only approved applicants included

Changing the host institution during the ERC funding period

It is fundamentally possible to change the StG host institution during the ERC funding period (*grant portability*). Our analysis of the interviews suggests that the change of an StG host institution mostly occurred after the implementation at the first StG host institution and that this change was not (necessarily) planned at the time when applying for the grant. Quite a few MERCI interviewees received offers from other institutions (in other countries) after receiving the StG and after implementing the grant at their (first) StG host institution – a circumstance which the StG recipients ascribe to the high reputation of the ERC grant. The quotation below provides an insight into this practice of 'headhunting' StGrantees:

> *R: I have had offers, yes. Actually I've had a lot of offers which I up to now always declined. Would it be a probability? Yes. It would have to be a very good offer. (laughs) A very good university. (…) But to say that a good offer comes along, I would consider it, yes.*
> *I: So the offers you received up to now were not good enough?*
> *R: No. No.*
> *I: And where did you get these offers from? Which countries?*
> *R: The UK, the US, the Netherlands and France. (Int36MG)*

From our interviews we also know that Swiss institutions in particular 'headhunt' StG recipients from other countries and that Belgian universities follow a kind of 'non-rivalry policy' with respect to not enticing StGrantees away from another Belgian university.

Moreover, the interview data indicates that a change of host institution has less or nothing to do with the StG project itself but mostly has to do with the career prospects of the individual StGrantee

– first and foremost in terms of the improvement of his/her position, i.e. in order to obtain a tenured position or a professorship. Thus, this kind of mobility is a result of either better prospects elsewhere or, alternatively, of not having gotten what was promised by the first StG host institution. The interview data reveals a tendency towards three different practices with respect to changing host institution *during* the ERC funding period:

1. Change of the StG host institution in spite of high satisfaction with the current institution caused by an attractive job offer (professorship or tenured position) from another institution (active recruitment by another institution or 'headhunting').
2. Change of the StG host institution due to personal conflicts at the first institution.
3. Change of the StG host institution due to a successful appointment to a professorship/ improved position at another institution.

5.3 Implementation at the host institution

In order to further analyse the relationship between StG recipients and their host institution, we will now examine experiences with regard to implementation at the chosen institution with special regard to the contractual negotiation phase and the integration of the Principal Investigator and his/her research group.

5.3.1 The contractual negotiation phase

According to the survey data only one in ten StGrantees negotiated with more than one (potential) institution about hosting them as an StG recipient. Our survey data suggests that the bulk of respondents negotiated with only one institution, which corroborates the assumption that StG recipients already knew rather precisely where they wanted to go with their ERC grant. Furthermore, we wanted to shed light on the factors that were negotiated between the StGrantee and his/her host institution. Table 30 provides an overview of the corresponding survey findings.

Table 30 Factors negotiated with the host institution during the contractual negotiation phase

	$N_{responses}$	In %
Budget funds	133	35.7
PhD examination	108	29.0
Laboratory space*	144	38.6
Office space	222	59.5
Research assistance	115	30.8
Group integration	171	45.8
Long-term career	171	45.8
Teaching load	135	36.2
Additional benefits	88	23.6
Relocation expenses	71	19.0
Family allowances	18	4.8
$N_{responses}$	1,376	368.9
N_{cases}	373	

Source: MERCI online survey (first wave survey)

*Note: percentages are calculated based on cases but due to the fact that multiple answers were possible, the cumulative percentages exceed 100 percent. *This item was not included in the questionnaire for the StG 2009 cohort.*

As Table 30 shows, the most important factor negotiated between StG recipients and their host institution is office space, followed by long-term career opportunities (such as for example a tenure track option) and the institutional integration of the StG research group. In addition, laboratory space, teaching load, budget funds, the right to examine PhD students and research assistance are fairly common objects of negotiation. With respect to office/laboratory space, we additionally know from our interview study that StG recipients may actually face the problem that even though they have the ERC money to hire staff for their StG research group, they do not have the office/laboratory space to host these staff members.

Who negotiates what?

When it comes to the negotiation behaviour of StG recipients we are faced with a number of special features depending on characteristics such as the respondent's position and his/her host country, mobility pattern or research field. Some of the differences are rather trivial and intuitively comprehensible – for instance the demand for relocation expenses in case of an institutional change

or the higher demand for laboratory space in Life Sciences – but some findings are quite revealing and surprising.

Table 31 provides a synopsis of differences in negotiation behaviour by outlining relevant differences in terms of percentage points. It seeks to provide answers to the question of whether negotiation behaviour is a matter of individual habits, organisational "degrees of freedom" or disciplinary cultures. The synopsis reveals that negotiation patterns first and foremost differ across countries and research fields, while the respondents' position and gender are less relevant, which will subsequently be illustrated by selected examples.

Table 31 Synopsis of differences in negotiation behaviour according to selected characteristics

	Gender	Professor-ship	Change host institution	Research field	Host country[a]	Call
Budget funds	+	+	+	+++	+++	0
PhD examination	+	0	+++	++	++	+
Laboratory space	0	++	0	+++	+++	+
Office space	+++	+	+++	+++	+++	0
Research assistance	+	+	+	+++	+++	+
Group integration	++	0	+++	+++	++	++
Career prospects	+	+	+++	++	+++	+++
Teaching load	+	0	0	+++	+++	++
Additional benefits	0	+	++	+	+++	0
Relocation expenses	0	0	+++	++	+++	0
Family allowance	0	0	++	+	++	0

Source: MERCI online survey (first wave survey)

Note: difference in percentage points + 5–10%, ++ 10–15%, +++ > 15%; a refers to a comparison of France, Germany, Italy, Spain, and the UK since for these countries a sufficient size of subgroups is available (N>30).

Contractual negotiations are most common in Life Sciences and least in Engineering while the other research fields take an intermediate position. The strongest differences between research fields appear with regard to teaching load, integration of the StG research group, additional budget funds and, unsurprisingly, laboratory and office space. 58 percent of the StGrantees in Social Sciences and Humanities negotiate their teaching load compared to roughly a third in the other research fields. In contrast, additional budget funds are of minor importance in Social Sciences and Humanities (23 percent), while almost one in two Life Scientists negotiate with respect to additional financial resources.

Furthermore, changing the host institution is apparently associated with a stronger need to make demands. In comparison to those remaining at the same institution, those who establish their StG research group at another institution negotiate significantly more often with respect to the research group's integration, the right to examine PhD students, and office space. They apparently have a much stronger need to create the preconditions for their work as an StG research group leader than those who have already established their standing at an institution.

Differences in negotiation behaviour across countries

While it is comparatively common to negotiate additional budget funds in Germany (38 percent), Spain (35 percent), or the UK (30 percent), almost none of the StGrantees in Italy and only a small proportion in France (12 percent) do so. Furthermore, while the teaching load is a subject of negotiations for almost half of the StG-holders in the UK, only 10 percent in France and less than a third in the remaining countries negotiate with regard to this factor. Office space is commonly negotiated in all five countries, with numbers ranging from 43 percent of the StG-holders in Germany and the UK to 74 percent in Italy. Family allowances are almost never a topic of negotiation.

Table 32 Factors negotiated with the host institution during the contractual negotiation phase by country (in %)

	France	Germany	Italy	Spain	UK	Total
Budget funds	11.7	37.7	2.9	35.3	30.0	24.5
PhD examination	16.7	24.5	26.5	23.5	22.5	22.2
Laboratory space	38.3	24.5	38.2	47.1	23.8	32.2
Office space	45.0	43.4	73.5	58.8	42.5	49.4
Research assistance	28.3	22.6	29.4	35.3	17.5	24.9
Group integration	35.0	28.3	50.0	44.1	38.8	37.9
Career prospects	16.7	17.0	32.4	38.2	35.0	27.2
Teaching load	10.0	15.1	29.4	32.4	47.5	28.0
Additional benefits	21.7	28.3	26.5	23.5	13.8	21.5
Relocation expenses	10.0	24.5	5.9	17.7	15.0	14.9
Family allowance	5.0	7.6	5.9	0.0	2.5	4.2
Total in % (N=261)	238.3	273.6	320.6	355.9	288.8	287.0

Source: MERCI online survey (first wave survey), refers to a comparison of France, Germany, Italy, Spain and the UK since for these countries a sufficient size of subgroups is available (N > 30).

In general, the inclination to negotiate – measured by the overall number of factors which were subject to contractual negotiations – is least pronounced in France and most strongly pronounced in Spain and Italy.

Negotiations as a new challenge for researchers?

With reference to the qualitative pre-study, successful applicants from the very first StG call might not have been aware of the opportunity to negotiate contractual conditions at the StG host institution. In fact, in most cases no negotiations between StGrantees and their host institution took place, as the initial interviews reveal. Furthermore, open answers from the respondents from the StG 2009 cohort hint at the fact that even for the second StG call in 2009, many of the successful applicants were apparently *not aware there was even the possibility of negotiating with their StG host institution.* Below, we have listed some typical statements gathered from these open answers:

> *I really wished I had negotiated lab space. This would be a good advice to give to candidates.*

> *No, but I would like to point out that, in retrospect, I should have negotiated much more clearly what*

would happen to me after my tenure track-like period.

There was no negotiation possibility with the host institution. They accepted the grant, but no extras for me. Not even a discussion!

The last statement also reveals that 'space' for negotiations might differ across specific institutions or countries.

A comparison of the StG 2009, 2010, and 2011 cohorts indicates that the overall intensity of negotiations remained roughly stable. However, some shifts in priorities can be observed: while negotiating teaching load gained substantially in importance (+14 percentage points from 2009 to 2011), other like long term career opportunities (-21 percentage points) and group integration (-14 percentage points) have significantly lost in importance over the course of time.

As Table 30 depicts, the formal integration of the StG research group is a 'hot issue' to negotiate. However, when we consider our three surveyed StG cohorts (2009 until 2011) separately, we observe that this aspect has been less negotiated over the course of years: In the context of the 2009 call, 56 percent of the StGrantees negotiated about the integration of their group whereas this share decreased over the course of the following two calls to 42 percent. So, we may question whether negotiations the StG research group's integration become more and more unnecessary because the institutions already offer an agreeable setting and desirable conditions. Moreover, we are faced with a similar effect with regard to the long-term career prospects/tenure-track options, which have apparently also become less relevant for negotiation across the StG cohorts: whereas three in five StGrantees explicitly negotiated with regard to career prospects in 2009, this proportion diminished by 20 percent in the course of the following two years.

As a consequence, on the one hand we may, with respect to the increasing efforts to negotiate the teaching load, conclude that there is a 'learning effect' at the individual level, given that StG recipients are becoming more and more aware of their 'market value' and that they are able to learn from the experiences of StG colleagues from earlier StG cohorts. On the other hand, the decreasing efforts to negotiate with regard to the integration of the StG research group and long-term career prospects may be ascribed to the fact that research institutions are increasingly competing for the highly prestigious StG recipients and trying to offer them optimal working conditions. Our assumption, therefore, is that we are faced with a *process of learning and mutual adaptation by both StG recipients and StG host institutions*.

5.3.2 Integration into the host institution

The StG endows its recipients with a substantial amount of money which – according to the principle of the programme – is intended to allow the Principal Investigator to set up or consolidate his/her own research group in order to pursue his/her personal research agenda. However, whether and how the 'capital' provided by the StG is actually translated into increased independence and autonomy on the part of the Principal Investigators remains an open question. In contrast to national-level programmes like the Dutch Veni Vidi Vici programme, the German Emmy Noether Programme, or the Spanish Ramon y Cajal Programme, StG recipients are embedded in highly heterogeneous settings depending on national career systems (see Section 1.2). Thus, the StG

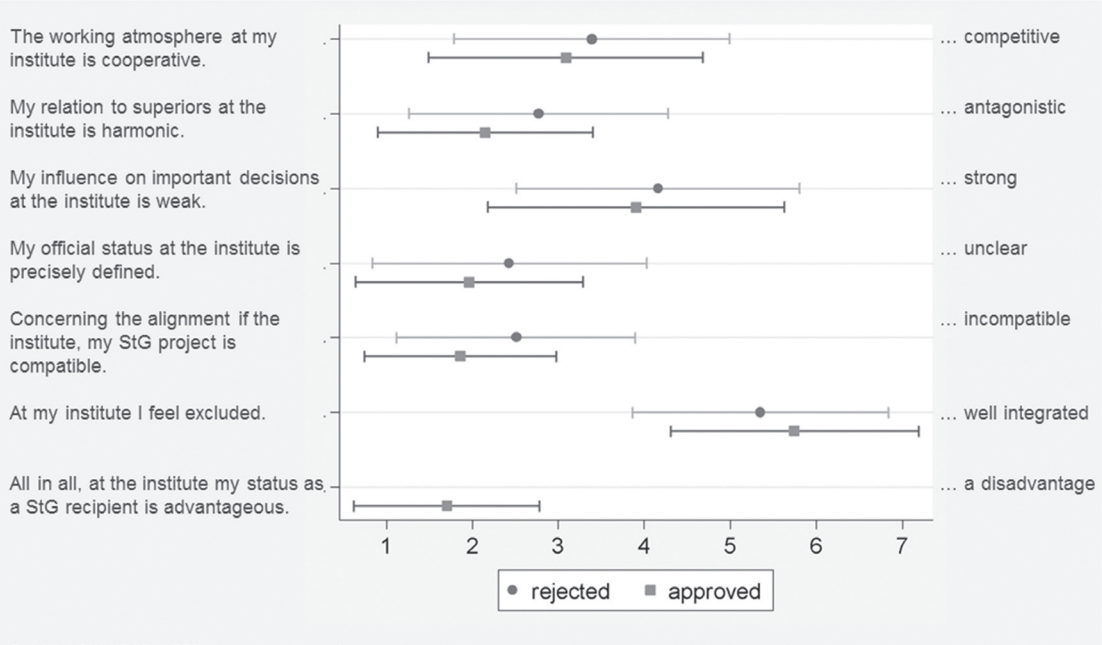
programme defines the abstract target state of becoming an independent researcher and research group leader, but does not offer prestructured institutionalised arrangements to achieve these goals. As a consequence, this section aims to discuss the following questions:

– How is the role of postdoc researchers (re-)arranged in the StG programme? How do the StG programme and the ensuing emergence of new positions alter or influence the existing hierarchical setting at the host institution (e.g. in terms of integration or conflicting responsibilities)?
– To what extent does the StG bring with it increased autonomy with regard to the three dimensions of becoming independent, staying independent and consolidating the StGrantee's research career?
– To what extent do different starting conditions moderate changes in the researcher's autonomy?

Overall perception of integration

To start with, we will present our survey findings with respect to the overall assessment of the current working situation as perceived by approved and rejected StG applicants. In our second wave survey we asked the respondents to describe their situation at their current institution with the help of bipolar adjectives as shown in Figure 31.

Figure 31 Overall perception of current working situation by approved and rejected applicants



Source: MERCI online survey (second wave survey), N=836. The last item has only been displayed for approved applicants, the number of valid answers varies between items.

Note: the question reads as follows: "Below, there is a list of bipolar adjectives. Please indicate with the help of these adjectives which best describes your situation as a StG recipient at your host institution." The scale to mark the individual "location" between the bipolar adjectives ranges from 1 to 7, symbol indicates mean, capped spike indicates standard deviation.

As Figure 31 illustrates, both approved and rejected StG applicants assess their working conditions as fairly positive. However, our data suggests a tendency for StGrantees to assess their working conditions (slightly) more positively than their rejected counterparts. This seems especially to be the case with regard to the assessment of the relation to superiors and the compatibility of the research project with the alignment of the institution. Only one factor is assessed more positively by the rejected applicants, namely the perceived influence on important decisions at the institution. The MERCI findings to the effect that StG recipients assess their status as being more clearly defined and their relation to superiors as being more harmonious compared to their rejected counterparts are rather unexpected and not necessarily in line with the results from our previous iFQ evaluation of the German Emmy Noether Programme. For that programme we found that the first cohorts of young research group leaders often found they had a rather undefined position at their institution and/or department, resulting in a quite unclear standing in the organisational hierarchy, which in some cases led to fraught intra-institutional disputes (cf. Böhmer et al. 2008, pp. 68ff.). We need to systematically contextualise this finding with the specific features of the German research system (chair system with young researchers traditionally being highly dependent on professors for a long period).

Having said that the MERCI findings paint quite a 'harmonious' picture in general, the open survey answers add a different shade of colour to this rather harmonious picture. While StGrantees on the one hand experience a direct positive effect on their standing at their host institution, the StG may in exceptional cases also evoke jealousy, envy and bullying or "severe harassment", as one respondent emphasised. In addition, two respondents pointed out that they even needed to change their first StG host institution for these reasons.

Moreover, our qualitative interview data provides valuable insights that go into more detail than the survey data and reveal unexpected factors with regard to the working atmosphere. The interview data shows evidence that the grant functions well within established institutional hierarchies when the StGrantee already holds a tenured position (endowed with a certain degree of independence to pursue one's own research agenda, to apply for funding or to supervise PhD students). If this is not the case and the StG recipient instead holds a rather dependent postdoc position when receiving the StG, this may cause conflicts between the StG recipient and his/her direct superiors or the department in general for the following reason: StGrantees who hold lower positions are endowed with larger amounts of funding than their superiors, but they still have to ask their superiors for money and support. Evidently, this impairs existing traditional hierarchies (as is the case for example in Germany, Italy and Belgium). One StG recipient described this phenomenon as follows:

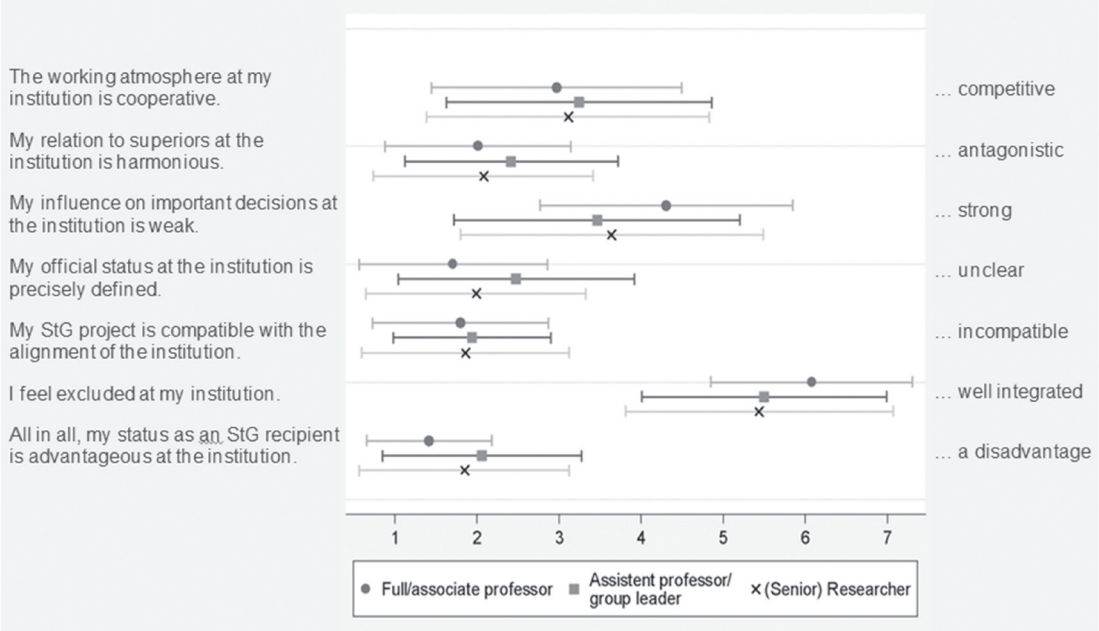
> *I: Ok. So at the time you were there in this position, this postdoc position, you couldn't act as you wanted concerning research funds?*
> *R: No, exactly. It even constrained my funding. Because I applied for extra research money at the Fund for Scientific Research as well but then it was again, you know, it was again cancelled. For reasons I don't understand. Or better, I think I do understand them, namely they considered that I should be able to pay that from the ERC grant.*
> *I: Ok*
> *R: And according to me that's not the way how things work. You know. It's a matter of criteria. What do you use as a criterion for giving funding to someone? (Int12MG)*

Last but not least, the StG may cause conflicts with regard to the allocation of recurrent funding between the university board and the department a grantee is affiliated to (this phenomenon occurs especially in the Humanities): while the university board benefits from the prestige and the overhead money generated by the StG, the department is reluctant to spend money on or allocate positions to already well-funded grantees.

Differences in integration across positions

Bearing in mind the crucial role of the position an StG recipient holds at his/her host institution, we conducted an in-depth analysis across (grouped) positions with regard to the overall assessment of the current working situation. Figure 32 confirms the overall positive picture in general, but also adds some evidence to the qualitative findings to the effect that, in particular, respondents who hold a kind of 'sandwich position' (like an assistant professorship or group leader position) assess their decision-making power as being lower than respondents who hold a researcher or senior researcher position, and they perceive their status as being less precisely defined compared to all other positions.

Figure 32 Overall perception of current working situation of Sarting Grantees by position



Source: MERCI online survey (second wave survey), approved applicants only, N=222, number of valid answers varies between items.

Note: "Below, there is a list of bipolar adjectives. Please indicate with the help of these adjectives which best describes your situation as a StG recipient at your host institution." The scale to mark the individual "location" between the bipolar adjectives varies from 1 to 7; symbol indicates mean, capped spike indicates standard deviation.

