POLICY BRIEF

What factors explain application success in H2020?

An empirical analysis of consortium-specific factors in the "Societal Challenges" pillar

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Abstract

In this study, we addresses the question whether certain project consortia are more successful in receiving funds from the H2020 pillar 'Societal Challenges'. Using information from the H2020 Ecorda database, we identify a set of consortia-specific ´success factors´ that influence the probability of receiving funds. The findings showed that consortia with an experienced project coordinator, a higher number of top-universities and a higher number of partners from Western Europe (EU 15) have a significantly higher probability to receive Horizon 2020 funds. Important policy implications at the European but also national level arise from these findings.

Introduction

Political and scientific interest in the impact of publicly funded research and development (R&D) activities has risen enormously over the past few years. In a European context, the European Framework Programmes (FP) have gained great attention for scientific studies, particularly regarding their contribution to pan-European research network structures based on intensified collaborations and knowledge circulation (e.g. Protogerou et al. 2010, Chessa et al. 2013, Balland and Ravet 2018). While previous studies mainly focused on the actually realized FP collaborations, the question of why

specific project consortia are more successful than others in receiving public funds for collaborative R&D has attracted less attention.

Against this backdrop, the present study seeks to investigate the probability that specific project consortia receive funding under the EU's H2020 Framework Programme[1]. We distinguish between funded and non-funded project applications and explore a range of consortium-specific factors which may positively influence the success of proposals. The assumption is that the application success of a research consortium cannot entirely be explained by the content of the project or the specialist expertise of the individual actors involved. The success of a project application, especially at an early stage of the research collaboration, may depend on the interplay of thematic, social and institutional factors which enable an effective interaction between the consortium partners.

Methods and Data

We run a set of regression models to reveal consortia-specific factors that affect the success of proposals, i.e. whether a project got funded or rejected[2]. As consortium factors we consider i) the *network reputation* of the consortium, measured in terms of network centrality of its members; ii) the *acquaintance* of the consortium partners and *experience* of the coordinator, based on participations in FP7 projects; and iii) the r*esearch capabilities, scientific excellence and reputation* of the consortium members, as captured by patent and university ranking data[3]. Furthermore, we consider the *location* of the project partners, in terms of the number of partners located in a CEE country, and for different types of *sectors*, in terms of the share of partners belonging to the higher education sector, to the private sector or to research organizations. In addition, we control for *consortium size* considered in terms of the number of project members, and the *project size* in terms of the amount of funding received by the consortium. Also *field-specific heterogeneities* between the 'Societal challenge' programme lines are controlled for in terms of thematic dummy variables. Moreover, the participation in a *multilateral initiative* is considered by a dummy variable reflecting a consortium's involvement in a contractual or an institutional public-private partnership (PPP).

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[1] We use information from the Ecorda database and extract project applications submitted under the "Societal Challenges" pillar between June 2014 and June 2016.
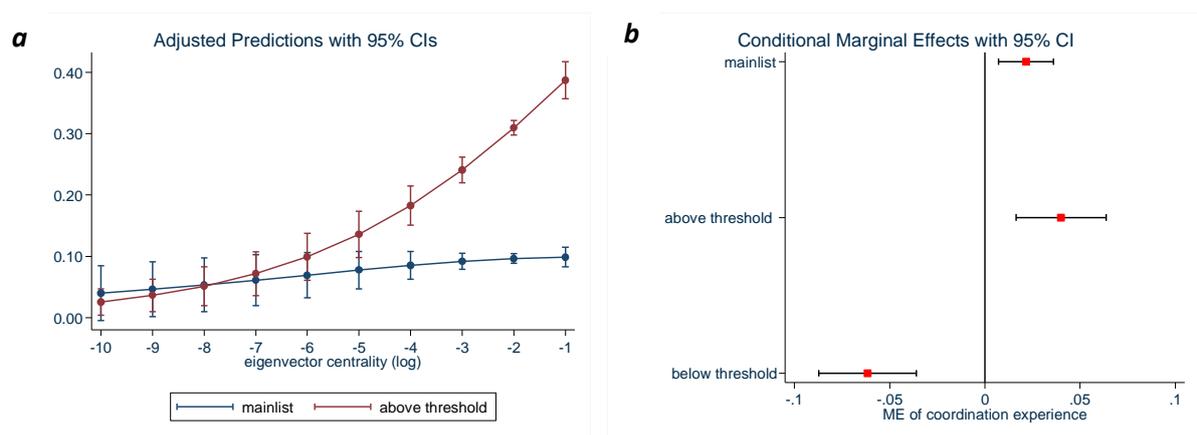
[2] We use a multinominal logistic regression model with three discrete outcomes of the dependent variable representing three categories of the evaluation result. The *first* category includes projects whose evaluation status is *below threshold* and which have been *rejected*. The *second* category reflects projects whose evaluation status is *above threshold* and which have been *rejected*. The third category represents projects with an evaluation status *above threshold* and which have been listed on the *mainlist* and *funded*.