Following the multidimensional concept of scientific independence introduced in Chapter 1, the respondents were asked to rank their autonomy with regard to the allocation of financial and human resources and with regard to the choice of research topics. Assuming that 1) the position someone holds is pivotal for their formal status within an institution and that 2) our respondents hold a variety of positions and that 3) our respondents are to some extent at different career stages, we

asked them to *compare themselves with their colleagues at the same career level* with respect to their perceived influence with regard to selected factors (cf. Table 33).[58]

Table 33 Influence at the institution compared to colleagues at the same career level as perceived by approved and rejected StG applicants

	Approved		Rejected		Total		Mann-Whitney test
Perceived influence on	Mean	SD	Mean	SD	Mean	SD	p-value
Co-determination in academic bodies/committees	3.34	0.91	3.05	1.11	3.13	1.06	0.002
Authority to decide on important issues	3.34	0.89	3.05	1.10	3.13	1.05	0.001
Defining my research agenda	4.22	0.82	4.34	0.90	4.31	0.88	0.008
Defining my publication activities	4.19	0.86	4.39	0.88	4.33	0.88	0.000
Defining my teaching activities	3.46	0.83	3.49	1.11	3.48	1.04	0.282
Allocation of material resources	3.77	0.81	3.27	1.17	3.42	1.10	0.000
Allocation of human resources	3.71	0.87	2.96	1.21	3.18	1.17	0.000
Allocation of laboratory /office space	3.21	0.83	2.73	1.16	2.87	1.10	0.000

Source: MERCI online survey (second wave survey and intermediate survey for 2011 cohort), N=843, number of valid answers differs across items.

Note: scale: 1 "Very low", 2 "Low", 3 "Equal", 4 "High", 5 "Very high"

Overall, both approved and rejected respondents describe themselves as having an extraordinarily high degree of autonomy with regard to research-related questions, e.g. defining their own research agenda and publication activities. The finding that almost all applicants regard themselves as highly independent with regard to the definition of their research questions is most likely also an outcome of the self-selection (cf. on this point Section 4.1.2) among StG applicants.

While almost all StG applicants have already achieved a high level of cognitive independence with regard to their research topics, the StG obviously provides them with the opportunity to complement this with independence with regard to the allocation of material and human resources as well as laboratory and office space.

58 The original wording of the question reads as follows: "Compared to your colleagues at the same career level: How do you rate your influence at your (StG) host institution in terms of the following aspects?"

Table 34 Influence on different factors compared to colleagues at the same career level as perceived by approved and rejected StG applicants across positions

Perceived influence compared to colleagues at the same career level	Full/associate professor				Assistant professor/group leader				(Senior) researcher			
	Rejected (N=121)		Approved (N=103)		Rejected (N=110)		Approved (N=54)		Rejected (N=236)		Approved (N=65)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Participation in academic bodies/committees	3.21	1.09	3.50	0.86	2.87	1.11	3.30	0.88	3.00	1.12	3.20	0.97
Authority to decide on important issues	3.17	1.05	3.53	0.88	2.86	1.15	3.24	0.80	3.02	1.07	3.28	0.91
Research agenda	4.38	0.85	4.25	0.84	4.28	1.02	4.13	0.83	4.34	0.88	4.25	0.79
Publication activities	4.42	0.86	4.23	0.86	4.34	0.88	4.06	0.88	4.37	0.93	4.20	0.85
Teaching activities	3.58	1.01	3.51	0.81	3.63	1.12	3.43	0.82	3.39	1.18	3.51	0.81
Material resources	3.22	1.17	3.73	0.73	3.41	1.26	3.70	0.86	3.17	1.17	3.80	0.87
Human resources	2.83	1.21	3.63	0.84	3.16	1.30	3.65	0.85	2.83	1.17	3.80	0.91
Laboratory/office space	2.81	1.18	3.28	0.82	2.76	1.19	3.07	0.82	2.67	1.15	3.23	0.79

Source: MERCI online survey (second wave survey and intermediate survey for StG 2011 cohort)

Note: five-point scale ranging from 1 "Very low", 2 "Low", 3 "Equal", 4 "High" to 5 "Very high"

As our data suggests there is a high level of perceived thematic autonomy across all applicants no matter what position they hold. With respect to the definition of their own research agenda and publication activities, all respondents rank themselves very highly in comparison to their colleagues at the same career level. This finding seems in line with our bibliometric findings regarding the high publication performance and the corresponding self-selection amongst all StG applicants (see Section 4.1.2) and also matches the picture that receiving the StG is regarded as a kind of gratification for previous academic merits. We do not observe any effect with regard to the grant's influence on defining the researchers' own teaching activities; rejected applicants who hold a professorship even regard themselves as the most autonomous. With regard to the allocation of resources, it is striking that StGrantees across all three groups of positions rank their influence more highly than their rejected counterparts. In addition, there is a trend for the StG to lead to a significantly higher level of autonomy for professors, and for non-professors and rejected applicants to assess their influence as being equal to colleagues at the same career level.

To conclude, we will briefly examine the question of whether StGrantees have experienced any influence on their status and decision-making power at their institution as a result of the StG. The corresponding findings are presented in the table below.

Table 35 Influence on status and decision-making power as perceived by StGrantees

Influence on status and decision-making power	Influence			Total	
	Negative in %	None in %	Positive in %	In %	N
Co-determination in academic bodies/committees	1.7	61.1	37.2	100.0	239
Authority to decide on important issues	1.7	57.9	40.4	100.0	240
Defining research agenda	0.0	29.6	70.4	100.0	240
Defining publication activities	0.0	38.0	62.0	100.0	184
Defining teaching activities	0.8	66.7	32.5	100.0	240
Allocation of material resources	1.3	40.2	58.6	100.0	239
Allocation of human resources	0.8	42.5	56.7	100.0	240
Allocation of laboratory/office space	0.5	49.5	50.0	100.0	184

Source: MERCI online survey (second wave survey and intermediate survey for StG 2011 cohort)

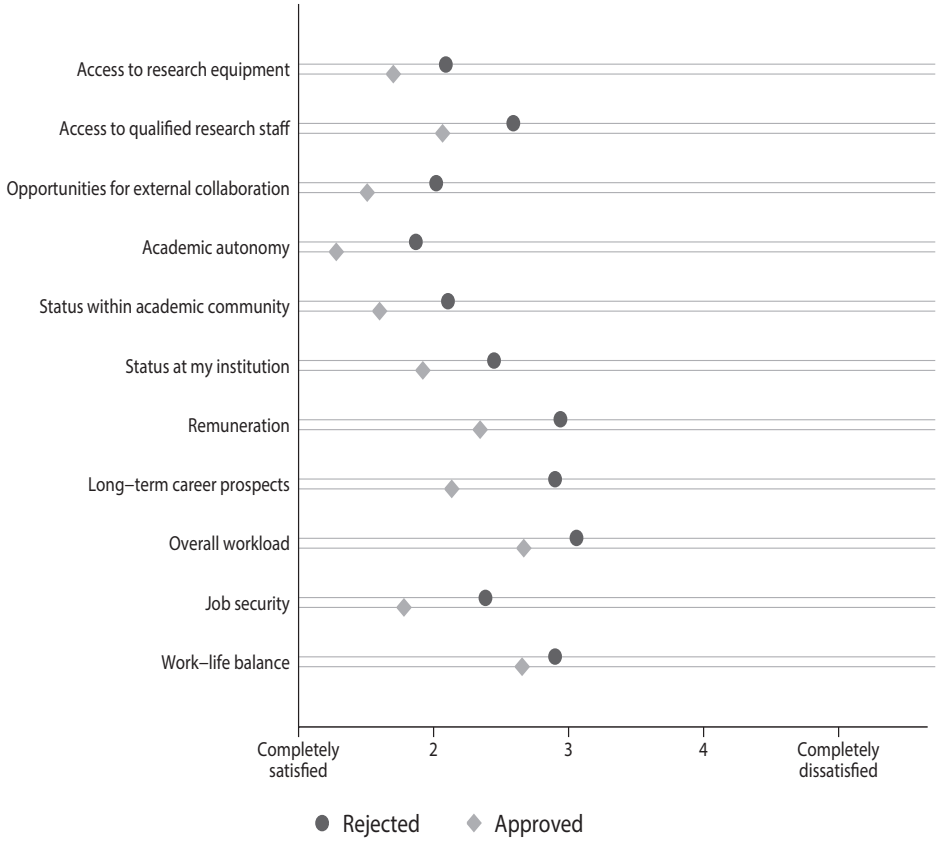
Note: three-point scale: 1 "Negative influence", 2 "No influence", 3 "Positive influence"

As Table 35 shows our data suggests an increase in authority first and foremost with respect to the definition of research goals and the allocation of resources, whereas formal rights of co-determination are less affected by the StG funding. While the StG obviously has a strong effect on researchers' resource endowment and also gives the grantees power of control, it barely challenges the rights and duties which are defined by official positions.

5.4 Working conditions at the host institution

In the following we will shed light on the overall satisfaction of approved and rejected StG applicants with their current working conditions. All in all, both groups are exceedingly satisfied, with StG recipients rating their overall satisfaction with the working conditions even more highly than their rejected counterparts. StG recipients rank their academic autonomy highest, closely followed by their opportunities for external cooperation, their status within the scientific community, their access to research equipment, and their job security. Interestingly, we observe the same positive ranking of these factors when comparing rejected applicants, as illustrated by Figure 33.

Figure 33 Satisfaction of approved and rejected StG applicants with their working conditions

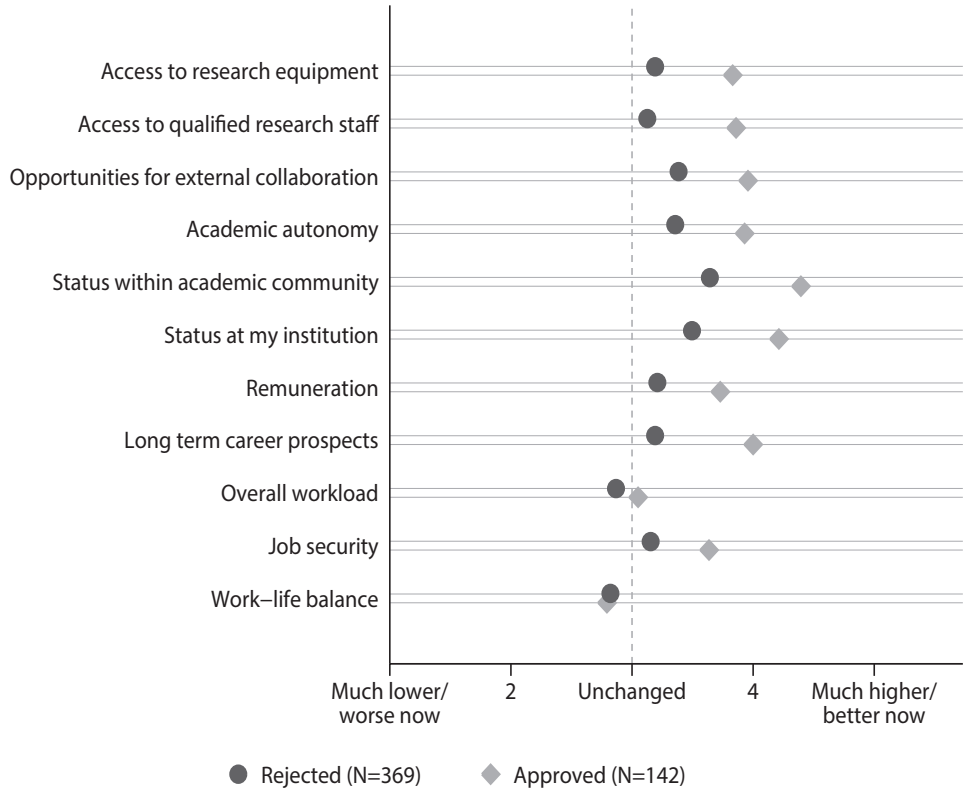


Source: MERCI online survey (second wave and intermediate survey for 2011 cohort), N=838

Note: five-point scale: 1 "Completely satisfied", 2 "Slightly satisfied", 3 "Neither satisfied nor dissatisfied", 4 "Slightly dissatisfied" 5 "Completely dissatisfied". Symbol indicates mean.

With regard to the factors that were assessed neutrally, both approved and rejected applicants are apparently least satisfied with their overall workload and their work-life balance. This finding is in line with findings from other surveys of scientists (see e.g. Böhmer et al. 2008; Böhmer et al. 2011; Neufeld et al. 2014) and is also backed by our findings from the MERCI interview study. The biggest difference between the two groups of applicants consists in their assessment of their chances of successfully pursuing an academic career.

Figure 34 Changes in working conditions during StG funding/ during last three years



Source: MERCI online survey (second wave survey, 2009 and 2010 cohorts)

Note: dashed line represents unchanged situation. Symbol indicates mean.

Figure 34 refers to perceived changes in working conditions. Overall, it suggests a positive trend for approved and rejected applicants. However, this is much more pronounced for StG recipients. The data confirms that StG recipients benefit highly from their status and reputation – both in the scientific community and at their host institution. However, the rejected applicants also experienced the strongest positive trends in this regard. The largest differences between approved and rejected applicants occur with regard to the research infrastructure, research staff and career prospects: whereas the rejected applicants hardly experienced any change during the last three years, the StG recipients assess their situation much more positively now. Figure 34 confirms that work-life balance and overall workload remained stable for both groups in the past three years, while academic autonomy increased substantially for StG recipients.

5.5 Time budget

Since the StG programme does not define or prestructure the way the group leadership should be organised and how the transition to being an independent researcher should proceed, we will shed light on whether and how the StG funding is actually translated into increased independence and autonomy. Consequently, our respondents were asked about their time budget for different tasks, in order to get an idea about the daily routines of postdoctoral researchers and their autonomy with

respect to their time. While this section begins with a brief description of researchers' time budget and relates the MERCI survey findings to the iFQ-Scientists Survey in Germany 2010, the second part explicitly focuses on the proportion of time which researchers dedicate to genuine research activities, which acts as a proxy for their "protected space" (cf. on this point Section 1.1).

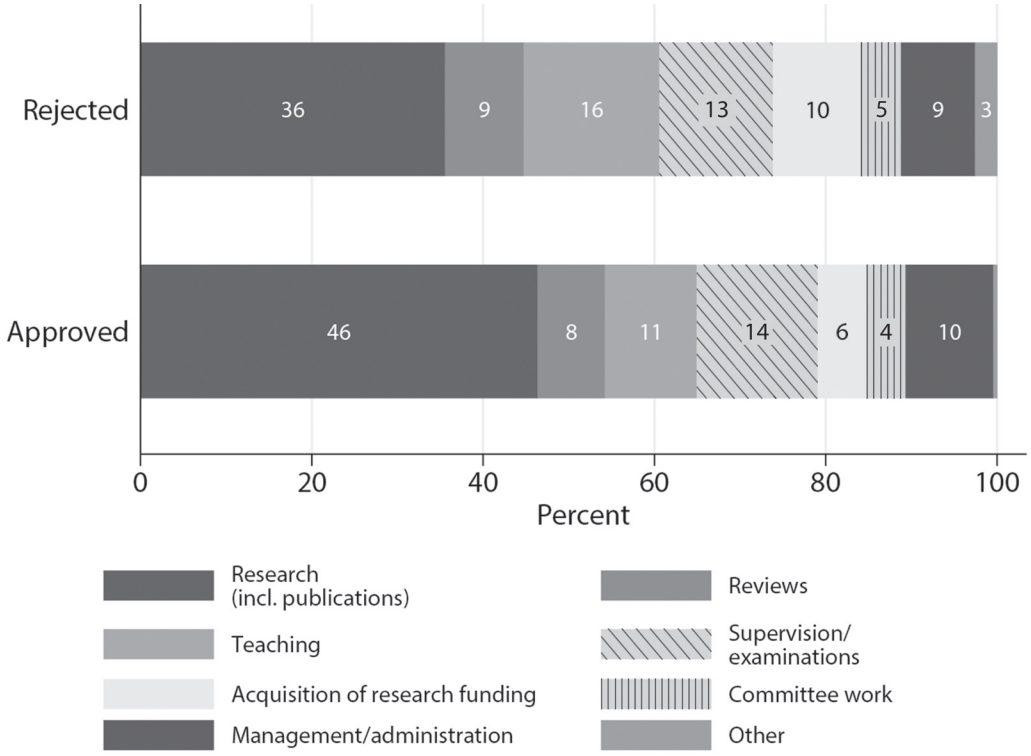
In our second wave survey we asked both groups of StG applicants what proportion of their working time they use for the following tasks on average across the whole year:

– Research (incl. publications)
– Teaching
– Reviews
– Supervision/examinations
– Acquisition of research funding
– Committee work
– Management/administration

Our analysis includes only respondents for whom the overall proportions of time exceed 80 percent.[59] Due to the fact that the question about the time budget was asked in the middle/at the end of the StG funding period, we assume that the results are not distorted by the initial effort to implement the grant at the host institution. Figure 35 gives an overview of the time budget for different tasks for approved and rejected StG applicants.

59 Only one respondent did not meet this criterion and a further 13 had a time share between 80 and 99 percent. However, for the vast majority of 831 respondents, the times shares added up to 100 percent.

Figure 35 Time budget for different tasks for approved and rejected StG applicants



Source: MERCI online survey (second wave survey), N=842

Note: only cases with a sum of percentages equal to or greater than 80 are listed; the overall sum of percentages could not exceed 100% (programmed plausibility check in the online survey). Missing values for single categories have been set to zero when the respondent exhibited a total sum of percentages greater than 80 percent.

When comparing the findings from the MERCI survey with the iFQ-Scientists Survey (Böhmer et al. 2011, p. 129), which surveyed full professors at German universities, it is striking that StG applicants seem extremely focused on research activities. In the iFQ-Scientists Survey the largest proportion of researchers' time was occupied by teaching activities (26 percent compared to 17 percent in the MERCI sample) and only 22 percent was dedicated to research activities (compared to 38 percent in the MERCI sample). At least in part, these disparities between the ERC applicants and the reference group from the iFQ-Scientists Survey seem to be attributable to the status of respondents: while the MERCI survey comprises postdocs with roughly 30 to 40 percent full or associate professors (depending on the panel wave), the iFQ-Scientists Survey exclusively focused on full professors, which one would expect to be associated with rising budgets for committee work and teaching. However, interestingly, the time budget for supervision, reviews, administration and third-party funding acquisition barely differs between the MERCI survey and the iFQ-Scientists Survey despite the distinct composition of positions.

In the next stage, we will compare the time budget of approved and rejected StG applicants. Overall, the relative distribution of time dedicated to different activities is apparently very similar for approved and rejected applicants, as Figure 35 illustrates, but differences occur with respect to research tasks, teaching and the acquisition of research funding in particular. On average, StG

recipients spend significantly more time on research than their rejected counterparts: while StG recipients dedicate 46 percent of their overall working time to research, the proportion for the rejected applicants is 10 percentage points lower (t=– 7.58 p=.000). However, the standard deviations of 19 and 18 percentage points respectively illustrate that in both groups time for research is distributed very heterogeneously. This is why in the second part of the section we will shed light on the question of which factors might be responsible for the high degree of heterogeneity in the time available for exclusively doing research.

StGrantees on average spend 12 percent of their working time on teaching activities compared to 18 percent among the rejected applicants. It is striking that the teaching load is distributed much more heterogeneously among the rejected applicants (SD=13.7 percent) than among the StGrantees (SD=8.5 percent). While it remains unclear whether this is an outcome of explicit "teaching buyout" (cf. Section 5.3.1) and the attempt to create "research-only positions" based on the funding provided by the StG, it suggests that at least a portion of the surplus research time is generated by a reduction in the teaching load.

The figures also suggest that a further portion of this surplus research time is achieved because StG recipients spend less time on acquiring additional funding. Whereas rejected applicants spend an eighth of their overall working time preparing applications, the approved ones use only 8 percent of their working time for this (t=6.43, p=0.000), although the number of third-party funding applications does not differ substantially, as we showed in Chapter 3.1.

Differences in time budget across positions

Contrary to the above-mentioned hypothesis that respondents who hold a full or associate professorship are generally more involved in teaching, supervision, committee work or similar tasks, the allocation of working time to the different activities hardly differs across positions. This, in turn, suggests that despite the formally different positions, the task profile is quite homogeneous within the StG target group. Neither the burden of committee work nor that of administrative tasks differs substantially across positions. Notable differences can only be found with regard to the teaching load, where full and associate professors spend slightly more time on teaching than the other respondents (+3 percentage points, ANOVA: F=4.10, p=0.003). Across all positions, the StG recipients have a lower teaching load than the rejected applicants who hold an equal position. This gap is especially pronounced among the full and associate professors, where the proportion of time spent on teaching drops from 21 to 12 percent.

Differences in time budget across research fields

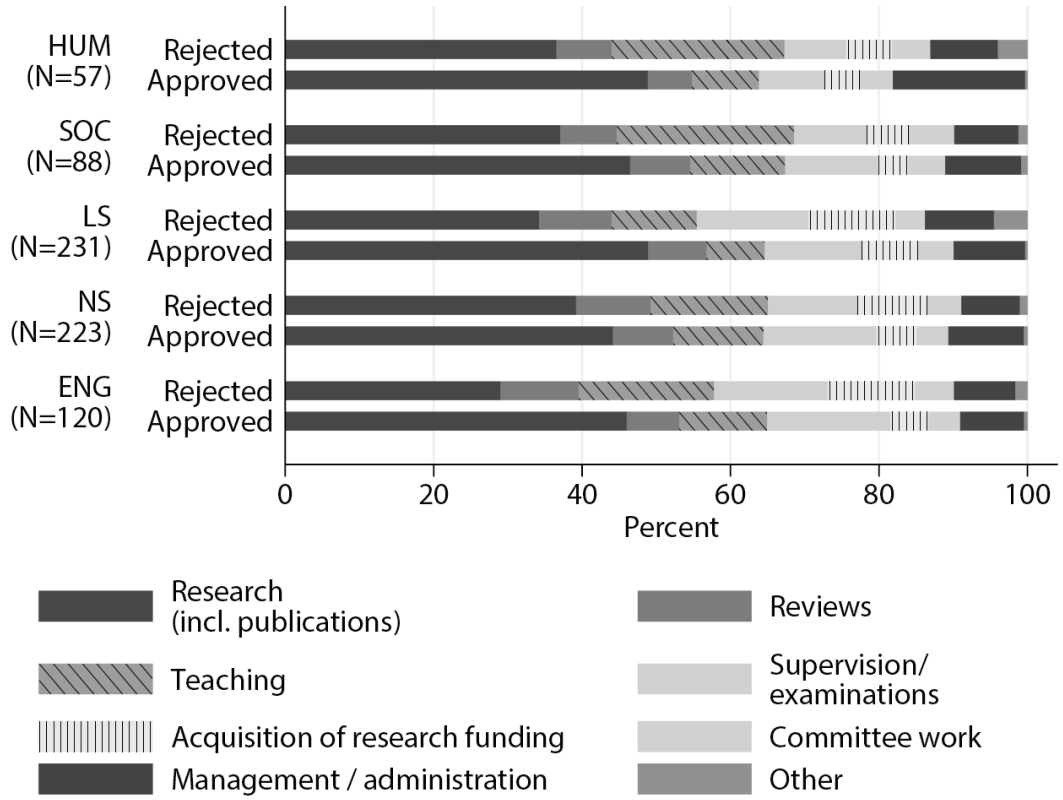
As discussed in Section 3.2, the StG funding has different weight in the overall project portfolio in different research fields. This is why we will test whether the effect of an increase in research time among the StGrantees is equally pronounced across research fields.

As Figure 36 illustrates, in Natural Sciences the gap in research time between approved and rejected applicants is least pronounced (+5 percentage points), whereas the differences in the other research fields make up between 10 and 17 percentage points. Across all research fields, the teaching load

among StGrantees is lower. Especially in the Humanities and Social Sciences, the proportion of time dedicated to teaching among StGrantees is roughly half that of their rejected counterparts in the same research fields.

Furthermore, the time budget suggests that being funded by the ERC in effect reduces efforts to acquire additional funding. In Life Sciences, Engineering and Natural Sciences the StG recipients do indeed devote less effort to acquiring additional third-party funds, whereas in the Humanities and Social Sciences – where the time spent on funding acquisition is lowest anyway –the StG does not appear to lead to a further reduction in the time spent on preparing proposals.

Figure 36 Time budget for different tasks for approved and rejected StG applicants across research fields



Source: MERCI online survey (second wave survey), N=719

Note: only cases with a sum of percentages equal to or greater than 80 are listed; the overall sum of percentages could not exceed 100% (programmed plausibility check in the online survey). Missing values for single categories have been set to zero when the respondent exhibited a total sum of percentages greater than 80 percent.

Interestingly, in the Humanities the StG is associated with a doubling of the time budget for administrative tasks, which remains almost constant in the other research fields. This, in conjunction with the finding that researchers in the Humanities apply less frequently for competitively allocated funds and usually manage fewer projects, leads us to the conclusion that the increased burden of administrative work may be attributed to a lower familiarity with these kinds of administrative procedures.

Which factors affect research time?

The previous section suggested that the proportion of time which researchers dedicate to research varies across several dimensions and, thus, necessitates a multivariate analysis to control for them simultaneously. The regression analysis of the proportion of time used for genuine research activities aims to test the following hypothesis:

Hypothesis 1: Receiving an StG leads to a significant increase in the proportion of working time compared to rejected applicants, when other characteristics are held constant.

Hypothesis 2: A surplus in time available for research is attributable to lower teaching loads.

Table 36 compares the mean proportions of research time for selected independent variables that are included in the multivariate model. Here it is striking that even within research fields, among respondents who hold equal positions and also within the group of approved and rejected applicants the proportion of time dedicated to research activities varies substantially. As described above, compared to the rejected applicants, StGrantees spend on average more than 10 percentage points more of their overall working time on research than the rejected applicants, which suggests a quite strong impact by the StG on their time budget and freedom to conduct research. In line with Hypothesis 2, Table 36 suggests that the proportion of time spent on research is highly correlated with the proportion of time required for teaching activities.

Table 36 Percentage of time spent on research, mean comparisons for selected independent variables

	Mean	SD	N	p-value
Funding decision				
Approved	46.29	17.59	240	.0000[a]
Rejected	35.48	18.80	605	
Research field				
Humanities	40.56	20.88	57	.0105[b]
Social Sciences	39.84	20.24	88	
Life Sciences	38.38	19.25	231	
Natural Sciences	40.82	17.57	224	
Engineering	33.43	17.82	120	
Position				
Full/associate professor	38.13	17.83	225	.328[b]
Assistant professor/group leader	36.51	18.43	167	
Senior researcher	38.90	19.17	79	
Researcher	40.00	19.49	222	
Teaching load				
< 10% of working time	42.45	19.40	328	.000[b]
10–20% of working time	36.10	15.08	196	
20–30% of working time	28.12	12.63	113	
> 40% of working time	24.09	10.78	75	

Source: MERCI online survey

In order to test the hypothesis that StG recipients dedicate more time to genuine research activities when controlling for covariates like position and research field, a multivariate regression model was estimated. Table 37 reports the estimated coefficients, standard errors and significance levels for the model. From the initial sample of 844 cases which provided plausible results for the time budget a further 236 were dropped from the model due to missing values for independent variables, yielding a final sample of 608 cases for the regression analysis. While the first two columns contain the full model, also controlling for the research field, country group and gender of the respondent, these variables were dropped in the "parsimonious" model because they did not show any effect and coefficients remained stable even after deleting these covariates from the model. The models explain roughly 38 percent of the overall variance in the proportion of working time spent on genuine research activities.

Table 37 Regression for average proportion of working time dedicated to research

Proportion of time spent on research in %	**Full model**		**Parsimonious model**	
	b	**SE**	**b**	**SE**
Proportion of time for teaching in %	–0.676***	(0.051)	–0.662***	(0.049)
Proportion of time for funding acquisition in %	–0.908***	(0.083)	–0.942***	(0.081)
StG recipient [1=yes, 0=no]	6.218***	(1.500)	6.433***	(1.473)
Current position (reference: full or associate professor)				
Assistant professor/group leader	0.490	(1.709)	–0.306	(1.629)
Senior researcher	1.305	(2.110)	1.377	(2.089)
Researcher	3.527*	(1.564)	3.259*	(1.533)
Autonomy in defining research agenda[1]	1.832*	(0.729)	1.788*	(0.722)
Personnel responsibility[1]	–2.071***	(0.576)	–2.062***	(0.572)
Research field (reference: Humanities)				
Social Sciences	–0.381	(2.764)		
Life Sciences	–3.114	(2.541)		
Natural Sciences	–0.852	(2.485)		
Engineering	–4.179	(2.669)		
Female [1=yes, 0=no]	–0.399	(1.378)		
Country group (reference: European Continental)				
Anglo-Saxon model	1.006	(1.425)		
Scandinavian model	1.765	(1.885)		
Transitional Eastern and South-Eastern European model	0.472	(2.508)		
Constant	52.95***	(4.618)	51.85***	(3.766)
R^2	0.388		0.381	
Adj. R^2	0.371		0.373	
N	608		608	

Source: MERCI online survey

*Note: + p<0.10, * p<0.05, ** p<0.01, *** p<0.001, 1 Scale: 1=Very low 5=Very high*

Generally speaking, the models displayed in Table 37 confirm the findings from the bivariate analysis:

Firstly, holding all covariates constant, receiving an StG leads to a six percentage point increase in research time. This finding clearly illustrates that the benefit of the StG arises not only from the financial endowment, but also from surplus research time.

Secondly and quite unsurprisingly, spending time on teaching and on the acquisition of third-party funds reduces the time available for research. The higher coefficient for funding acquisition illustrates that this activity "competes" even more strongly with research time: a one percentage point increase in the time spent on funding acquisition leads to a 0.9 percentage point reduction in time for research.

Thirdly, the models suggest that higher perceived autonomy in defining one's research agenda is also associated with a significant increase in the time available for research activities, whereas increasing personnel responsibility is associated with a decreased time budget for research activities: respondents who stated that they have a very low personnel responsibility use on average 43 percent of their working time for research compared to 35 percent for those with very high personnel responsibility. Furthermore, the model confirms Hypothesis 3, viz. that once a higher formal position is reached less time is spent on research, although the bivariate analysis suggests that the proportion of research time hardly differs across positions. While no significant effect was apparent between full professors and assistant professors and full professors and senior researchers, researchers at the lowest formal level spent on average four percentage points more time on research than full or associate professors.

However, the proportion of time for research does not differ across female and male respondents, research fields and countries[60] when controlling for the covariates, and these factors have thus been dropped from the model.

6. Thematic focus IV: the ERC funding phase and beyond? The StG programme's outcome and sustainability

In this chapter we will elaborate on the question of the extent to which the ERC funding scheme affects the development of skills and competencies and whether it facilitates the formal career development of its recipients. As outlined in Chapter 1, due to temporal constraints the MERCI data does not allow for an impact assessment with regard to *long-term career* development and publication output. Given that our second wave online surveys were conducted approximately 3.5 years after the ERC funding decision and that the overwhelming majority of StGrantees are funded by the ERC for the maximum period of five years, our questions concerning the outcome and sustainability were put to the panellists in the last part of their StG funding period. Strictly speaking we are

60 In order to test whether the share of research also differs at country level, a random intercept model has been estimated. However, the model did not reveal substantial effects due to the clustering of respondents in countries.

therefore dealing with *anticipated sustainability,* which should be kept in mind when interpreting the figures and tables presented below.

6.1 Outcome of the StG funding

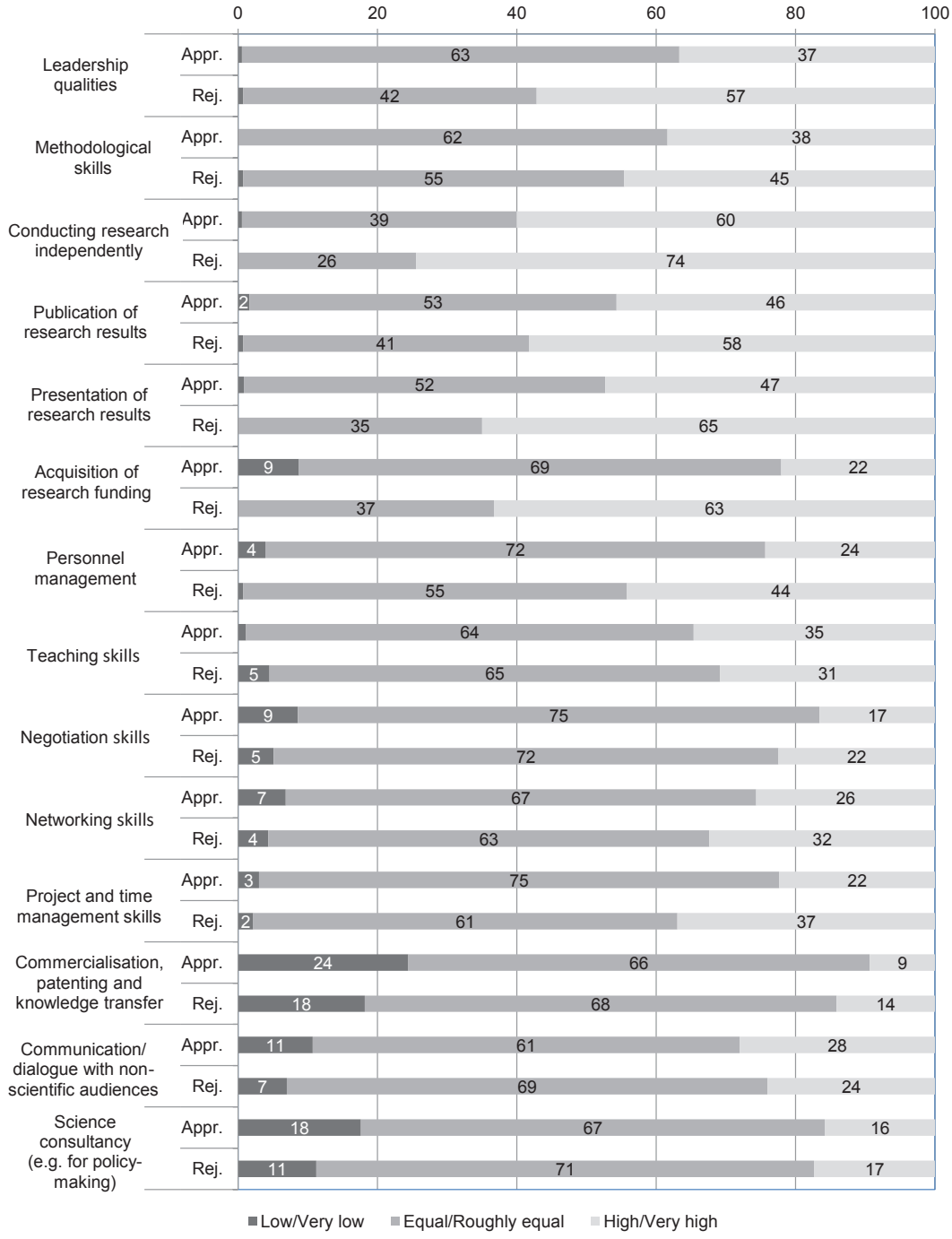
6.1.1 Development of skills and competencies

In order to obtain a proxy for the perceived development of individual skills, independently of the career stage a respondent is at and the position he/she holds, approved and rejected StG applicants were asked to rank their own level of competence[61] compared to colleagues at the same career level on a seven-point Likert scale. While values lower than four indicate a lower level of competence compared to colleagues at the same career level and those above four a higher level, the value of four denotes a level of competence which is deemed comparable to colleagues at the same career level. Table 54 lists the means and standard deviations for the perceived level of competence.

In general, both approved and rejected StG applicants consider their own level of competence to be higher than that of colleagues at the same career level with the exception of "Commercialisation, patenting and knowledge transfer" and "Scientific consultancy". But given that the StG programme primarily aims to enable groundbreaking, these findings are not surprising.

61 Specifically, the following competencies were listed: leadership qualities; methodological skills; conducting research independently; publication of research results; presentation of research results; acquisition of research funding; personnel management; teaching skills; negotiation skills; networking skills; project and time management skills; commercialisation, patenting and knowledge transfer; communication/dialogue with non-scientific audiences; scientific consultancy (e.g. for policymaking). These competencies strongly resemble the ones used in the "Study on Assessing the Contribution of the Framework Programmes to the Development of Human Research Capacity" (cf. European Commission 2014). This study referred to the OECD classification of transferable skills for researchers (see on this point OECD 2013, p. 20).

Figure 37 Level of competence compared to colleagues at the same career level for approved and rejected StG applicants



Source: MERCI online survey (second wave survey), N ranges between 376 and 514

Note: categories of seven-point scale ranging from 1 "Very low" to 7 "Very high": 1 to 2 "Low/Very low", 3 to 4 "Equal/Roughly equal", 6 to 7 "High/Very high"

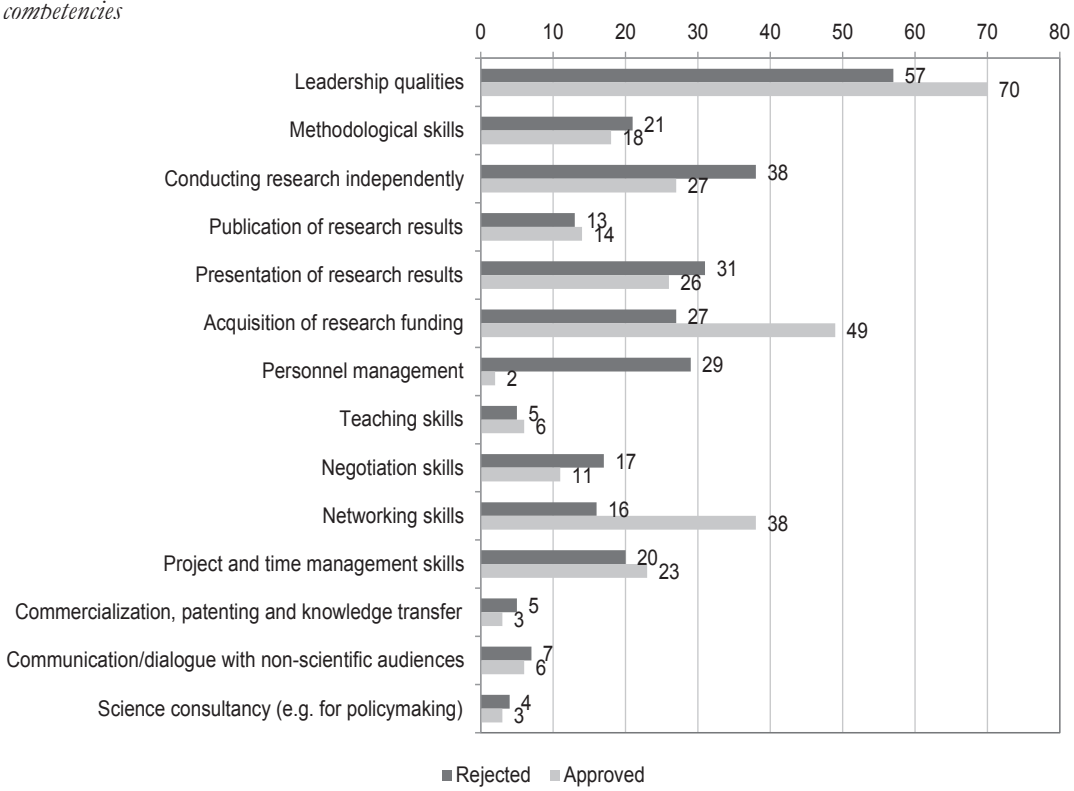
The respondents' overall tendency to rate their own competencies as "above average" compared to colleagues at the same career level is noteworthy but points again to the strong self-selection[62]

62 Cf. on this point our bibliometric results presented in Section 4.1.2.

among StG applicants, meaning that the StG programme attracts primarily those researchers who perform very strongly, especially with regard to genuine research-related skills. Due to the fact that both approved and rejected applicants regard their abilities to carry out research independently as very strong, it seems plausible that excellent research skills might be a precondition for the application rather than an outcome of the StG programme. Something similar applies to publication and presentation skills as well as the acquisition of research funding. Despite the fact that the StG programme targets postdoctoral researchers, the latter have obviously already achieved a substantial level of genuine research-related skills. The strongest differences in the current level of competence between StGrantees and the reference group of rejected applicants appear with respect to "acquisition of research funding", "personnel management", "networking", and "project management" skills – with StG recipients scoring significantly higher. These findings might suggest that, in particular, skills which are related to managing a research group and to allocating resources are acquired among StGrantees, while scientific independence was already achieved previously.

The MERCI respondents were also asked to select from the above-mentioned set of competencies the three in which they had experienced the strongest development during the StG funding period (for the rejected applicants: during the last three years). In sum, among the approved StG applicants the development of skills is concentrated on a smaller set of competencies – namely "leadership", "acquisition of research funding" and "networking" skills – whereas in the reference group a broader set of skills was mentioned and the picture appears more heterogeneous. The largest differences between approved and rejected applicants are linked to "leadership", "conducting research independently", "networking", "acquisition of research funding" and "personnel management" (see on this point Figure 38).

Figure 38 Percentage of approved and rejected applicants who preceived the strongest development in the following competencies



Source: MERCI online survey (second wave survey), N = 506

Note: the respondents were asked to select the three competencies in which they perceived the strongest improvement. Up to three answers by the respondent were possible.

In line with the focus of the StG programme, an overwhelming majority of 70 percent of StG recipients mentioned that they perceived the strongest improvement in leadership qualities. In the reference group, 57 percent of the respondents also observed a strong development with regard to this competence. However, in contrast, the ability to conduct research independently was mentioned far less frequently (StG recipients: 27 percent, reference group: 38 percent). This finding corroborates what has been suggested above: researchers who apply for the StG – among them a substantial proportion of individuals who hold a full or associate professorship – have already achieved a high level of scientific independence prior to their application, with the consequence that progress in skill development is instead experienced in the sphere of leadership qualities. Remarkably, more than a quarter of the rejected applicants mentioned personnel management as a field where they experienced the strongest improvement, whereas this skill was barely mentioned at all by approved StG applicants.

6.1.2 Career development

As outlined above, both approved and rejected StG applicants state that they have achieved an exceptionally high level of scientific independence compared to colleagues at the same career level. Moreover, the endowment provided by the StG helps to supplement scientific autonomy with the

power to allocate resources and brings along with it increased scientific recognition at the current institution as well as in the larger scientific community (cf. on this point Section 5.4).

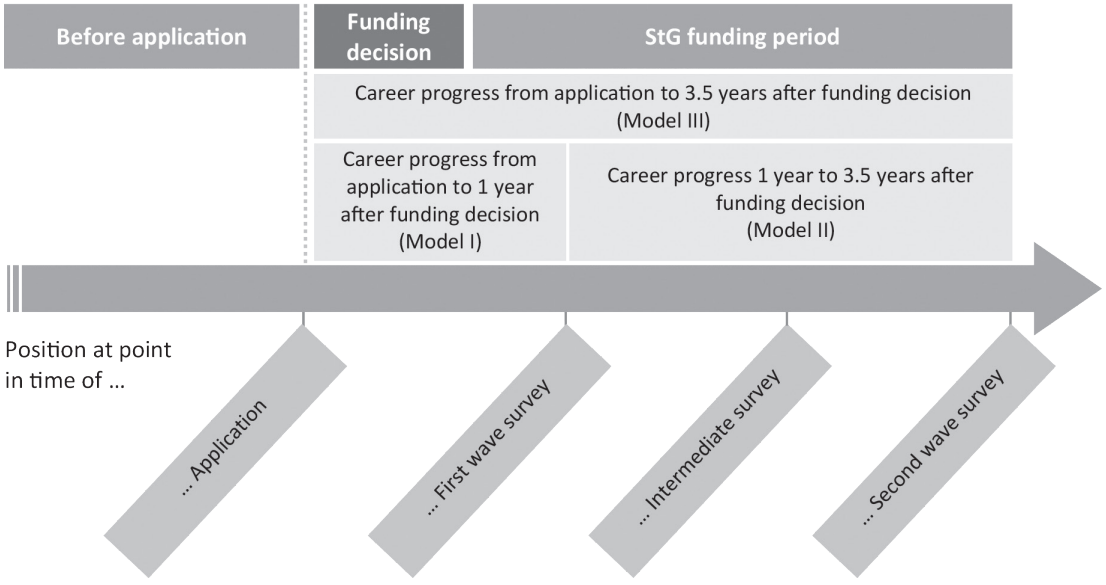
In order to answer the question of whether receiving the StG also facilitates progress along the *organisational career track*, we will subsequently look at (see also Figure 39):

– the position held at the point in time when applying for the StG funding,
– the position held roughly one year after the StG funding decision ("implementation phase" for the StG recipients), and
– the position held in the last part of the StG funding period or 3.5 years after the StG funding decision for the rejected applicants.