[3] We use the "Societal Grand Challenges" international patent classification (IPC), as established by Frietsch et al. (2016) to filter out all relevant patent applications registered in the OECD REGPAT database. In a second step, we link the names of our H2020 project organisations with the application names of the REGPAT Database and count the number of patents for each participating organisation by using fractional counting. Patent application were extracted for a time period from 2007 to 2015. To proxy scientific excellence and reputation of a consortium, we indicate the number of consortium members listed in the Top-50 of the CWTS Leiden ranking.

Results

The analysis has produced interesting results in the context of European RTI policy. First of all, the study revealed a positive correlation between the 'network visibility' (i.e. the eigenvector centrality of a consortium) and its evaluation result. Figure 1a shows the marginal effects[4] for different centrality values on the x axis and the corresponding probabilities of achieving a distinct evaluation result on the y axis. We see that an increase of network centrality significantly increases the probability of being evaluated above threshold but also increases the probability of being listed mainlist. This result suggests that linkages to core actors of the network are important for submitting strong proposals with an evaluation outcome above threshold. It also suggests that highly connected actors have a comparative advantage since they are more tightly involved in the network, and are thus more strongly exposed to external knowledge and more likely to receive strategically valuable information.

Figure 1: Marginal effect of network centrality (a) and multilateral initatives (b) on proposal success
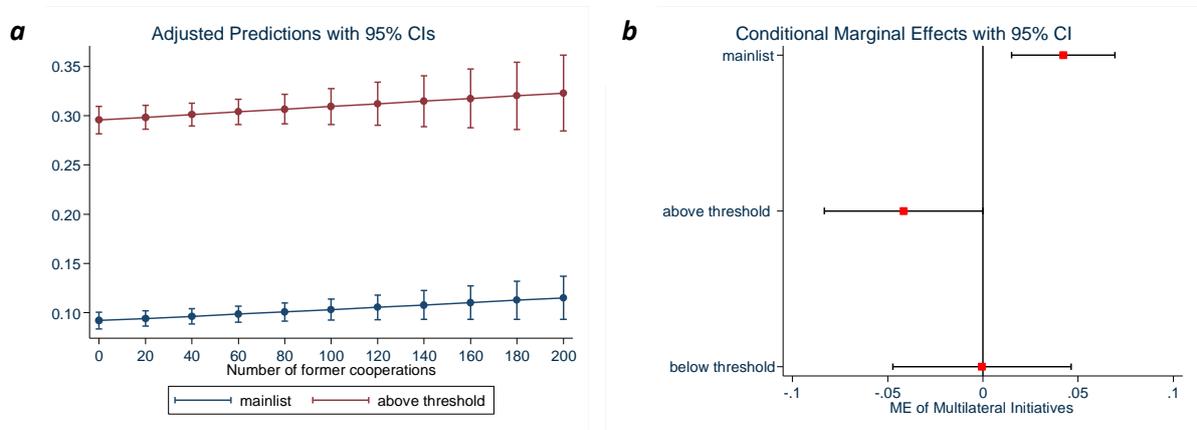

Notes: Figure 1a shows different centrality values on the x axis and the y axis reflects the corresponding probabilities of occurrence. In Figure 1b the y axis represents different project states and the x axis gives the discrete change, which is the difference in the prediction when the consortium has coordination experience compared with the prediction when the consortium has no coordination experience.