By looking at the position during the StG implementation phase and in the last part of the StG funding period, we attempt to assess whether career progress takes place directly *in conjunction with the start* of the funding period, indicating a "direct gratification" for receiving the StG, or whether a promotion instead takes place during the funding period. In addition, given that the StG applies a more comprehensive notion of career development in the sense of conducting research independently – which is not restricted to the objective of obtaining a professorship (as for example in the Emmy Noether Programme) – we measure progress along the organisational career track by asking

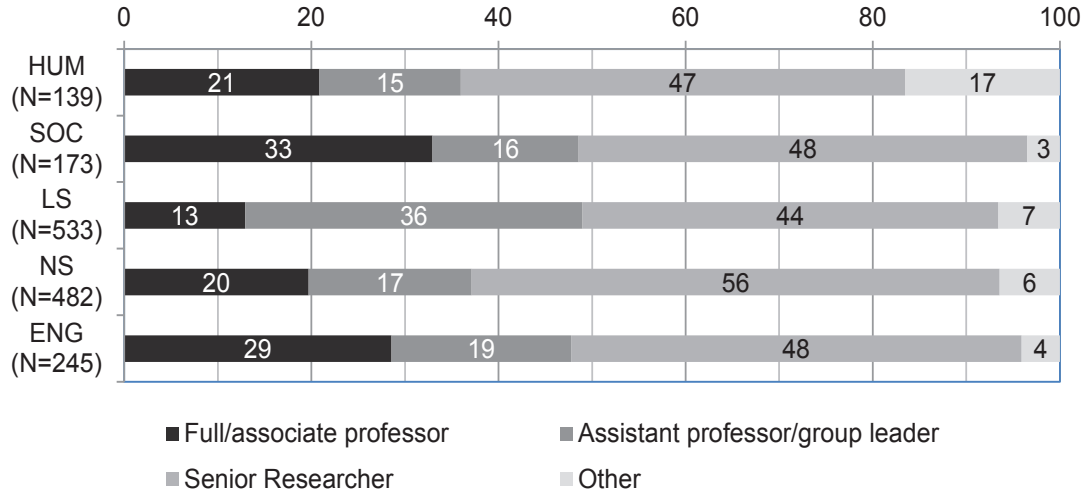
– whether respondents obtained a full/associate professorship (where they did not hold one before their application), and
– whether respondents obtained a group leader/assistant professor position (where they did not hold one before their application).

Figure 39 Monitoring of career progress in the survey



A fifth of the respondents held a full or associate professorship when applying for the StG (Table 38). Roughly a quarter held a group leader position or assistant professorship and half of the applicants some kind of researcher or senior researcher position. However, with regard to the initial position, large differences appear between research fields (Figure 40): while in Social Sciences and Engineering one in three applicants had already obtained a full professorship when applying for the StG, this proportion is much lower in the other fields. In Life Sciences in particular, the relation is the other way round: while only a small proportion (13 percent) had already obtained a professorship, roughly twice as many (36 percent) respondents from Life Sciences held some kind of intermediate position compared to other research fields. In contrast, the proportion of (senior) researchers is almost balanced across research fields, with the exception of Natural Sciences where this applies to 56 percent of the respondents (overall average 49 percent).

Figure 40 Respondents´ position before the StG application by research field



Source: MERCI online survey (first wave), N=1,572

Measuring career progress

The figures presented in Table 38 suggest substantial vertical mobility on the career ladder among our respondents: between the StG application phase and the second wave survey (carried out 3.5 years after the ERC funding decision) the proportion of respondents holding a full or associate professorship doubled, while the proportion of those holding an assistant professorship or group leader position remained stable. Furthermore, the findings show that many of the promotions, especially the increase in professorships, took place in close temporal conjunction to the ERC funding decision.

Table 38 Overview of positions held before and after the StG funding decision

Point in time	Full/associate professor in %	Assistant professor/ group leader in %	(Senior) researcher in %	Other in %	Total in % (N)
Before application	20.2	24.0	49.1	6.8	100.0 (1,628)
1 year after funding decision (first wave survey)	32.7	22.6	40.1	4.7	100.0 (1,589)
2.5 years after funding decision (intermediate survey)	38.5	21.7	32.9	6.9	100.0 (920)
3.5 years after funding decision (second wave survey)*	41.4	23.5	28.3	6.8	100.0 (396)

Source: MERCI online survey

*Note: *Second wave is only available for StG 2009 and 2010 cohorts, approved and rejected applicants pooled*

Table 39 confirms that appointments to full or associate professorships are not only much more frequent among StGrantees – three years after the funding decision 58 percent of the respondents hold one compared to 34 percent among the rejected applicants – but also that the proportion doubles immediately after eceiving the positive ERC decision. This provides strong evidence for the hypothesis that the promotion is received as a reward for the successful StG application. The proportion of full and associate professors also increases during the funding period, but rather moderately. In the last part of the StG funding period only a minority of 16 percent of the surveyed grantees still hold (senior) researcher positions. The situation is similar with regard to other intermediate positions, suggesting that the StG does indeed have strong positive effects on the individual career development of postdoctoral researchers.

We can also observe an increase in the number of full or associate professorships for the rejected applicants. However, in contrast to the StG recipients, the 'growth rate' appears rather moderate and quite constant across the observed time period: 3.5 years after the ERC funding decision, 36 percent of the rejected applicants (still) hold a (senior) researcher position and one in four hold a group leader or assistant professor position.

When comparing approved and rejected applicants with regard to their career progress since the StG application, it has to be taken into account that a relatively greater number of approved applicants already held a group leader position or a different type of professorship when applying for the StG. In order to control for these distinct 'baseline' rates amongst approved and rejected applicants, we calculated the ratio of the number of respondents who have been appointed to a professorship or obtained a group leader position, compared to the number of those who did not hold such a position so far (in a specific time window).

Table 39 Positions of approved and rejected applicants before and after the StG funding decision

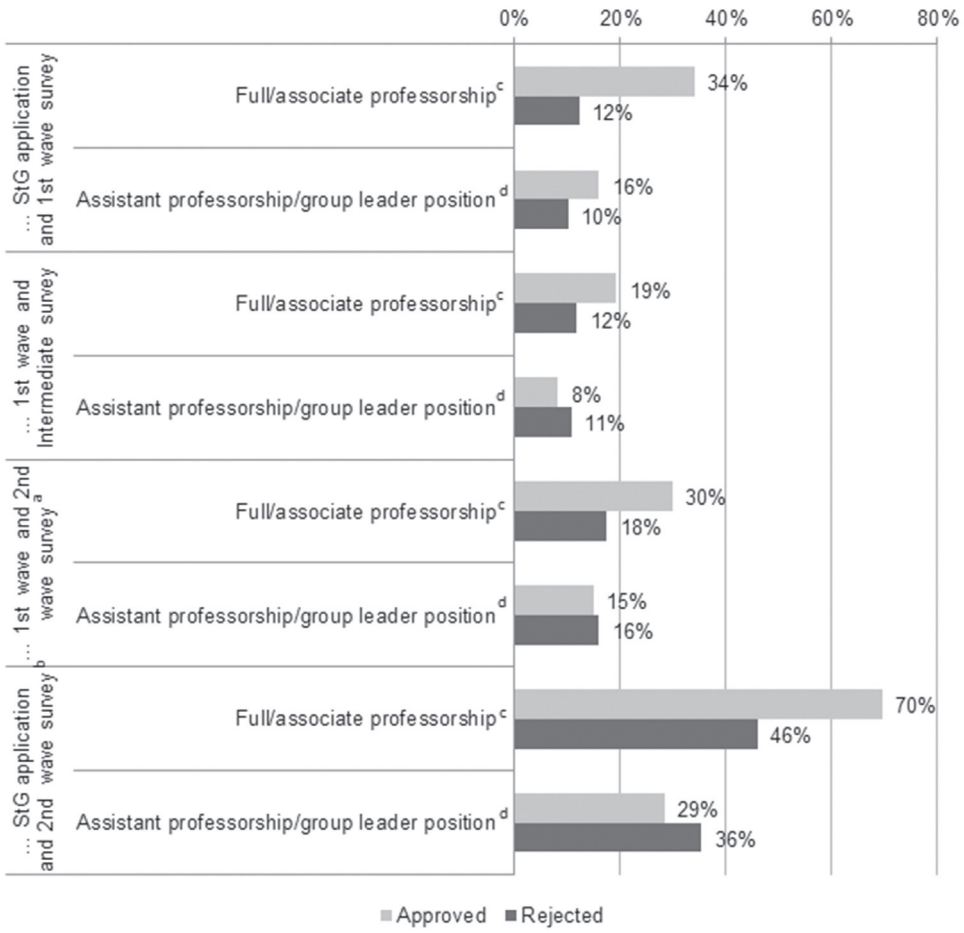
Point in time	Full/associate professor in %	Assistant professor/ group leader in %	(Senior) researcher in %	Other in %	Total in % (N)
Rejected					
Before application	18.8	21.9	52.0	7.3	100.0 (1,153)
1 year after funding decision (first wave survey)	27.1	22.2	45.3	5.5	100.0 (1,127)
2 years after funding decision (intermediate survey)	30.8	23.3	38.8	7.2	100.0 (640)
3.5 years after funding decision (second wave survey)	33.7	25.9	34.4	5.9	100.0 (270)
Approved					
Before application	23.4	29.3	41.9	5.5	100.0 (475)
1 year after funding decision (first wave survey)*	46.3	23.6	27.5	2.6	100.0 (462)
2 years after funding decision (intermediate survey)	56.1	18.2	19.6	6.1	100.0 (280)
3.5 years after funding decision (second wave survey)*	58.0	18.3	15.1	8.7	100.0 (126)

Source: MERCI online survey

*Note: *Second wave only available for StG 2009 and 2010 cohort*

Figure 41 shows the proportion of approved and rejected respondents who obtained a full/associate professorship or an assistant professorship/group leader position, where they did not hold such a position at the beginning of the time period (shown in the respective row). While 70 percent of the StGrantees obtained a full/associate professorship after their StG application, this only holds true for 46 percent of the rejected applicants. The figures also confirm that a third of the StGrantees achieve this progress on the career ladder at the beginning of the funding period, meaning that their promotion might be a direct outcome of the successful acquisition of the grant. Promotion rates for the rejected applicants appear, in contrast, to be quite constant for the different time periods shown.

Figure 41 Proportion of approved and rejected StG applicants who were promoted between different points in time monitored in the online panel



Source: MERCI online survey; [a] StG 2009 and 2010 cohorts only; [b] StG 2009–2011 cohorts, but for the StG 2011 cohort only the first wave and intermediate surveys are included; [c] The reference is the number of persons who did not hold a full or associate professorship at the beginning of the period of the study; [d] The reference is the number of persons who held neither a full/associate professorship nor an assistant professorship/group leader position at the beginning of the period of the study. See on this point also Table 57 in the Appendix.

Furthermore, a substantial proportion of approved and rejected applicants have obtained an assistant professorship or group leader position since the StG application. Here, the promotion rates for approved and rejected applicants are much more balanced and evenly distributed across the time period monitored by the online panel. In total, 36 percent of the rejected and 29 percent of the approved applicants who already held (senior) researcher positions have obtained an assistant professorship or group leader position.

The StG as a catalyst for career progress

Our interview study also indicates a remarkable level of career consolidation and success among the interviewees before being awarded the StG, meaning that quite a number of StG recipients

already had above-average career success before receiving the ERC funding. Nonetheless, the StG apparently has a positive effect on career progress since it may serve as a catalyst for reaching a certain position by acting as a 'proven sign of excellence' and as 'symbolic capital' accordingly.

For many of our interviewed StG recipients, obtaining the considerable ERC funding sum is far from being the most important outcome of being awarded an StG: the impact of the grant on career development, the increase in reputation and, thus, the improved standing at both the institution and within the scientific community are deemed pivotal. Quite a number of interviewees reported direct effects of receiving the StG with regard to career development, for example special job offers or the renewal of their job contract – as illustrated by the quotation below:

> *I: This assistant professorship you had at the time was that also terminated?*
> *R: I'm still terminated.*
> *I: And what changed in that respect after you received the ERC grant? Do you now have this "option on the future" you spoke of earlier?*
> *R: Yes, there was unofficial talk like: Now your contract will be renewed. And two years later, the dean came into my office unannounced, and said that he wants to renew my contract, and that I shall prepare the application for the summer. This is the most important effect of the ERC for me. Much more important than the money. And, I don't know if it's the same for others, but I heard of people who said that the ERC had saved their academic life. Because it is so hard in the end to keep your job. (Int16MG)*
> *R: And I was up for promotion before I received the funding and they turned me down. But then I replied two days later, I received a letter from the ERC and I said: look, I've just got funding and they said: ok, you can be promoted then (laughs), so. (Int23MG)*

There is no doubt that the ERC StG, despite its short history, has an excellent reputation throughout Europe (and increasingly in the US). It thus increases the visibility of young researchers. In this context an StG-holder reported:

> *R: But the other thing is that an ERC, that you should keep in mind, it's amazing how the universities are considering now the ERC. Since I got the ERC I received so many job offers, amazing, amazing, yes. (…) within the curriculum that makes a difference. (…)*
> *I: When you received the grant, how did the people here react?*
> *R: It was like... it was the day that our boss here became director, the director of [NN] University.*
> *I: Oh*
> *R: So he gave a speech because... and he said: from now on I want the [NN] University to be full of people like [HER NAME] so it was very, it was a super… honor. (Int18FG)*

Determinants of career progress

Given that chances of obtaining a professorship might depend on numerous factors such as individual performance and career track, but also on country- or discipline-specific features of research careers, multivariate regression is applied in order to assess the contribution of the StG to formal career progress while simultaneously controlling for other factors. The models control for characteristics of the respondents' career track, their past performance, potential strategic behaviour to improve individual career prospects such as a change of host institution (see also p. 82), the country group and research field.

Table 40 briefly describes the operationalisation of career progress (as a dependent variable) and selected independent variables. The respondent's career track prior to the application is characterised with regard to work experience, "swiftness" of career progression, funding, and international mobility. The number of years after obtaining the PhD serves as a measure for postdoctoral experience, while the age when the PhD was obtained is expected to indicate whether early career progress is also beneficial for obtaining a full/associate professorship. Since the mean PhD age differs across research fields, the difference from the discipline-specific PhD age has been calculated. The "scholarship" indicator marks whether the respondent was funded by a grant or scholarship during the postdoc phase. This indicator might serve as proof of reputational or symbolic capital, or of the ability to acquire funding. Furthermore, two indicators for international mobility have been introduced. "PhD abroad" indicates whether the PhD was obtained in a country other than the country of birth, and "Postdoc abroad" refers to postdoctoral employment in a country other than the country of birth. In order to test whether changes of host institution improve the chances of an appointment – e.g. if the StG is used to become mobile and thereby to improve research conditions or career prospects – or reduce them (at least in the short run), two dummy variables are introduced. While the first one indicates institutional changes within the current host country, the second one marks cross-border institutional changes.

Table 40 Operationalisation of dependent and selected independent variables

Dependent variable	**Variable definition**
Obtained professorship	Respondent has obtained a full or associate professorship between the StG application and the first wave survey one year after the StG funding decision (respondents who already held a professorship prior to the StG application were excluded from analysis)
Independent variables	
Change of host institution within country	Respondent has moved to a different institution but stayed in the same country compared to the point in time of the StG application (dummy with reference group "No change of institution")
Change of host institution and country	Respondent has moved to a different institution in a different country compared to the point in time of the StG application (dummy with reference group "No change of institution")
Scholarship	At least one of the respondent's employment episodes since his/her PhD has been funded by a grant/stipend/scholarship (dummy)
PhD abroad	Respondent obtained PhD in country other than country of birth (dummy)
Postdoc abroad	At least one of the respondent's employment episodes since his/her PhD has been spent abroad relative to country of birth (dummy)
Worked in US	At least one of the respondent's employment episodes since his/her PhD has been spent in the US (dummy)
PhD age	Age when PhD was obtained expressed as a difference from the average age of PhD completion in specific research field (group-mean centred)
Postdoctoral experience	Years since PhD was obtained
Number of peer-reviewed publications	Respondent belongs to the quintile of respondents in the same research field with the highest number of peer-reviewed publications. Quintiles have been calculated based on the self-reported number of accepted peer-reviewed publications (first wave survey) Since the effect is non-linear and only observable for the "upper" end of the distribution, a dummy has only been introduced for the highest quintile

Results

The analysis here includes a subset of the sample: 320 respondents who already held a full or associate professorship prior to the application have been dropped from the sample. Further observations have been dropped due to missing values for the predictors, or due to implausible values with regard to the year of the PhD, yielding a final sample size of 789.

Table 41 compares respondents who obtained a full/associate professorship in the time period from the StG application up to one year after the funding decision with those who did not. Among those who have been promoted, StG recipients are strongly overrepresented (23 vs. 59 percent). In addition, those applicants have been more mobile at an international level during their postdoc phase, especially to the US, and are more frequently high-performers with regard to the number of peer-reviewed publications in the respective research fields. However, in general, career tracks and performance do not differ tremendously. Table 37 also suggests that chances of promotion are moderated by country- and discipline-specific characteristics of the career system. Two findings are striking: firstly, compared to applicants from different research fields, those in Life Sciences are less frequently promoted and secondly, respondents from European Continental countries less frequently obtain a professorship, while those from Scandinavian countries are significantly more likely to do so.

Table 41 Descriptives by career progress

	Obtained full/associate professorship between StG application and 1 year after funding decision	
	No (N=651)	Yes (N=138)
Continuous variables	**Mean (SD)**	**Mean (SD)**
Years of postdoc experience	7.40 (2.53)	8.03 (2.12)
Dichotomous variables	**In % (col)**	**In % (col)**
StG recipient	23%	59%
Change of institution since StG application		
No change	88%	85%
Change within country	7%	7%
Change of institution and country	5%	8%
Scholarship during postdoc phase	44%	46%
PhD abroad	24%	24%
Postdoc abroad	70%	78%
Worked in US during postdoc phase	24%	35%
Highest quintile of publication performance	17%	24%
Research field		
Humanities	9%	8%
Social Sciences	8%	11%
Life Sciences	41%	28%
Natural Sciences	28%	38%
Engineering Sciences	14%	15%
Current country		
European Continental model	55%	41%
Anglo-Saxon model	30%	32%
Scandinavian model	9%	21%
Transitional Eastern and South-Eastern model	6%	6%
Female	28%	20%

Source: MERCI online survey, includes only respondents who did not hold a full/associate professorship when applying for the StG.

Which factors affect the chances of obtaining a full/associate professorship?

Multivariate regression analysis has been applied in order to disentangle the effect of the StG, individual characteristics (e.g. career track, international experience, early obtainment of PhD, postdoctoral experience) and that of country- and field-specific features of research careers. The models estimated below make it possible to predict baseline probabilities for appointments to professorships depending on the country group, research field, and other covariate patterns.

Estimated coefficients are presented in odds ratio metrics, meaning odds ratios larger than 1.0 indicate increased chances and odds ratios lower than 1.0 decreased chances of obtaining a professorship for a one-unit increase in the predictor. When comparing the magnitudes of positive and negative effects, the inverse of the respective effect should be considered, e.g. an odds ratio of two implies the same magnitude as an odds ratio of 0.5 but implies the opposite direction of influence. In addition, predicted probabilities for career progress have been calculated for specific covariate patterns which are given in the text, or plotted in graphs.

Table 42 reports the estimated coefficients, standard errors, and significance levels for three logistic regression models with regard to career progress, each covering a different period of observation. While Model I refers to the period from the StG application to roughly 1 year after the funding decision and Model II to the remaining period from 1 to 3.5 years after the funding decision, Model III covers the entire time period observed by the online panel. Predictors included remain the same across all models displayed in Table 42. The sample size for Model II and Model III is quite small due to panel mortality and the fact that the StG 2011 cohort could not be approached for a genuine second wave survey (cf. on this point Section 2.2.1). Hence, the description and interpretation of the effects focuses on career progress taking place in close temporal conjunction with the funding decision (roughly one year after) and refers to Model I. Model II and III are primarily displayed for the sake of completeness but – despite the small number of cases – confirm the main effects, namely that 1) the StG is associated with increased chances of promotion, 2) chances of promotion increase with the length of the overall postdoctoral period, and 3) respondents from Life Sciences less frequently progress along the career ladder in the surveyed time period of roughly 4.5 years.

The multivariate model confirms that receiving the StG is associated with a substantial increase in the chances of being promoted in close temporal conjunction with the funding decision. Holding all other covariates – e.g. the country group, postdoctoral experience, and research field – constant, StG recipients have roughly three times the chance of obtaining a full or associate professorship at the outset of the funding period compared to the rejected applicants in the same time period. In terms of probabilities, StG recipients have a chance of 33 percent compared to 8 percent for the rejected applicants.

	Career progress: obtained full/associate professorship between …					
	… application and first wave (Model I)		… first wave and second wave (Model II)		… application and second wave (Modell III)	
	Odds ratios	SE	Odds ratios	SE	Odds Ratios	SE
StG recipient [0=no, 1=yes]	5.188***	(1.143)	3.190**	(1.410)	4.294***	(1.494)
Change of institution within country since StG application [0=no, 1=yes]	1.362	(0.568)			0.284	(0.323)
Change of institution and country since StG application [0=no, 1=yes]	1.713	(0.704)	1.565	(1.017)	1.475	(0.861)
Scholarship during postdoc phase [0=no, 1=yes]	1.263	(0.287)	0.850	(0.397)	0.872	(0.322)
PhD abroad [0=no, 1=yes]	0.941	(0.243)	0.606	(0.334)	0.910	(0.358)
Mobility in postdoc phase [0=no, 1=yes]	1.098	(0.305)	1.152	(0.581)	1.233	(0.513)
Worked in US during postdoc phase [0=no, 1=yes]	1.770*	(0.454)	0.912	(0.523)	1.285	(0.540)
PhD age [difference from discipline-specific mean PhD age]	1.026	(0.038)	1.083	(0.084)	0.977	(0.064)
Years of postdoc experience	1.228***	(0.057)	1.116	(0.117)	1.182+	(0.105)
Peer-reviewed publications [1=belongs to 20% in research field with highest number of peer-reviewed publications, 0=reference group]	2.218**	(0.550)	1.827	(0.963)	1.552	(0.682)
Research field [reference: Humanities]						
Social Sciences	1.701	(0.829)	0.501	(0.588)	1.898	(1.922)
Life Sciences	0.373*	(0.163)	0.151	(0.176)	0.350	(0.344)
Natural Sciences	0.924	(0.385)	0.240	(0.274)	0.703	(0.669)
Engineering Sciences	0.891	(0.415)	0.244	(0.305)	0.834	(0.842)
Country [reference: European Continental model]						
Anglo-Saxon model	1.209	(0.306)	0.702	(0.367)	0.833	(0.334)
Scandinavian model	4.068***	(1.256)	2.389	(1.360)	2.876*	(1.343)
Transitional Eastern and South-Eastern European model	2.652*	(1.165)	0.649	(0.741)	1.441	(1.018)
Female [0=no, 1=yes]	0.591*	(0.151)	0.964	(0.470)	0.882	(0.359)
Constant	0.0146***	(0.009)	0.345	(0.476)	0.103+	(0.121)
Pseudo R^2	0.179		0.115		0.156	
AIC	638.4		192.4		273.3	
LL	-300.2		-78.2		-117.7	
N	789		167		216	

Source: MERCI online survey, includes only respondents who did not hold a full/associate professorship when applying for the StG.

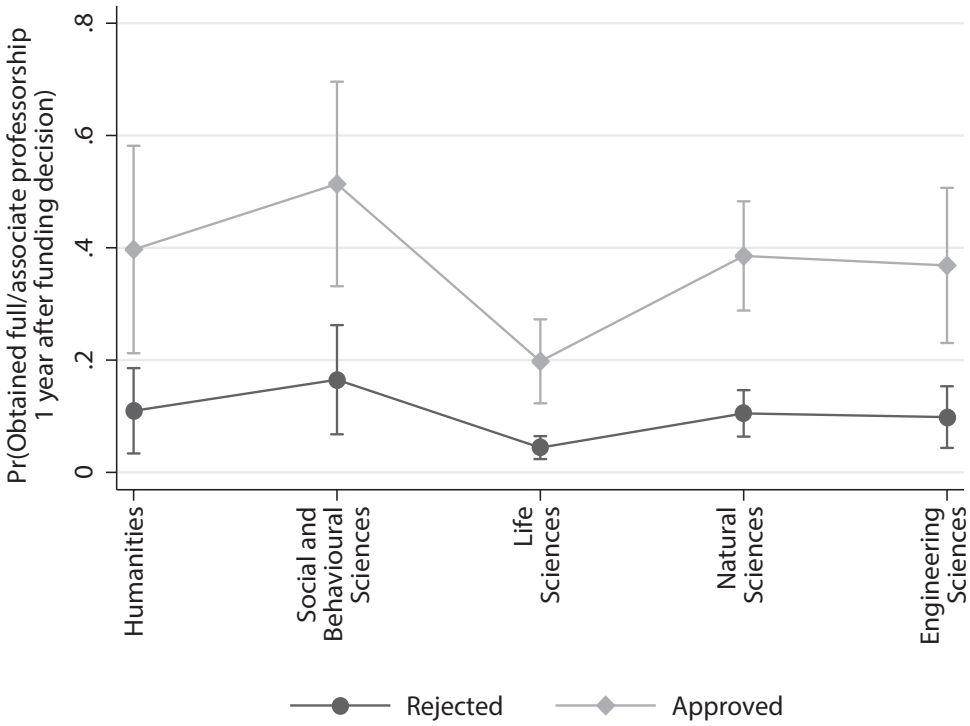
*Note: exponentiated coefficients (odds ratios); standard errors in parentheses, + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Aside from the positive effect of the StG, the following main effects have been identified (see Table 42):

1. "Baseline" chances for career progress differ across groups of countries and research fields:

Figure 42 illustrates how strongly the probability of being appointed to a full or associate professorship differs across research fields even if the other factors are kept constant. As has been suggested in the previous analysis, the chances of an appointment in the time span between the application and the first wave survey are lowest in Life Sciences. While for applicants in Life Sciences even with the StG the probability only increases from roughly 4 to 20 percent, for Social Scientists the probability raises from 16 to 51 percent. The findings corroborate the hypothesis that the StG substantially accelerates career progress across all research fields, especially in Social Sciences. The size of this effect varies slightly across research fields, with life scientists benefiting least from the career-facilitating effect of the StG.

Figure 42 Predicted probabilities of obtaining a full/associate professorship by research field and funding status

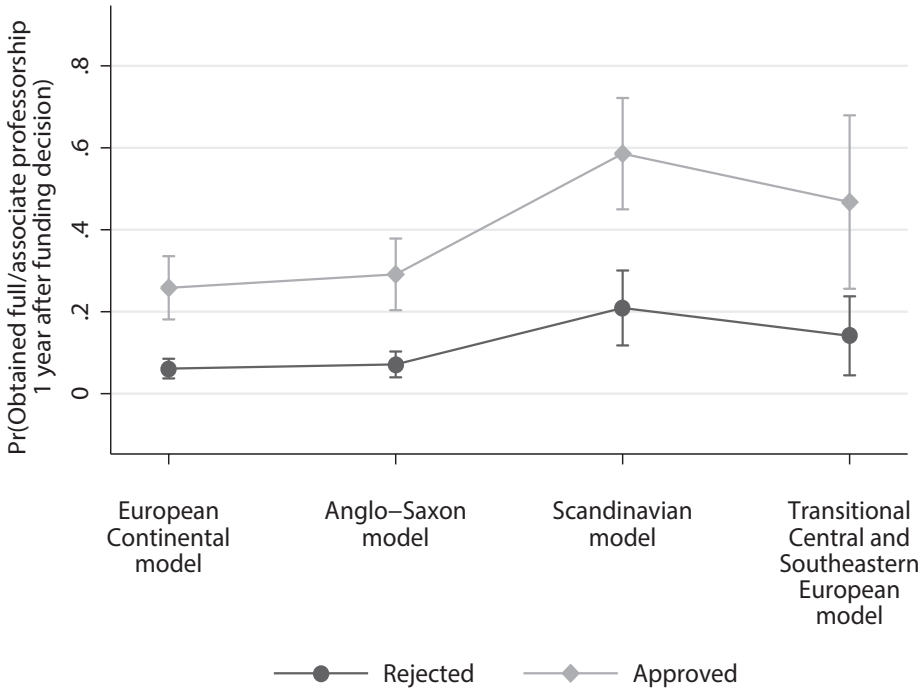


Source: MERCI online survey, N=798, includes only respondents who did not hold a full/associate professorship when applying for the StG

Note: prediction of probabilities based on logistic regression model in Table 57, other covariates fixed, 95% CI displayed

Figure 43 plots the predicted probabilities of obtaining a professorship soon after the funding decision for approved and rejected applicants across country groups. While in Anglo-Saxon countries career progress is as unlikely as in the European Continental countries, researchers in the Scandinavian countries are four times as likely to be appointed even when controlling for other covariates such as postdoctoral experience.

Figure 43 Predicted probabilities of obtaining a full/associate professorship by country group and funding status



Source: MERCI online survey, N=798, includes only respondents who did not hold a full/associate professorship when applying for the StG

Note: prediction of probabilities based on logistic regression model in Table 58, other covariates fixed, 95% CI displayed

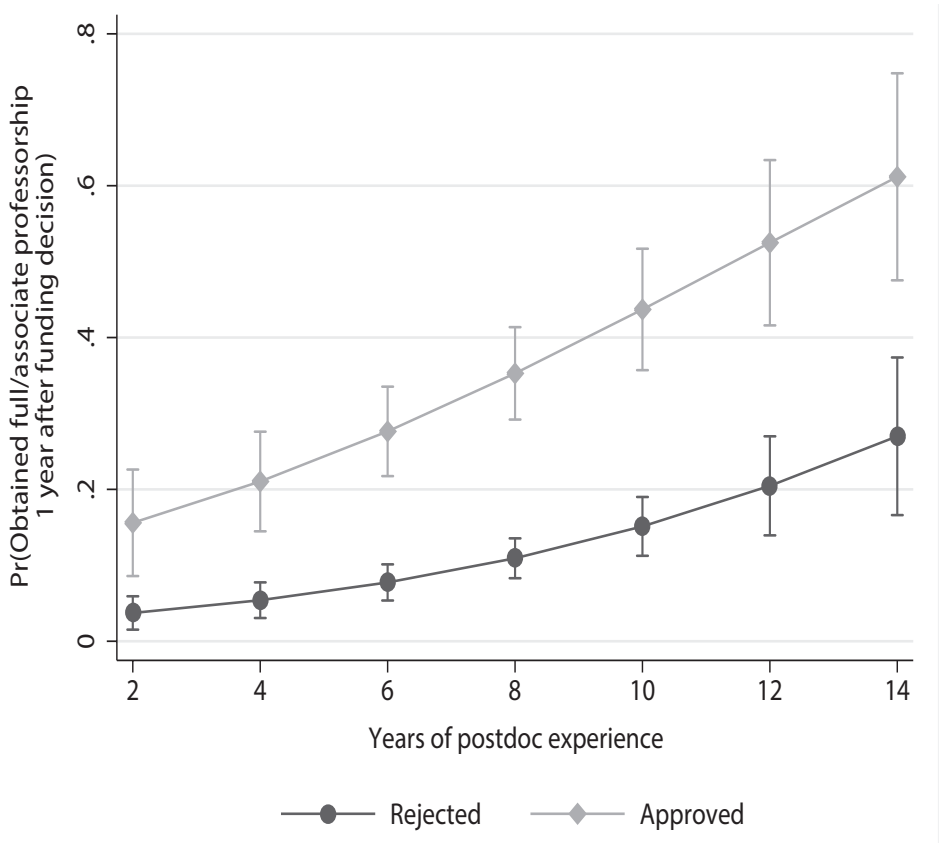
2. Chances of obtaining a full/associate professorship increase with postdoctoral experience but international mobility and early completion of PhD do not prove beneficial for rapid career progress.

From 2007 to 2012, respondents with up to 12 years of postdoctoral experience have been eligible to apply (see on this Section 1.2.1) and so respondents in the sample differ considerably with regard to their work experience. The regression results show that individual chances of promotion grow by a factor of 1.2 with each year of postdoctoral experience. For example, the chance of career progress for an StG recipient just two years after completing his/her PhD are 15 percent compared to 44 percent for an StG recipient with ten years of postdoctoral experience (cf. Figure 44).

Other "structural" characteristics of the past career track seem less relevant. Neither early completion of the PhD compared to colleagues in the same research field nor international mobility pay off in terms of early progress on the organisational career ladder. International mobility – here measured by the fact that the PhD or postdoc was carried out abroad – does not affect the likelihood of obtaining a professorship among the former StG applicants. This is not to deny a positive effect of international experience on career progress in general, but the regression results might suggest that in this highly selective group of StG applicants it does not represent a distinctive feature in the CV which might foster further career progress, or a good indicator for predicting it. The results indicate that it is not mobility as such that matters but probably the country and, thus, *where* the time abroad was spent. It becomes apparent that – all things being equal – respondents

who carried out a postdoc in the US are significantly more likely to be promoted.[63]

Figure 44 Predicted probabilities for obtaining a full/associate professorship by years of postdoctoral experience and funding status



Source: MERCI online survey, N=798, includes only respondents who did not hold a full/associate professorship when applying for the StG

Note: prediction of probabilities based on logistic regression model in Table 58, other covariates fixed, 95% CI displayed

3. Past publication performance fosters career progress

Past publication performance in terms of the number of peer-reviewed publications is associated with increased chances of obtaining a professorship. However, this positive effect is not linear and only appears among the top performers. If a respondent belongs to the 20 percent of respondents in the respective research field who publish the most, his/her chances of obtaining a professorship more than double compared to the reference group.

4. Female respondents are less likely to obtain a professorship.

Holding other covariates constant, female respondents have a significantly lower chance (by a factor of 0.6) of being promoted within the time span after the StG application. However, predicting

63 This effect is only significant at the 5% level. Separate regression analysis for all research fields (not displayed here) revealed that this indicator is highly relevant in Life Sciences but does not show a significant effect in the other research fields.

probabilities suggests that with regard to magnitude it is rather of minor importance compared to main effects presented before: e.g. a female rejected StG applicant shows has a 7 percent probability of being appointed compared to a 12 percent probability for a male one.

Do determinants of career progress have a different effect among the StG recipients?

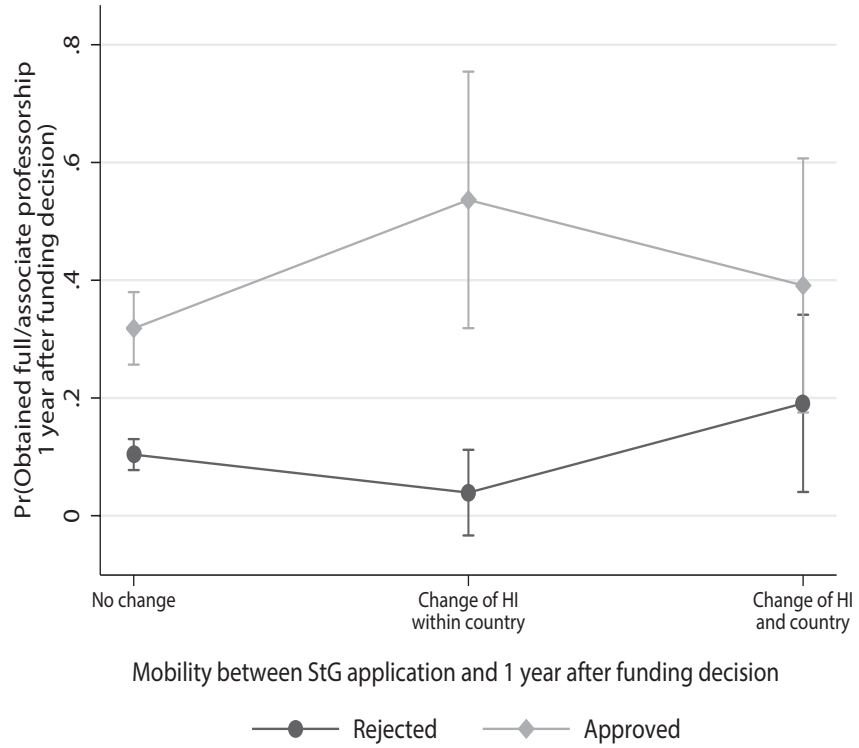
The analysis so far has focused on the major effects, meaning the question of which factors might explain formal career progress among StG applicants in general and to what extent it is attributable to the StG funding. This section seeks to answer the question of whether the StG moderates the effect of distinct career determinants and whether this effect is of a compensatory or a reinforcing nature. Therefore, as a first stage separate regression models have been estimated for approved and rejected applicants in order to assess whether the effects of the predictors differ with regard to direction or magnitude (cf. Table 58 in Appendix). In a second stage, Model I in Table 42 has been extended by incorporating interaction terms where the effects of the predictors differed between the subsample of approved and rejected applicants.

Four relevant interaction effects have been identified:[64]

1. Among the StG recipients, an additional positive effect of previous postdoctoral grants/scholarships appears, while within the group of rejected applicants no significant effect on career progress is observable. This might point to an amplifying or cumulative advantage effect: having received a scholarship in the past does not automatically translate into higher chances of being appointed because it does not represent a distinctive feature in the CV, but in conjunction with the grant it complements the picture of a promising track record.
2. Among the StG recipients, the positive effect of a strong publication output on career progress is much more pronounced than among the rejected applicants. Similar to 1), this might indicate that receiving the StG amplifies the, in any case, positive effect of being a productive researcher, which overall leads to a larger increase in chances of appointment than is to be expected if both effects are analysed separately.
3. Among rejected applicants, US mobility during the postdoc phase increases chances of career progress while no such effect is observable for the StGrantees. Two interpretations are conceivable: firstly, a compensatory effect, meaning US mobility gains in importance as a distinctive feature in the absence of the StG, while it does not provide a further advantage for the StGrantees.
4. Intra-country mobility with the StG significantly improves the chances of obtaining a professorship, while no such effect is observable for cross-border mobility with the grant or among the rejected applicants in general (see Figure 45). This result is in line with the finding that mobility with the StG often coincides with the applicants' intention to improve their contractual conditions (see Table 29) and suggests that mobility – under specific circumstances – results in progress on the career ladder. However, this only holds true if the respondent stays in the same country but not in case of cross-border mobility because the latter implies a move to a different research and career system which probably requires further time for adjustments.

64 For the regression model, see Table 59 in the Appendix. Interaction effects aside, predictors are equivalent to those displayed in Table 42.

Figure 45 Predicted probabilities of obtaining a full/associate professorship by change of institution and funding status (interaction effect)



Source: MERCI online survey, N=798, includes only respondents who did not hold a full/associate professorship when applying for the StG.

Note: prediction of probabilities based on logistic regression model in Table 58, 95% CI displayed

6.2 The StG – and what's next …?

Given that the StG programme aims to enable postdoctoral researchers to establish or consolidate their own research group in order to independently conduct research, the question arises whether we can observe sustainability for the ERC funding with respect to both the position an StG recipient holds at the host institution and the continuation of the StG research group. Consequently, in the following we will shed light on the grantee's (intended) stay at the StG host institution and the (anticipated) development of his/her StG research group.[65]

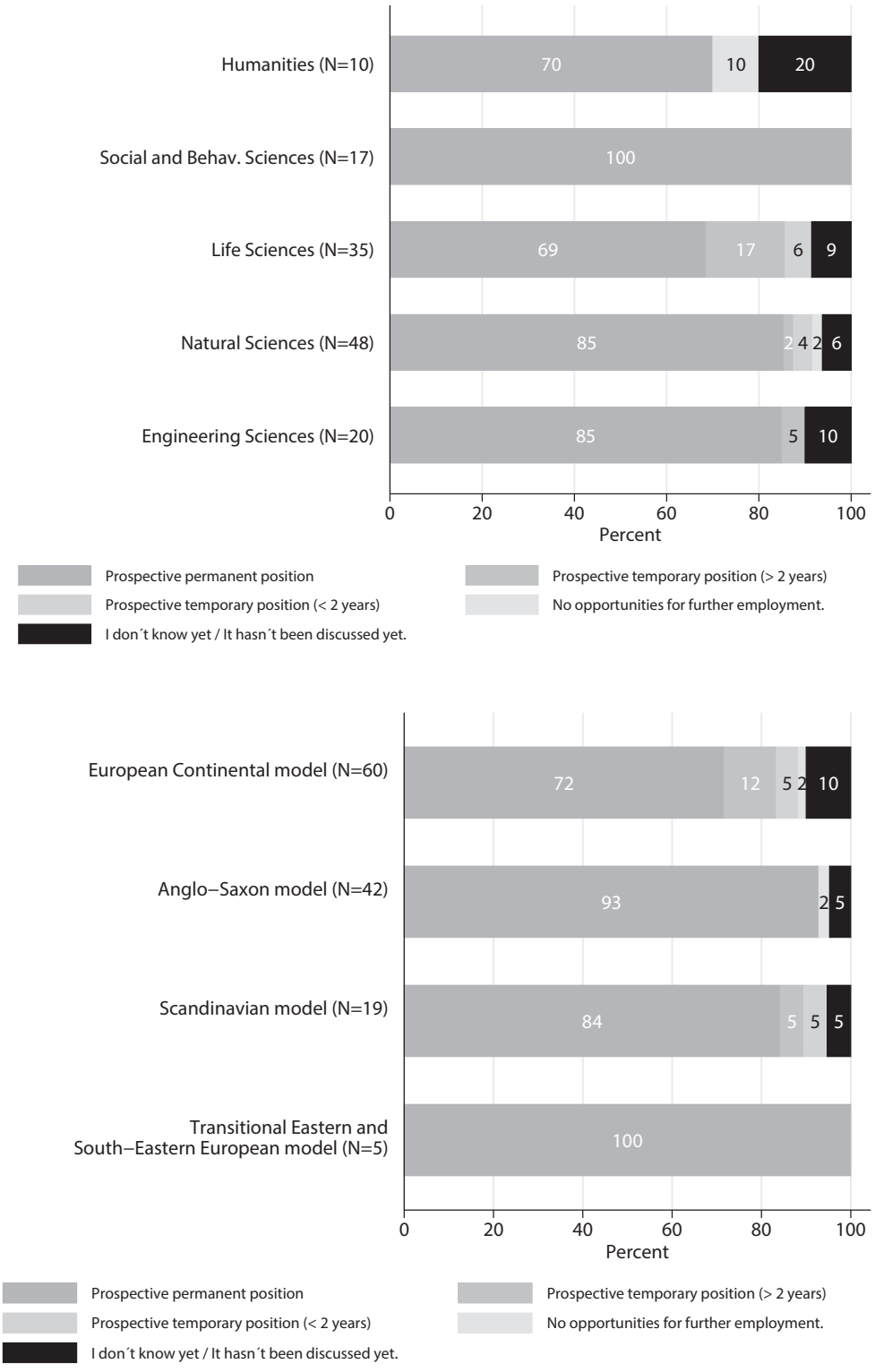
To start with, we assume that the preference to stay at or leave an StG host institution strongly depends on the kind of position (permanent vs. temporary) a StGrantee holds. This is why in our second wave survey we asked the StG recipients the question: "Looking at your current job situation: Are there already any agreements to continue your employment at your current StG host institution (e.g. tenure track, contract extension)?" Our survey data indicates that 67 percent of our surveyed StGrantees intend to stay at their StG host institution, 24 percent are still unsure and 9

65 As noted above, given that our second wave online surveys were conducted approximately 3.5 years after the ERC funding decision and that the overwhelming majority of StGrantees are funded for five years, our questions with regard to the sustainability of the ERC funding were put to the panellists in the last part of their StG funding period. Hence, the assertions refer to anticipated development of the respondent's career or research group.

percent intend to change institution. 82 percent of the StG recipients have a permanent position, or have the prospect of one, while a further 9 percent have a temporary one. Only 1.5 percent state that they do not have further employment opportunities and the remaining 7.5 percent have not yet made any agreements.