A further result of the study is that coordination experience in the FP7 programme seem to be a good predictor for proposal success in H2020. As illustrated in Figure 1*b* an experienced project coordinator significantly increases the likelihood to achieve a project status mainlist or above threshold. Figure 1*b* shows the marginal effect for coordination experience. The probability of success (mainlist) increases by 2.2% if the coordinating organisation has already coordinated an FP7 project. This result can be explained by the fact that experienced coordinators have acquired project management skills that are essential for scouting and selecting project partners across Europe, but also for establishing effective

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[4] The marginal effect is the effect that an independent variable has on the dependent variable when it is changed by one unit and the other independent variables are kept constant
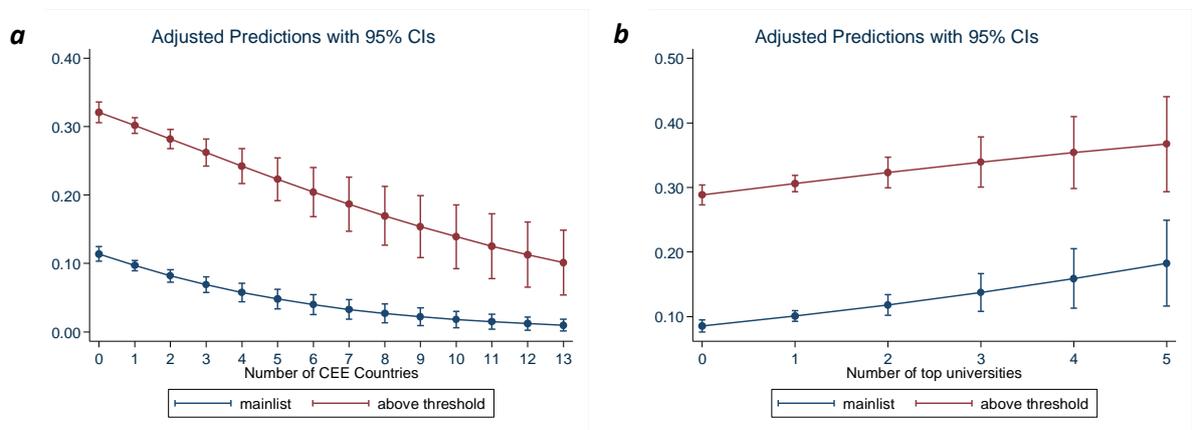
communication structures and for coordinating the activities and expectations of partners at an early stage of the project.

Figure 2: Marginal effect of acquaintance (a) and multilateral initatives (b) on proposal success

In addition to coordination experience, the degree of acquaintance between the consortium partners from previous collaborations in FP7 has a positive influence on the probability of proposal success. Figure 2*a* shows this positive effect on the likelihood of being listed on the mainlist. We clearly see that partners who have already worked together in FP7 projects are also more likely to succeed in their application in Horzion2020. It is reasonable to assume that particularly multidisciplinary consortia rely on previous relationships, for instance bridge differences in working cultures or norms, to strengthen commitment to the joint project or to develop a joint research vision. Interestingly, we achieve a similar result for consortia applying for a multi-lateral partnership initiative (see, figure 2b). Also here, we see that project applications submitted by consortia as part of a partnership initiative have a higher chance of being listed on the mainlist, which points to the existence of an 'acquaintance effect'.