As shown in Figure 46, the individual prospect of further employment at the StG host institution differs between research fields and groups of countries. It is striking that in the Social Sciences all surveyed StGrantees have a prospective permanent position. In contrast, in the Humanities for almost one in three grantees it is unclear whether he/she will be employed at the same institution after the StG funding expires. Furthermore, our findings confirm a strong trend towards an extended postdoc phase in Life Sciences: the proportion of respondents who have a prospective permanent position is lowest, but 23 percent will receive a temporary contract, most of them for a period of more than two years. However, when assessing the respondents' individual career prospects, different 'starting conditions' should be kept in mind: in Social Sciences, the proportion of respondents who already hold a professorship when applying for the StG is highest and the situation is similar in Engineering (see Figure 40). These findings show that the career-facilitating effect of the StG is strongly moderated by discipline-specific career patterns and that it does not automatically bring job security with it. This, however, is in line with the respondents' assessments of their working conditions as explained in Section 6.4, pointing to a moderate benefit in terms of job security for StGrantees and an unchanged situation for the rejected applicants.
When it comes to differences across host countries, Figure 46 reveals that all StG recipients residing in Eastern and South-Eastern European countries have a permanent position in sight (but note that N=5) and that the bulk of StGrantees residing in an Anglo-Saxon country do so (93 percent). It is remarkable and effectively inherent in the system that compared to both Central European and Scandinavian countries none of the StG recipients hosted in an Anglo-Saxon country has a prospective temporary position.

Figure 46 Prospective position at the StG host institution after the expiration of ERC funding across research fields and country groups



Source: MERCI online survey (second wave survey), only approved applicants included

Note: original question reads as follows "Looking at your current job situation: Are there already any agreements to continue your employment at your current StG host institution (e.g. tenure track, contract extension)?"

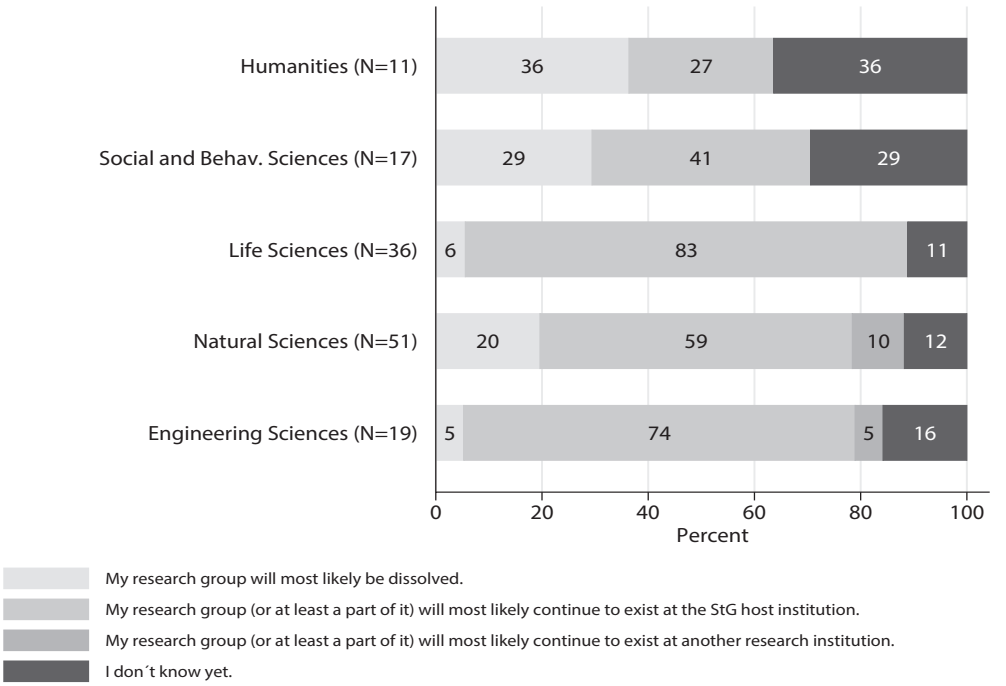
Future of the StG research group

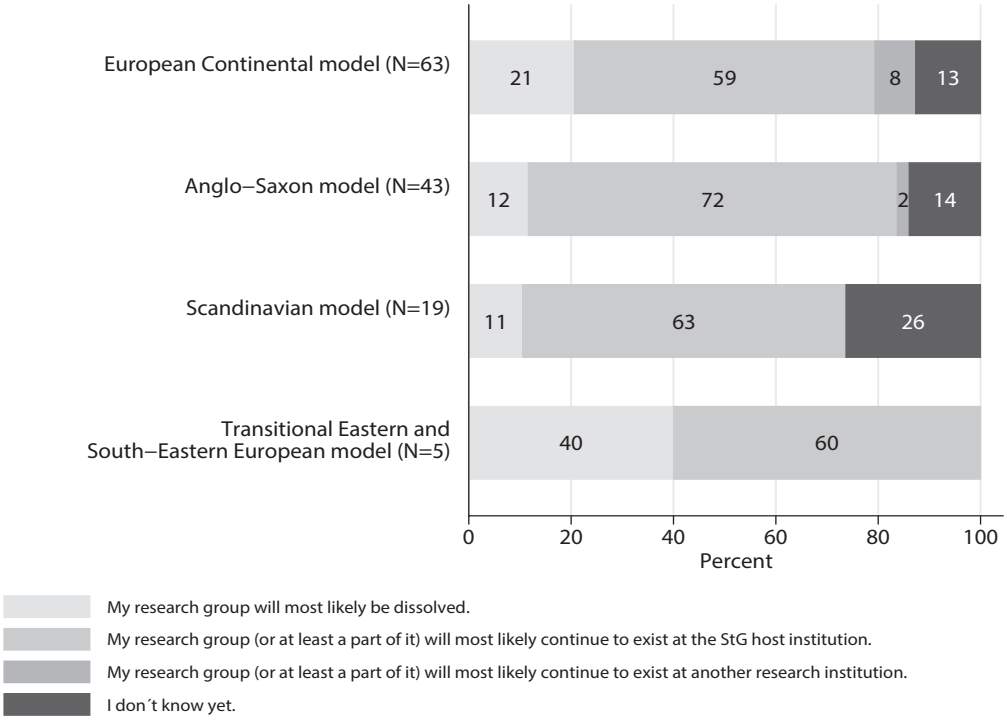
In addition to the individual career plan to stay at or leave the StG host institution, we also asked about plans with respect to the continuation of the StG research group after the ERC funding expires. Here, the majority of StG research groups (62 percent) will most likely continue to exist in a similar form at the current institution. In 16 percent of cases the research group will most likely be dissolved and 4 percent of the groups will most likely move to another research organisation. For 17 percent of the respondents the future of their research group is unclear.

Interestingly, there are also some differences with regard to the future scenarios of the StG research groups across research fields, as shown in Figure 47. While in Social Sciences the academic future of the Principal Investigator seems secure, that of the StG research group is apparently much more uncertain. As Figure 47 reveals, in the Humanities and in Social Sciences the future of the StG research group is often unclear during the last phase of the StG funding period: in the Humanities, the research group will probably be dissolved in 36 percent of cases, while another 36 percent have not made precise plans yet. A similar pattern appears in Social Sciences. However, this finding needs to be accepted with caution, bearing in mind the very small number of cases (N=11 and N=17 respectively). When considering Life Sciences and Engineering, we find a completely different picture: in these research fields most of the StG research groups – namely 83 percent for the Life Sciences and 73 percent for Engineering – will most likely continue to exist at the same institution and in only 5 or 6 percent respectively of cases will StG research groups be dissolved. StGrantees from the Life Sciences therefore do not plan to move with their StG research group to another institution, whereas this is the intention for 5 percent of StGrantees in Engineering. In both research fields there are several cases where the future of the research group is still unclear (11 percent for Life Sciences and 16 percent for Engineering). However, again, in the Natural Sciences we find other patterns. Here, almost 10 percent of the StGrantees will most likely move to another institution with their StG research group and almost 20 percent indicated that their StG research group will probably be dissolved. Still, 59 percent of the StG research groups will most likely continue to exist at the same institution.

With regard to differences across countries, Figure 47 shows that compared to other countries in Eastern and South-Eastern European countries the future of the StG research group is most frequently dependent on the ERC funding; in fact, 40 percent of the research groups will be dissolved after the funding period (again, please bear in mind the small number of cases). In the three other groups of countries the probability of a continuation of the StG research group is much higher, though we are faced with an uncertainty which especially applies to Scandinavian countries – here, in 26 percent of cases the future of the research group was still unclear in the last part of the ERC funding period. However, all in all our data paints a quite optimistic picture: across all countries in 59 to 72 percent of the cases the StG research group will most likely continue to exist at the current institution.

Figure 47 Future scenarios for the StG research group after the ERC funding expires across research fields and groups of countries





Source: MERCI online survey (second wave survey), only approved applicants included

Note: the original question reads as follows: "Are there any plans for the continuation of your StG research group after the ERC funding runs out?"

The survey data further suggests that the dissolution of the StG research group is most often due to a lack of financial support by the host institution, low commitment and engagement from the host institution and a lack of third-party funding. By contrast, low engagement by the StG group members and thematic mismatch do not seem to play a crucial role for the dissolution of the group. Furthermore, from the open survey answers we gathered the information that legal constraints on the further employment of postdocs may also hamper the continuation of the StG research group – as is the case, for example, in Germany or France. From the open answers we also know that the StG recipients themselves do not always plan to continue the StG research group, for several reasons: for example, because staff members are looking for further career development and scientific independence or because collaboration does not necessarily need to be organised within the framework of a formalised research group. Last but not least, the StG research group may be dissolved because an StG recipient prefers to continue working with a smaller team.

Supposing that it is intended that the StG research group should continue to exist at the host institution: what are the prerequisites for a potential continuation? As our findings from the second wave online survey demonstrate, it seems that this is primarily a matter of extramural funding and less a matter of thematic fit or the commitment of the group and the host institution (cf. Table 43). However, financial support by the host institution is only relevant for Life Sciences (50 percent), Engineering (50 percent) and Natural Sciences (38 percent).

Table 43 Prerequisites for maintaining the StG research group as perceived by the respondents

Prerequisites for maintaining the StG group	Percent of respondents
Financial support by the HI	41.4
Successful acquisition of third-party funding	93.1
Good thematic fit	23.0
Strong commitment and engagement from the HI	24.1
Strong commitment and engagement from the research group	23.0
Other reasons	5.8
$Total_{responses}$ in % (N=183)	210.3
$Total_{cases}$	87

Source: MERCI online survey (second wave survey), only approved applicants included

7. Summary and conclusion

Background and scope of the MERCI study

The diagnosis of the ERC is that "Europe currently offers insufficient opportunities for young investigators to develop independent careers and make the transition from working under a supervisor to being independent researchers in their own right […]" which "leads to a dramatic waste of research talent in Europe." (http://erc.europa.eu/starting-grants). In order to counter this structural drawback, in 2007 the ERC introduced the StG funding scheme to promote "excellent" young researchers: postdoctoral researchers are endowed with up to € 1.5 million for the duration of up to five years to set up or consolidate their own research group. This endowment is intended to enable them to pursue investigator-driven "frontier research". The StG programme hence addresses different dimensions: it offers young researchers the opportunity for a research-oriented period that allows them to independently conduct a large-scale research project and to develop leadership skills by leading their own research group at a host institution of their choice. Furthermore, it aims to create positive framework conditions to foster mobility between or within countries and thus harness the diversity of European research talent and channel funds to the most promising researchers. The demand for the StG funding scheme is immense, which may indicate that the ERC is in fact addressing an important problem and that the funding scheme is particularly appealing – both in terms of the duration and the amount of funding. There is no doubt that in its short history, the ERC funding scheme has developed considerable prestige. Besides the high amount of funding, the prestige is presumably derived from the high standards of the eligibility requirements and the rigorous selection process as well as the low acceptance rates (between 3 and 16 percent), which foster the 'exclusivity' of StG recipients.

Due to the fact that the StG programme was only established a few years ago, the MERCI project puts a strong emphasis on the programme's implementation and how it works in practice. In this way, MERCI focuses on the individual perspective and aims to paint a broad picture concerning the questions of whether the StG programme succeeds in attracting up-and-coming "excellent" young researchers from all over the world and in accomplishing its objectives. Furthermore, MERCI addresses direct and indirect effects of the StG funding scheme. Here, direct effects refer to the working conditions and the career development of StGrantees whereas indirect effects instead address structural changes (e.g. diffusion of standards in national funding systems) and changes in organisational or institutional settings. Overall, the MERCI project addresses four broad topics: the funding strategies of StG applicants and their motivation to apply for an StG, the ERC selection process, the experiences of StG recipients with their host institution and their working conditions and the outcome and sustainability of the StG funding.

In order to gain a comprehensive view of the StG programme implementation as well as the career development attributable to the StG funding, a triangulation approach and a comparative design with rejected StG applicants were chosen. The particular advantage of MERCI's empirical approach comes not only from a parallel implementation of qualitative (semi-structured interviews) and quantitative (online survey with a panel design and bibliometric analysis) methods, but also from the functional interlacing of partial or preliminary results, the development of instruments and the interpretation of empirical data. This step seems crucial with regard to the main problem of

quantitative data in application-oriented contexts (such as evaluations) in order to effectively interpret the measured values of indicators in the whole context of the evaluation.

In order to answer the question of whether the programme performs well and whether the StG funding has any effects on the career development of young researchers, sound empirical evidence and a comprehensive gathering of individual aggregate data that takes account of changes over time were required. In this regard, one building block of MERCI was a panel approach consisting of two waves of standardised online surveys allowing for a longitudinal design with several cohorts of approved and rejected StG applicants. The first panel wave was conducted at the beginning of the StG funding (or one year after the StG application for the rejected applicants) and the second wave in the last part of the StG funding period (or 3.5 years after the StG application for the rejected applicants). A short intermediate survey was run between the first and the second wave surveys. Overall, MERCI can draw upon a large quantity of empirical evidence based on three surveyed StG cohorts (StG 2009, 2010 and 2011 cohorts) with more than 1,700 valid cases for the first wave survey and 500 for the second wave survey. For the qualitative interview study 40 interviews were carried out (29 with approved applicants and 11 with rejected ones from the StG 2009 cohort). The bibliometric analyses were conducted for approved and rejected applicants from the StG 2007 and 2009 cohorts.

In order to elaborate on how the StG funding scheme works in practice, MERCI takes into account differences across nationalities, research fields and positions. Empirical results gathered from the different methodological approaches are triangulated whenever it seems useful to gain a comprehensive understanding of the complex object of evaluation.

Key findings

Its endowment and flexibility make the StG a highly coveted funding scheme for postdocs

The motivation to apply for an StG is mainly driven by the endowment which the grant offers. This on the one hand refers to the amount of funding and its duration but also, on the other, to its thematic openness and the freedom to set one's own research priorities. Contrasting the motivation to apply for an StG with the motivation to apply to other funding bodies reveals that these are also the characteristics which are perceived as outstanding with regard to the StG. The reputation of the StG also represents an important, but slightly less relevant motive. For a minor but relevant group the StG application proves to be an essential attempt to ensure the funding of their own position or to compensate for the lack of other funding opportunities. These motives were found to be most relevant for respondents from the Humanities, in Eastern European and Scandinavian countries, and for rejected applicants.

In some research fields the StG tends to substitute for recurrent institutional funding

In Life Sciences receiving an StG obviously does not appear to result in a general shift in the relevance of funding sources since the applicants usually make use of a large variety of other sources. Here, the StG apparently neither compensates for a general lack of funding which would restrict the general expansion of research activities nor substitutes for other specific sources. However, in Natural Sciences and Engineering the StG instead tends to substitute for recurrent funding, whereas

the number of projects funded by third parties remains almost stable. In Social Sciences the composition of projects barely differs between approved and rejected applicants, meaning that regardless of whether the respondents receive the StG or not, third-party funding, recurrent funding and individual fellowships are of equal relevance and the StG project is simply 'added' to the existing set of projects but does not trigger any general shift in funding sources. Given that in the Humanities the proportion of projects funded by individual fellowships and recurrent funding is substantially lower among the grantees compared to their rejected counterparts, one may conclude that the StG funding in this field basically substitutes for recurrent funding and fellowships.

The relevance of the StG project in the researcher's project portfolio differs across research fields

While in Social Sciences and Humanities the StG is essential for implementing a specific research idea that would otherwise not be possible, in Life Sciences and Physical Sciences and Engineering an ERC grant appears to often be embedded in larger projects and represents an integral part of a more diversified funding portfolio. Here, the implementation of the StG project idea is still deemed possible without the ERC funding – maybe but not necessarily with some small adjustments due to a smaller funding budget. Beyond that, we found that compared to other research fields in Social Sciences and Humanities the StG funding is crucial for the career prospects of the Principal Investigator – in some cases the employment of the Principal Investigator would even have been endangered without the StG.

There is a high level of self-selection amongst StG applicants

The bibliometric analysis reveals that the past publication performance of approved and rejected StG applicants differs only moderately. Most of the StG applicants already exhibit an above-average output prior to the application. In the analysed domains (Life Sciences and Physical Sciences and Engineering) over 90 percent of the applicants have published at least six articles in international journals and over 75 percent of all applicants have authored at least one highly cited paper. Both of these statements hold true for rejected and selected applicants.

The StG is seldom used to enable mobility

More than 80 percent of the MERCI respondents prefer to stay not only in the same country where they were living when applying for the StG, but even to remain at the same institution. Less than 11 percent of the StG recipients use the grant in order to move to an institution in another country. With regard to the type of host institution it is apparent that the majority of respondents prefer to work at a university. Hence, in many cases the StG funding is used to improve the research conditions at the university where a StGrantee was already working when applying for the ERC funding.

The StG brings with it a higher level of autonomy (allocation of material resources, human resources and laboratory/ office space), while it has less effect on teaching activities and institutional co-decisions

Compared to their peers at the same career level, both groups of StG applicants report very high

levels of scientific independence at the time when they applied for the StG. This may suggest that the StG serves as an instrument to supplement pre-existing scientific independence with financial autonomy. Furthermore, the comparison of researchers' time budgets reveals that StG recipients report substantial surplus time for research compared to rejected applicants.

Strong research skills are a precondition for the StG application rather than an outcome of the StG programme

To obtain a proxy for the perceived development of individual skills – independently of the career stage a respondent is at and the position he/she holds – approved and rejected StG applicants were asked to rank their own level of competence in comparison to their colleagues at the same career level. The respondents' overall tendency to rate their own competencies as "above average" is noteworthy. Moreover, among approved StG applicants skill development is concentrated on a smaller set of competencies, namely leadership, acquisition of research funding and networking skills, whereas in the reference group a broader set of skills was mentioned and the picture appears much more heterogeneous accordingly.

StG recipients are highly satisfied with their working conditions

In the assessment of their working conditions, StGrantees systematically report higher levels of satisfaction across all different aspects of their work. The most significant difference between the two groups of StG applicants appears in the assessment of long-term career prospects, with the approved ones exhibiting much higher satisfaction.

Receiving an StG has strong positive effects on the individual career development of postdocs

The survey data suggests substantial vertical mobility on the organisational career ladder: between the StG application phase and the second wave survey, the proportion of MERCI respondents holding a full or associate professorship doubled, while the proportion of those holding an assistant professorship or group leader position remained stable. The findings show that StG recipients obtained full or associate professorships in close temporal conjunction with the ERC funding decision. This provides evidence for the hypothesis that the *promotion is received as a reward for the successful StG application*. In general, the StG serves as an official confirmation of their scientific recognition and helps them to progress in their organisational career, while it is apparently less relevant as an instrument for *achieving* scientific independence.

The majority of StG recipients tend to stay at the current host institution and the StG research group will most likely continue to exist – but there are strong differences across research fields

With regard to the sustainability of the StG funding, the survey data indicates that the majority of StGrantees intend to stay at their host institution (68 percent), 24 percent are still unsure and 9 percent intend to change institution. In addition, the majority of them will most likely continue working with their research group (in a similar form) at their current institution (62 percent). In 16 percent of cases the research group will most likely be dissolved and 4 percent of the groups will

most likely move to another research organisation. For 17 percent of the respondents the future of their research group is quite unclear. Here, differences across research fields come into play: not surprisingly, in the Humanities and in Social Sciences the future of the StG research group is most frequently less sustainable or unclear compared to other research fields.

Self-critical reflections about MERCI and the research desiderata

Overall, with regard to evaluating the StG implementation phase, the comparative and longitudinal design and the triangulation approach with its three methodological approaches turned out to be appropriate for achieving the objectives of MERCI. With the help of the online panel, which surveyed three StG cohorts at three different points in time, we successfully gathered statistical evidence about the motives to apply for an StG, the perception of the ERC selection process, the role of the StG in the overall project portfolio, and the working conditions at the host institution. We were also able to identify (first) effects of the StG funding. In addition, with the help of the qualitative interview study, we really tried to *understand* how these effects come about, to widen and deepen our perspective by gathering interpretative information, to probe into issues not covered by the survey, and to reveal neglected contextual factors accordingly. In addition, for issues exclusively relating to subjective perception and individual experiences (for example the working atmosphere at the StG host institution, institutional integration or career obstacles), the interviews played an essential role. Last but not least, based on the bibliometric analysis we were able to paint a detailed picture concerning the past publication performance of both groups of StG applicants.

Dealing with rejected StG applicants as a control group

While the approach of comparing approved and rejected applicants proved to be particularly useful for assessing StG application procedures and the ERC selection process, the findings with respect to changes in working conditions and career development attributable to the StG programme should be interpreted cautiously for several reasons:

Firstly, the high self-selectivity amongst StG applicants suggests that most of the applicants are already well-established researchers. Given that they have already achieved the initial definition of an independent researcher (cf. on this point Section 1.1) the question arises as to what actually constitutes career progress for established and recognised young researchers of this kind.

Secondly, disciplinary cultures strongly shape typical career patterns, project portfolios, and types of scientific output, which makes it harder to define catch-all output measures which would make it possible to assess the outcome of the StG programme across different research fields.

Thirdly, when analysing the effects of the StG funding one needs to keep in mind other confounding effects. Given the increased number of national-level postdoc programmes and options for acquiring competitive funding, it is likely that both rejected and approved applicants can draw on a diverse set of resources to improve their working conditions that might also bring reputational effects with them.

Fourthly, effects might be moderated by country- or institution-specific framing conditions. While the StG endows its recipients with a substantial amount of money, which is ideally intended to allow the Principal Investigator to set up or consolidate his/her own research group and to pursue his/her personal research agenda, it remains an open question how this sum of funding will actually be translated into an increase in independence and autonomy. In contrast to national-level programmes like the Dutch Veni Vidi Vici programme, the German Emmy Noether Programme or the Spanish Ramon y Cajal Programme, StG recipients are embedded in highly heterogeneous settings depending on national career systems, career models, career prospects and differing endowment of resources. The StG programme thus defines the abstract target state of becoming an independent researcher and group leader, but does not offer prestructured institutionalised arrangements to achieve these goals.

Integrating the institutional perspective

Undoubtedly, changes in the landscape of research funding have effects at the level of research institutions – as can be seen from the examples of negotiations with the StG host institution and the emergence of supporting infrastructures for the acquisition of research grants. In the MERCI project these kinds of 'institutional adaptation processes' have only been investigated from the researcher's perspective. However, in order to take into account the institutional responses to changes in the funding landscape and their moderating effects on individual researchers' success rates as well as on the StGrantees' successful implementation at their host institution, individual-level data should systematically be supplemented by organisational level data. Furthermore, as we have shown in our analysis, the StG generates a coincidence of wants: on the one hand, it enables researchers to create a "protected space", i.e. enables them to pursue their own research goals by endowing them with a sizeable amount of resources. On the other hand, hosting a StGrantee has become a sign of prestige and a competitive advantage for research institutions. Hence, the ERC grant which is intended to enable researchers to become independent with regard to their "cognitive career" is also utilised to serve the needs of research organisations. We recommend further studies at the institutional level in order to explore the role the (potential) StG host institution actually plays in the StG application phase ('Preselection' of high potentials? Attractive job offer in case of an approval?, during the StG funding period and the (positive and potentially in some circumstances also negative) effects of hosting a StGrantee.

Recommendations for further monitoring activities

Analysing several cohorts of StG applicants is a 'UPSs'. In relation to the StG implementation phase, our survey data suggests some cohort effects, for instance with regard to the negotiation behaviour of StG recipients and their host institution. Based on empirical evidence our assumption is that we are faced with a process of learning and mutual adaptation by both StG recipients and StG host institutions.

However, unfortunately, within the scope of the MERCI project we were not able to monitor the very first cohort of the StG 2007 call. Given that the StG 2007 cohort must in any case be regarded as 'exceptional' (an extremely high number of applicants with a very low acceptance rate of only 3 percent) and that there was no StG call in the year 2008, we are not able to monitor important

changes between the first two StG cohorts. Instead, it is to be expected that a process of consolidation had already begun and that, hence, the following cohorts would increasingly resemble each other. The fact that the first StG cohort is not monitored by MERCI significantly restricts a genuine impact assessment with respect to the (long-term) career development of StG recipients. Given that our second wave online surveys were conducted approximately 3.5 years after the ERC funding decision[66] and that the overwhelming majority of StGrantees are funded for (a maximum period of) five years, the questions with regard to outcome and sustainability are put to the MERCI panellists in the last part of their StG funding period. Consequently, we are not able to generate data on long-term career development and, strictly speaking, within the scope of the MERCI project we are addressing the anticipated sustainability of the ERC funding. Thus, we recommend following up on the 'MERCI cohorts' in order to explore the long-term impact of the StG beyond the funding period.

66 The StG 2009 cohort received the second wave survey questionnaire in spring 2013, while the StG 2010 received it in spring 2014. Additionally, in spring 2014, the StG 2011 cohort received a mix of the intermediate and second wave questionnaires in order to close the loop of the panel design.

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Annex

Annex I: Supporting materials

I.I Lists of European funding programmes for postdocs (selection)

Major funding schemes for junior research groups (selection)

Funding scheme	Funding amount and duration
Austrian Academy of Sciences: New Frontiers Programme	€0.8 to €1.5 million for a period of three to five years
FWF Austrian Science Fund START Programme	€800,000 to €1.2 million for six years
Dilthey Fellowship (Volkswagen Foundation and Fritz Thyssen Foundation)	Up to €600,000 for five years with a possible extension of three years
EMBO Young Investigators	€15,000 per year for three years plus financial support for networking
Emmy Noether Programme	Own position, staff, and material expenses for five (+1) years
ERC Consolidator Grants	Up to €2 million (in some circumstances up to €2.75 million) for up to five years
ERC Starting Grants	Up to €1.5 million (in some circumstances up to €2 million) for up to five years
Fraunhofer Attract	Up to €2.5 million for three (+2) years
Helmholtz Young Investigators Groups	Up to €250,000 annually for five years
Innovational Research Incentives Scheme: Vidi	€800,000 for five years
Innovational Research Incentives Scheme: Vici	€1.5 million for five years
Max Planck Research Groups	Own position, staff, material and travel expenses for a duration of five years
Swedish Foundation for Strategic Research (SSF): Successful Research Leaders	SEK 10 million (roughly €1.1 million) for max. five years

Major scholarship programmes for postdocs (selection)

Funding scheme	Funding amount and duration
Heisenberg Programme	Own position, staff; material expenses for five years
Humboldt Research Fellowship for Postdoctoral Researchers	€2,650 per month for six to 24 months
Innovational Research Incentives Scheme: Veni	€250,000 for three years
Marie Skłodowska-Curie actions – Research Fellowship Programme: European Fellowships	12–24 months, funding provides an allowance to cover living, travel and family costs
Marie Skłodowska-Curie actions – Research Fellowship Programme: Global Fellowships	24–36 months, funding provides an allowance to cover living, travel and family costs
Research Foundation – Flanders (FWO) Postdoctoral Fellowship	Salary scale from minimum €29,000 to €45,000 for up to three years (renewable once)
Sir Henry Wellcome Postdoctoral Fellowships	€250,000 for four years
Spanish Ministry of Economy and Competitiveness Ramón y Cajal Programme	Salary of not less than €31,600 per year for five years, plus €40,000 and €100,000 for the employing R&D centre
Swedish Foundation for Strategic Research (SSF): Future Research Leaders	SEK 10 million (roughly €1.1 million) for a period of five years

I.II Extended classification of countries according to the four EUI models

Country	Classification
Australia	2 =Anglo-Saxon model
Austria	1 =European Continental model
Belgium	3 = Scandinavian model
Bosnia and Herzegovina	4 = Transitional Eastern and South-Eastern model
Bulgaria	4 = Transitional Eastern and South-Eastern model
Canada	2 = Anglo-Saxon model
Croatia	4 = Transitional Eastern and South-Eastern model
Cyprus	4 = Transitional Eastern and South-Eastern model
Czech Republic	4 = Transitional Eastern and South-Eastern model
Denmark	3 = Scandinavian model
Estonia	4 = Transitional Eastern and South-Eastern model
Finland	3 = Scandinavian model
France	1 =European Continental model
Georgia	5 = Other (e.g. neither EU nor associated country)
Germany	1 = European Continental model
Ghana	5 = Other (e.g. neither EU nor associated country)
Greece	4 = Transitional Eastern and South-Eastern model
Hungary	4 = Transitional Eastern and South-Eastern model
Iceland	3 = Scandinavian model
Ireland	2 = Anglo-Saxon model
Israel	2 = Anglo-Saxon model
Italy	1 = European Continental model
Latvia	4 = Transitional Eastern and South-Eastern model
Lithuania	4 = Transitional Eastern and South-Eastern model
Luxembourg	1 = European Continental model
Macedonia	4 = Transitional Eastern and South-Eastern model
Malta	1 = European Continental model
Morocco	5 = Other (e.g. neither EU nor associated country)
Netherlands	2 = Anglo-Saxon model
Norway	3 = Scandinavian model
Poland	4 = Transitional Eastern and South-Eastern model
Portugal	1 = European Continental model
Romania	4 = Transitional Eastern and South-Eastern model
Slovenia	4 = Transitional Eastern and South-Eastern model
Spain	1 = European Continental model
Sweden	3 = Scandinavian model
Switzerland	1 = European Continental model
Turkey	4 = Transitional Eastern and South-Eastern model
Ukraine	5 = Other (e.g. neither EU nor associated country)
United Kingdom	2 = Anglo-Saxon model
United States of America	2 = Anglo-Saxon model

I.III List of disciplines assigned to the ERC domains

Domain PE: Physical Sciences and Engineering

PE1 Mathematical foundations: all areas of mathematics, pure and applied, plus mathematical foundations of computer science, mathematical physics and statistics

PE2 Fundamental constituents of matter: particle, nuclear, plasma, atomic, molecular, gas, and optical physics

PE3 Condensed matter physics: structure, electronic properties, fluids, nanosciences

PE4 Physical and analytical chemical sciences: analytical chemistry, chemical theory, physical chemistry/chemical physics

PE5 Materials and synthesis: materials synthesis, structure-properties relations, functional and advanced materials, molecular architecture, organic chemistry

PE6 Computer science and informatics: informatics and information systems, computer science, scientific computing, intelligent systems

PE7 Systems and communication engineering: electronic, communication, optical and systems engineering

PE8 Products and processes engineering: product design, process design and control, construction methods, civil engineering, energy systems, material engineering

PE9 Universe sciences: astro-physics/chemistry/biology; solar system; stellar, galactic and extragalactic astronomy, planetary systems, cosmology, space science, instrumentation

PE10 Earth system science: physical geography, geology, geophysics, meteorology, oceanography, climatology, ecology, global environmental change, biogeochemical cycles, natural resources management

Domain SH: Social Sciences and Humanities

SH1 Individuals, institutions and markets: economics, finance and management

SH2 Institutions, values and beliefs and behaviour: sociology, social anthropology, political science, law, communication, social studies of science and technology

SH3 Environment and society: environmental studies, demography, social geography, urban and regional studies

SH4 The human mind and its complexity: cognition, psychology, linguistics, philosophy and education

SH5 Cultures and cultural production: literature, visual and performing arts, music, cultural and comparative studies

SH6 The study of the human past: archaeology, history and memory

Domain LS: Life Sciences

LS1 Molecular and structural biology and biochemistry: molecular biology, biochemistry, biophysics, structural biology, biochemistry of signal transduction

LS2 Genetics, genomics, bioinformatics and systems biology: genetics, population genetics, molecular genetics, genomics, transcriptomics, proteomics, metabolomics, bioinformatics, computational biology, biostatistics, biological modelling and simulation, systems biology, genetic epidemiology

LS3 Cellular and developmental biology: cell biology, cell physiology, signal transduction, organogenesis, developmental genetics, pattern formation in plants and animals

LS4 Physiology, pathophysiology and endocrinology: organ physiology, pathophysiology, endocrinology, metabolism, ageing, regeneration, tumorigenesis, cardiovascular disease, metabolic syndrome

LS5 Neurosciences and neural disorders: neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, neuroimaging, systems neuroscience, neurological disorders, psychiatry

LS6 Immunity and infection: immunobiology, aetiology of immune disorders, microbiology, virology, parasitology, global and other infectious diseases, population dynamics of infectious diseases, veterinary medicine

LS7 Diagnostic tools, therapies and public health: aetiology, diagnosis and treatment of disease, public health, epidemiology, pharmacology, clinical medicine, regenerative medicine, medical ethics

LS8 Evolutionary, population and environmental biology: evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, ecotoxicology, prokaryotic biology

LS9 Applied life sciences and biotechnology: agricultural, animal, fishery, forestry and food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology and remediation

I.IV List of disciplines assigned to the five research fields

Research field	Disciplines
Humanities	History
	Linguistics
	Philosophy/Theology
	Others
Social and Behavioural Sciences	Jurisprudence
	Economics/Social Sciences
	Psychology
	Others
Life Sciences	Biology
	Medicine
	Agriculture, Forestry, Horticulture, Veterinary Medicine
	Others
Natural Sciences	Chemistry
	Physics
	Mathematics
	Geosciences (including Geography)
	Others
Engineering	Mechanical and Industrial Engineering
	Thermal Engineering/Process Engineering
	Materials Science and Engineering
	Computer Science Electrical and System Engineering
	Construction Engineering and Architecture
	Others

Annex II: Additional tables and figures realating to the survey analysis

Chapter 3

Table 44 Reasons for StG application by funding status

	Funded			Rejected			Total			
	Mean	SD	N	Mean	SD	N	Mean	SD	N	p-value[a]
Amount of funding	4.58	.81	489	4.26	.99	1,208	4.35	.95	1,697	.000
Duration of funding	4.61	.77	489	4.30	.94	1,204	4.39	.90	1,693	.000
Set up own research group	4.22	1.27	490	4.38	1.08	1,214	4.33	1.14	1,704	.152
Fund own position	2.87	1.61	490	3.33	1.57	1,198	3.20	1.60	1,688	.000
Support basic research	4.42	.92	488	4.18	1.09	1,201	4.25	1.05	1,689	.000
Choose own research priorities	4.37	1.05	488	4.34	1.01	1,211	4.35	1.02	1,699	.211
Positive reputation of grant	4.43	.89	488	3.91	1.19	1,206	4.06	1.14	1,694	.000
Lack of other funding opportunities	2.67	1.18	482	2.99	1.27	1,197	2.90	1.25	1,679	.000

Source: MERCI online survey (first wave survey), StG 2009–2010 cohorts pooled

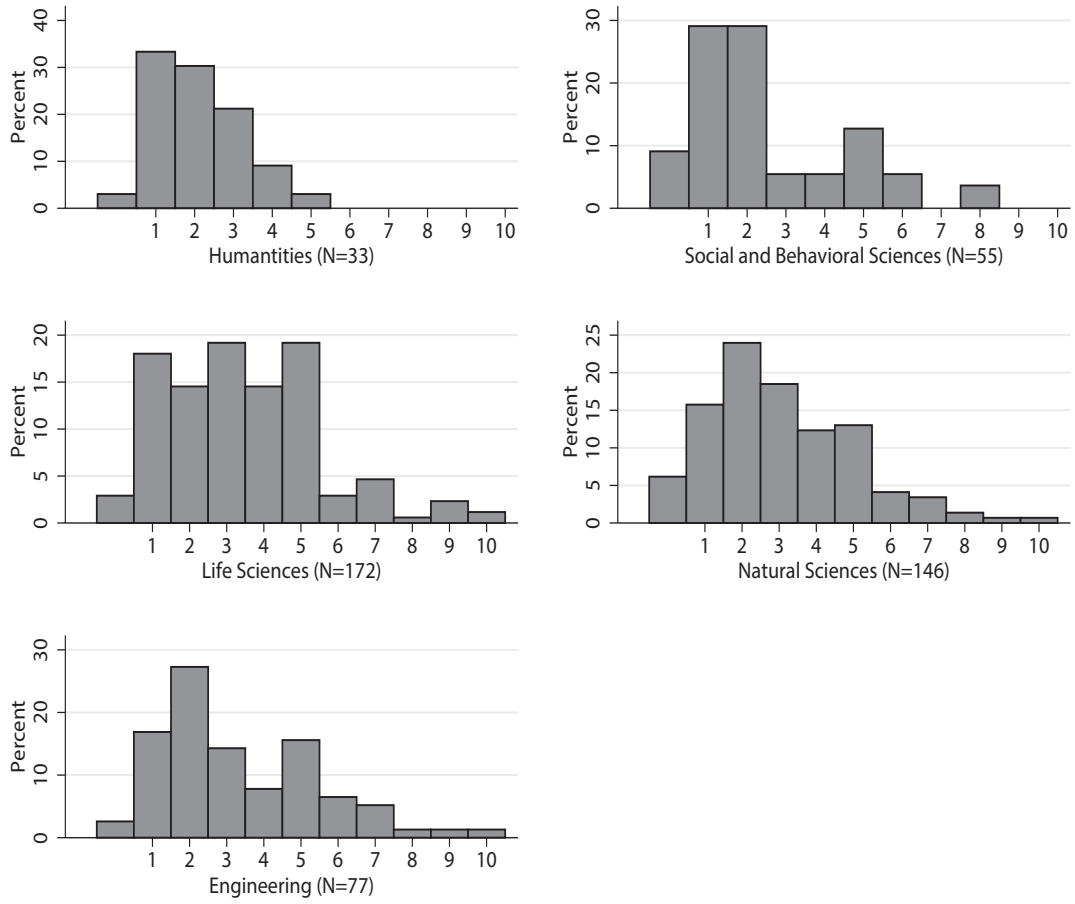
*Note: * a Two-sample Wilcoxon rank-sum (Mann-Whitney) test*

Table 45 Average number of further third-party funding applications since StG application by research field

Research field	Mean	SD	N
Humanities	2.09	1.16	33
Social Sciences	2.51	2.02	55
Life Sciences	3.46	2.10	172
Natural Sciences	3.06	1.98	146
Engineering	3.34	2.16	77
Total	3.12	2.05	483

Source: MERCI online survey (second wave and intermediate survey)

Figure 48 Number of <u>further</u> third-party funding applications since StG application by research field



Source: MERCI online survey (second wave and intermediate survey)

Table 46 Reasons for further third-party funding applications since StG application by approved and rejected applicants

	Rejected			Funded			Total		
	Mean	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**
New research ideas	4.61	0.80	645	4.61	0.75	220	4.61	0.78	865
Personal reputation	3.45	1.35	629	3.15	1.44	213	3.38	1.38	842
Institutional incentives	1.76	1.18	621	1.58	1.07	209	1.72	1.15	830
Finance staff	4.13	1.31	641	4.29	1.14	221	4.17	1.27	862
Finance own position	2.79	1.71	636	1.83	1.37	208	2.56	1.68	844
Fund StG research group*	-	-	0	3.35	1.52	130	3.35	1.52	130
Other reasons	2.80	1.67	212	2.69	1.80	71	2.77	1.70	283

Source: MERCI online survey (second wave and intermediate survey), only asked for respondents who stated that they had made further third-party funding applications after their StG application

*Note: * Item only asked for StGrantees, five-point scale ranging from 1 "Does not apply at all" to 5 "Fully applies"*

Table 47 Correlation matrix of the reasons for applying for StG funding

	Amount of funding	Duration of funding	Set up own research group	Fund own position	Support basic research	Choose own research priorities	Positive reputation of grant	Lack of other funding opportunities
Amount of funding	1.000							
Duration of funding	.670*	1.000						
Set up own research group	-.043	-.021	1.000					
Fund own position	-.045	.020	.264*	1.000				
Support basic research	.180*	.192*	.012	.036	1.000			
Choose own research priorities	.046	.0813*	.223*	.205*	.291*	1.000		
Positive reputation of grant	.219*	.203*	-.014	-.020	.173*	.202*	1.000	
Lack of other funding opportunities	.062*	.032	.040	.100*	.009	.018	-.045	1.000

Source: MERCI online survey (second wave and intermediate survey)

*Note: * p<.05, N ranges between 1,197 and 1,208 cases*

	Starting Grant (N=1699) first wave survey		European Commission (N=74)		European Research Council (N=51)		(Sub-)national governmental level (N=77)		National research foundation (N=173)		Foundations (N=30)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Amount of funding	4.35	0.95	3.75	1.16	4.45	0.90	3.51	1.25	3.75	1.24	3.53	1.59
Duration of funding	4.39	0.90	3.77	1.17	4.45	0.99	3.61	1.18	3.73	1.27	3.37	1.59
Choose own research priorities	4.35	1.02	3.74	1.27	4.38	0.99	4.01	1.12	3.98	1.25	3.52	1.50
Reputation of grant	4.06	1.14	3.58	1.35	4.14	1.25	3.40	1.21	3.54	1.30	3.77	1.23
Lack of funding opportunities	2.90	1.25	3.31	1.32	3.40	1.43	3.50	1.37	3.18	1.37	3.03	1.47
Effort of application	-	-	2.14	1.08	2.37	1.27	2.50	1.09	2.72	1.23	2.54	1.45
Expected chance to be accepted	-	-	2.47	1.28	2.22	1.22	2.82	1.34	2.76	1.28	2.67	1.54

Source: MERCI online survey, assessments of StG based on first wave survey, for other funding bodies and other ERC programmes based on second wave survey.

Note: scale ranges from 1 "Does not apply at all" to 5 "Fully applies". The items "Effort of application" and "Expected chance to be accepted" were not included in the first wave survey.

Table 49 Correlation matrix of reasons for further third-party funding applications (beyond the StG application) and perceived pressure to apply for funding

	New research ideas	Personal reputation	Institution. incentives	Fund staff	Fund own position	Fund StG research group	Other	*Pressure to apply*
New research ideas	1.000							
Personal reputation	0.199*	1.000						
Institutional incentives	-0.004	0.245*	1.000					
Fund staff	0.087*	0.017	0.080*	1.000				
Fund own position	-0.009	0.117*	0.126*	–0.006	1.000			
Fund StG research group	-0.145	0.049	-0.073	0.225*	0.298*	1.000		
Other	-0.008	0.120	0.072	0.046	0.099	0.089	1.000	
Pressure to apply	0.042	0.029	0.071	0.189*	0.059	0.097	0.075	1.000

Source: MERCI online survey (second wave and intermediate survey)

Table 50 Utilisation of advisory services when preparing the StG proposal across countries (in %, multiple responses possible)

	European Continental model	Anglo-Saxon model	Scandi-navian model	Transitional Eastern and South-Eastern European model	Other	Total
ERC	40.7	42.3	45.2	57.1	66.7	42.9
NCP	39.8	38.0	33.3	35.7	33.3	38.1
Service point at old institution	49.5	60.2	61.3	26.2	33.3	53.0
Service point at new institution	18.7	22.2	26.3	7.1	0.0	20.1
Colleagues	58.6	75.2	62.9	46.4	33.3	63.5
Freelance consultants	4.5	8.1	22.6	1.2	0.0	7.9
Other	2.5	1.4	2.2	2.4	0.0	2.1
Total in %	214.4	247.5	253.8	176.2	166.7	227.5
Total $_{responses}$	1,464	1,069	472	148	5	3,158
Total $_{cases}$	683	432	186	84	3	1,388

Source: MERCI online survey (first wave survey), StG 2009–2010 cohorts pooled

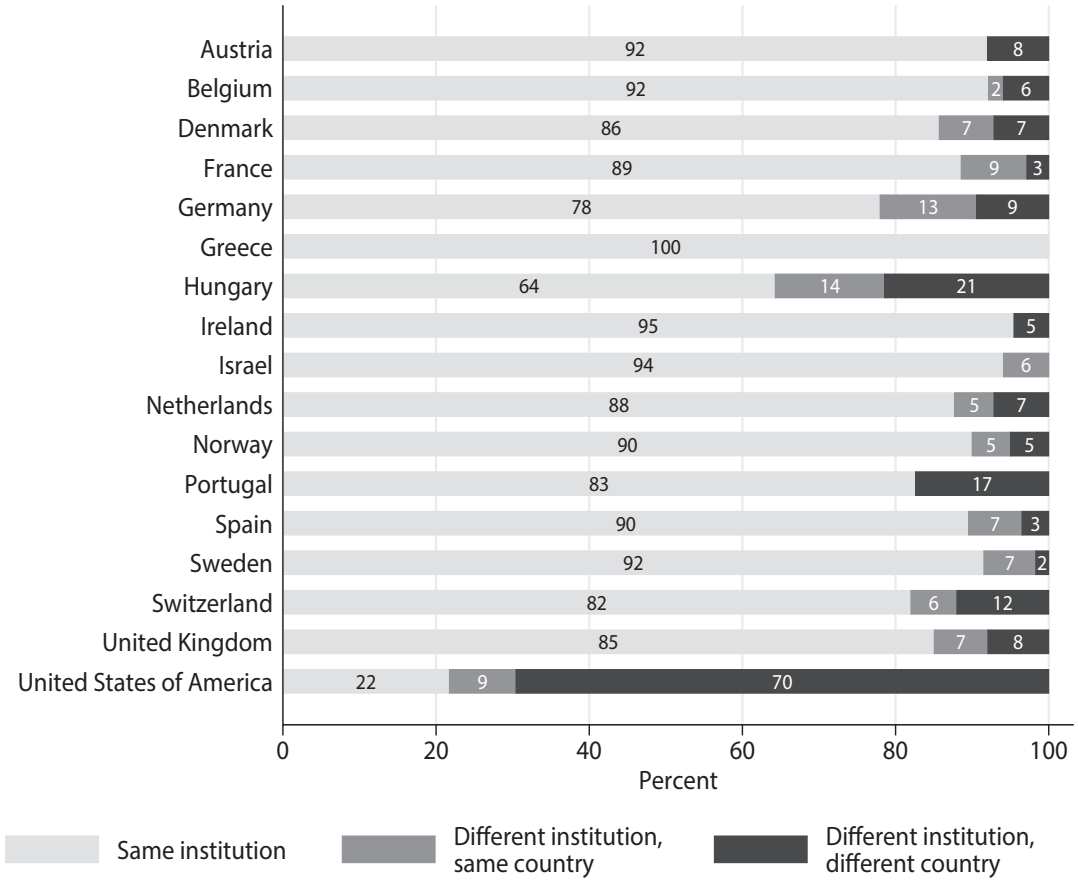
Table 51 Logistic regression of funding decision for StG application (dependent variable: 0=rejected, 1=approved)

	Odds ratios	
Use of advisory services [0=no, 1=yes]		
ERC	0.708*	(-2.29)
NCP	1.740***	(3.80)
Old or new institution	0.849	(-1.07)
Colleagues	1.254	(1.50)
Freelance consultants	0.734	(-1.08)
Motivation to apply for StG [1=Does not apply at all, 5=Fully applies]		
Fund own position	0.888**	(-2.65)
Positive reputation of the grant	1.546***	(5.86)
Country at time of application [reference: European Continental model]		
Anglo-Saxon model	2.014***	(4.24)
Scandinavian model	1.802**	(2.65)
Transitional Eastern and South-Eastern model	0.320**	(-2.65)
Has worked in US during previous employment periods [0=no, 1=yes]	1.811***	(3.72)
Position at point in time of StG application [reference: full/associate professor]		
Assistant professor/group leader	1.274	(1.16)
(Senior) researcher	0.793	(-1.26)
Research field [reference: Humanities]		
Social Sciences	0.814	(-0.64)
Life Sciences	0.456**	(-2.70)
Natural Sciences	0.657	(-1.43)
Engineering Sciences	0.541+	(-1.94)
Age when PhD was obtained	0.931**	(-2.95)
Female [0=no, 1=yes]	0.834	(-1.09)
Constant	0.971	(-0.03)
Pseudo R^2	0.125	
AIC	1246.320	
LL	-603.160	
N	1,104	

Note: Exponentiated coefficients; t statistics in parentheses

*+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

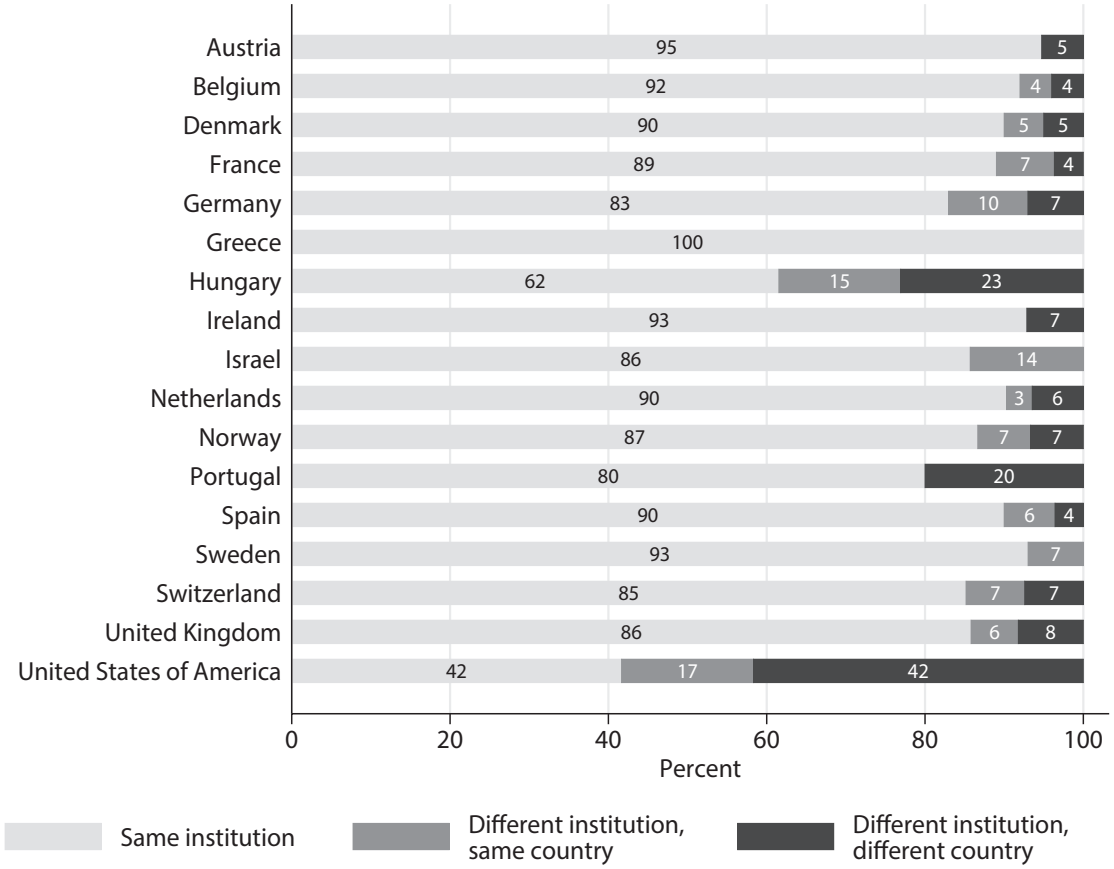
Figure 49 Mobility patterns of StG applicants by host country at time of application



Source: MERCI online survey (first wave)

Note: N=1,186, only countries with more than 20 respondents included, approved and rejected applicants are pooled

Figure 50 Mobility patterns of rejected StG applicants by host country at time of application



Source: MERCI online survey (first wave), N=781, only rejected applicants are included

Table 52 Reasons for choice of host institution – respondents who negotiated with more than one host institution compared to those who negotiated with only one host institution

	Negotiated with more than one HI			Negotiated with only one HI			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Reputation of host institution	4.06	1.10	50	4.03	1.18	390	4.03	1.17	440
Family support mechanism/dual career	1.79	1.33	47	1.81	1.32	339	1.81	1.32	386
Worked there before	2.98	1.77	48	3.98	1.55	390	3.87	1.61	438
Did PhD there	1.22	0.72	41	1.72	1.28	329	1.67	1.24	370
Best contractual conditions	3.51	1.50	49	2.50	1.41	345	2.63	1.46	394
Best research infrastructure	3.92	1.32	49	3.57	1.39	373	3.61	1.38	422
Close to place of residence	2.11	1.43	35	2.45	1.55	315	2.42	1.54	350
Contacts among researchers	3.29	1.62	48	3.72	1.42	377	3.68	1.45	425

Source: MERCI online survey (first wave), only approved applicants are included

Table 53 Mobility type at point in time of StG application by research field (in %)

	Field of research (classified)					
	Humanities	Social Sciences	Life Sciences	Natural Sciences	Engineering	Total
Same institution	82.1	82.1	83.6	84.1	89.9	84.5
Different institution	10.7	11.3	5.4	7.1	4.4	6.9
Different institution	7.1	6.6	11.0	8.8	5.7	8.7
Total in %	100.0	100.0	100.0	100.0	100.0	100.0
N	140	168	536	490	248	1,582
$Chi^2 = 20.0$ p = 0.010						

Source: MERCI online survey (first wave)

Chapter 6

Table 54 Mean level and standard deviation of competence for approved and rejected StG applicants

	Rejected			Approved		
	Mean	SD	N	Mean	SD	N
Leadership qualities	5.13	1.04	365	5.52	1.08	140
Methodological skills	5.20	1.02	370	5.25	0.99	139
Conducting research independently	5.67	1.09	373	5.99	0.89	141
Publication of research results	5.27	1.18	372	5.52	1.07	139
Presentation of research results	5.32	1.10	372	5.74	0.92	140
Acquisition of research funding	4.44	1.37	367	5.78	1.01	139
Personnel management	4.70	1.14	357	5.24	1.04	138
Teaching skills	4.98	1.15	355	4.80	1.36	133
Negotiation skills	4.19	1.25	338	4.54	1.27	138
Networking skills	4.49	1.39	366	4.91	1.24	139
Project and time management skills	4.60	1.17	367	5.02	1.14	138
Commercialisation, patenting and knowledge transfer	3.51	1.38	299	3.71	1.47	99
Communication/dialogue with non-scientific audiences	4.50	1.48	346	4.57	1.36	129
Science consultancy (e.g. for policymaking)	3.93	1.43	278	4.19	1.38	98

Source: MERCI online survey (second wave survey)

Note: seven-point scale ranging from 1 "Very low" to 7 "Very high"

Table 55 Percentage of approved and rejected applicants who perceived the strongest development in the following competencies

	Rejected (in %)	Approved (in %)	Total (in %)	Total (responses)
Leadership qualities	57	70	61	306
Methodological skills	21	18	20	101
Conducting research independently	38	27	35	175
Publication of research results	13	14	13	67
Presentation of research results	31	26	29	145
Acquisition of research funding	27	49	33	168
Personnel management	29	2	22	109
Teaching skills	5	6	6	28
Negotiation skills	17	11	15	77
Networking skills	16	38	22	113
Project and time management skills	20	23	21	105
Commercialisation, patenting and knowledge transfer	5	3	5	23
Communication/dialogue with non-scientific audiences	7	6	6	32
Science consultancy (e.g. for policymaking)	4	3	4	20
N_{cases}	368	138	506	

Source: MERCI online survey (second wave survey)
Note: the respondents were asked to select the three competencies in which they perceived the strongest improvement. Up to three answers by the respondent were possible.

Table 56 Position before StG application by research field

Position before StG application		HUM	SOC	LS	NS	ENG	Total
Full/associate professor	N	29	57	69	95	70	320
	in % (row)	20.9	33.0	13.0	19.7	28.6	20.4
Assistant professor/ group leader	N	21	27	192	84	47	371
	in % (row)	15.1	15.6	36.0	17.4	19.2	23.6
(Senior) researcher	N	66	83	237	272	118	776
	in % (row)	47.5	48.0	44.5	56.4	48.2	49.4
Other	N	23	6	35	31	10	105
	in % (row)	16.6	3.5	6.6	6.4	4.1	6.7
Total	N	139	173	533	482	245	1,572
	in % (row)	100.0	100.0	100.0	100.0	100.0	100.0

Source: MERCI online survey (first wave), approved and rejected applicants pooled

Table 57 Proportion of approved and rejected StG applicants who were promoted between different points in time monitored in the online panel

Position obtained		Proportion of respondents who were promoted between …			
		… StG application and first wave survey	… first wave and intermediate surveys	… first and second wave surveys[a]	… StG application and second wave survey[b]
Full/associate professorship[c]	Rejected	12.4%	11.9%	17.6%	46.1%
	Approved	34.1%	19.4%	29.9%	69.6%
	$N_{total}/N_{reference}$	(1481/1161)	(555/396)	(352/243)	(858/530)
Assistant professorship/ group leader position[d]	Rejected	10.2%	10.8%	16.1%	35.5%
	Approved	16.1%	8.3%	15.0%	28.5%
	N_{total} / $N_{reference}$	(1481/792)	(555/264)	(352/158)	(858/365)

Source: MERCI online survey; a 2009 and 2010 cohorts only; b 2009–2011 cohorts, but for the 2011 cohort only the first wave and intermediate surveys are included; c The reference is the number of persons who did not hold a full or associate professorship at the beginning of the period of the study; d The reference is the number of persons who held neither a full/associate professorship nor an assistant professorship/group leader position at the beginning of the period of the study.

Table 58 Logistic regression of career progress (separate models for approved and rejected StG applicants)

	Model I Rejected StG applicants		Model II Approved StG applicants	
	Odds ratios	SE	Odds ratios	SE
Change of institution within country since StG application [0=no, 1=yes]	0.296	(0.242)	3.106+	(0.053)
Change of institution outside country since StG application [0=no, 1=yes]	2.237	(0.186)	1.634	(0.411)
Scholarship during postdoc phase [0=no, 1=yes]	0.826	(0.565)	1.951*	(0.047)
PhD abroad [0=no, 1=yes]	1.229	(0.565)	0.706	(0.378)
Employment abroad during postdoc phase [0=no, 1=yes]	1.172	(0.687)	1.066	(0.882)
Worked in US during postdoc phase [0=no, 1=yes]	2.306*	(0.032)	1.461	(0.289)
PhD age [difference from discipline-specific mean PhD age]	1.034	(0.519)	1.025	(0.680)
Years of postdoc experience	1.169*	(0.013)	1.351***	(0.000)
Peer-reviewed publications [1=belongs to 20% in research field with highest number of peer-reviewed publications, 0=reference group]	1.889+	(0.061)	2.716*	(0.011)
Research field [reference: Humanities]				
Social Sciences	2.168	(0.300)	1.114	(0.882)
Life Sciences	0.425	(0.230)	0.294*	(0.046)
Natural Sciences	1.296	(0.699)	0.632	(0.436)
Engineering Sciences	1.017	(0.981)	0.650	(0.511)
Country [reference: European Continental model]				
Anglo-Saxon model	0.793	(0.565)	1.660	(0.164)
Scandinavian model	4.085***	(0.001)	4.409**	(0.003)
	1.946	(0.199)	6.012+	(0.057)
Female [0=no, 1=yes]	0.430*	(0.031)	0.781	(0.502)
Constant	0.0235***	(0.000)	0.0339***	(0.000)
Pseudo R^2	0.126		0.132	
AIC	357.3		297.4	
LL	-160.6		-130.7	
N	556		233	

Source: MERCI online survey, N=789, includes only respondents who did not hold a full/associate professorship when applying for the StG

*Note: exponentiated coefficients (odds ratios); standard errors in parentheses, + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 59 Logistic regression of career progress (including interaction effects)

	Full model	
	Odds ratios	SE
Change of institution within country since StG application [0=no, 1=yes]	0.330	(0.343)
Change of institution outside country since StG application [0=no, 1=yes]	2.190	(1.269)
Funding decision [0=rejected, 1=approved)	3.421***	(1.188)
Change of HI*funding decision		
Change of HI within country*approved	8.838+	(10.395)
Change of HI outside country*approved	0.665	(0.541)
Scholarship during postdoc phase*funding decision		
Yes*rejected	0.848	(0.272)
Yes*approved	1.860+	(0.596)
PhD abroad [0=no, 1=yes]	0.955	(0.250)
Employment abroad during postdoc phase [0=no, 1=yes]	1.091	(0.310)
Worked in US during postdoc phase [0=no, 1=yes]*funding decision		
Yes*rejected	2.160*	(0.781)
Yes*approved	1.464	(0.500)
PhD age [difference from discipline-specific mean PhD age]	1.022	(0.038)
Years of postdoc experience	1.227***	(0.058)
Peer-reviewed publications [1=belongs to 20% in research field with highest number of peer-reviewed publications, 0=reference group]* Funding decision		
Belongs to 20%*rejected	1.876+	(0.626)
Belongs to 20%*approved	2.807**	(1.085)
Research field [reference: Humanities]		
Social Sciences	1.605	(0.802)
Life Sciences	0.375*	(0.167)
Natural Sciences	0.953	(0.404)
Engineering Sciences	0.887	(0.418)
Country [reference: European Continental model]		
Anglo-Saxon model	1.179	(0.304)
Scandinavian model	4.059***	(1.274)
Transitional Eastern and South-Eastern model I	2.523*	(1.105)
Female [0=no, 1=yes]	0.586*	(0.152)
Constant	0.018***	(0.011)
Pseudo R^2	0.191	
AIC	639.5	
LL	-259.8	
N	789	

Source: MERCI online survey, N=789, includes only respondents who did not hold a full/associate professorship when applying for the StG

*Note: exponentiated coefficients (odds ratios); standard errors in parentheses, + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

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CoG	Consolidator Grants
CSA project	Coordination and Support Action project
DBF	Research project ("Development and Verification of a Bibliometric Model for the Identification of Frontier Research")
DFG	Deutsche Forschungsgemeinschaft (German Research Foundation)
EC	European Commission
ENP	Emmy Noether Programme
ERA	European Research Area
ERC	European Research Council
ERCEA	ERC Executive Agency
ESF	European Science Foundation
EUI	European University Institute
EURECIA	ERC CSA project ("Understanding and Assessing the Impact and Outcomes of the ERC and Its Funding Schemes")
EUROHORCs	European Heads of Research Councils
EURYI	European Young Investigator Awards
FP	Framework Programme
FP6	6th Framework Programme
FP7	7th Framework Programme
FWF	Fonds zur Förderung der wissenschaftlichen Forschung (Austrian Science Fund)
HI	Host Institution
HRC	Research project ("Study on Assessing the Contribution of the Framework Programmes to the Development of Human Research Capacity")
iFQ	Institute for Research Information and Quality Assurance
INGVAR	Individual Grant for the Advancement of Research Leaders
JIF	Journal Impact Factor
LERU	League of European Research Universities
LS	Life Sciences
MERCI	Monitoring European Research Council's Implementation of Excellence
NCP	National Contact Point
NIFU	Nordic Institute for Studies in Innovation, Research and Education
NWO	Nederlandse Organisatie voor Wetenschappelijk Onderzoek (Netherlands Organisation for Scientific Research)
OECD	Organisation for Economic Co-operation and Development
PE	Physical Sciences and Engineering
PI	Principal Investigator
SC	Scientific Community
SNSF	Schweizerischer Nationalfonds (Swiss National Science Foundation)
SOC	Social and Behavioural Sciences
SSF	Stiftelsen för Strategisk Forskning (Swedish Foundation for Strategic Research)
SSH, SH	Social Sciences and Humanities
StG	Starting Grants
WoS	Web of Science

Statistical terms

ANOVA	Analysis of Variance
KW test	Kruskal-Wallis test
MW test	Mann-Whitney test
p	p-value
PCA	Principal Components Analysis
r	Pearson correlation coefficient
SD	Standard Deviation