Figure 3: Marginal effect of CEE countries (a) and scientific excellence (b) on proposal success
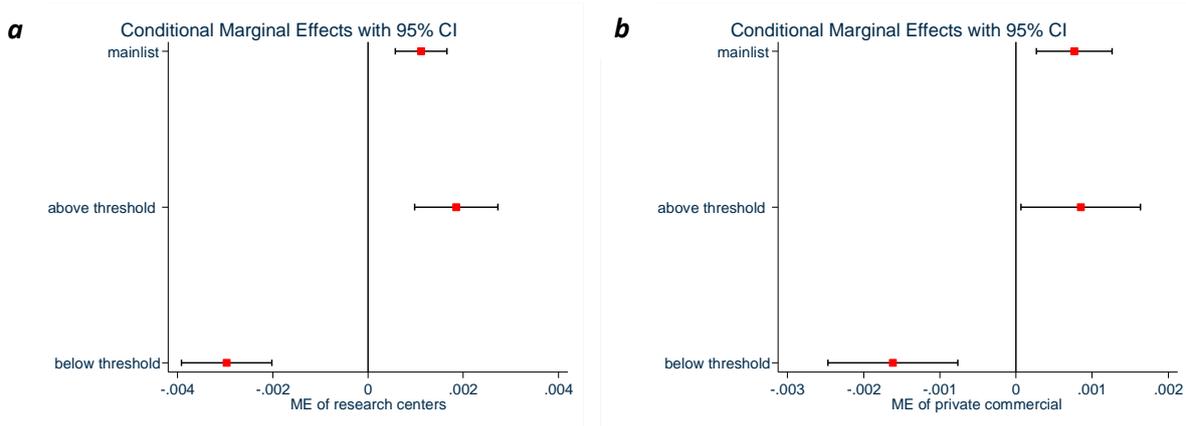

Interestingly, we observed that geographical location has a significant effect on proposal success. We see that consortia with members exclusively from Western Europe (EU15) are more likely to receive

funding. As shown in figure 3a, an increase in the number of consortium partners from Central and Eastern Europe (CEE) decreases the chance of success i.e. being listed above threshold or mainlist. The probability of success decreases by 1.5% with each additional CEE partner.

We also found a significant correlation between scientific excellence and application success. The probability of success significantly increases with the number of top universities represented in a consortium. As shown in figure 3b each additional top university increases the probability of success by 1.6% (mainlist). In contrast to scientific excellence, a broad applied knowledge base (measured by the number of patents) does not have a significant effect on the probability of success.

Figure 4: Marginal effect of research organisations (a) and private companies on proposal success (b)

In contrast to the inclusion of top-universities, the study results indicate that consortia with a high proportion of universities are significantly less likely to achieve a positive project outcome (above threshold). In contrast, as illustrated in figure 4*a* and 4*b*, a high share of companies and research organisations has a significantly positive effect for the evaluation outcome indicating an orientation towards more applied research activities in societal challenge pillar.

Conclusions

The aim of the study was to reveal a set of consortia-related 'success factors' that influence the probability of receiving funds from the EU research and innovation programme Horizon 2020. We make use of evaluation data for all project proposals, including funded and non-funded, which have been submitted to the H2020 pillar 'Societal challenges' between 2014 and 2016.

The results of the study point to several consortia-related factors that have an effect on the evaluation outcome. In particular, consortia with an experienced coordinator, a higher number of top-universities and a higher number of partners from Western Europe (EU 15) significantly increases the chances of getting funded. In addition, the connection to core players, in terms of network centrality, seems to increase the likelihood of proposal success. Overall, the evidence from the study suggests that the H2020 criteria of excellence are more important factors for the success of a proposal rather than factors related to cohesion, inclusion or widening of participation of new partners across Europe. Interestingly, the result that consortia with a high share of universities have a significantly lower application success rate at the same time underlines the application-oriented focus of H2020.

To conclude it can be said that the study results are relevant for both the scientific literature and RTI policy: From a scientific perspective, it is one of the first studies that differentiates between unsuccessful projects, which remain in the early phase of collaboration, and successful projects which receive funding and actually conduct publicly financed collaborative R&D. The study is thus an important step towards disentangling the Horizon 2020 network structures, which is of policy relevance with respect to the underlying financing patterns across organisations and consortia, or the policy goals related to intensified knowledge dissemination and collaboration across Europe. From a practical viewpoint, countries offering consulting services for H2020 (e.g. National Contact Points, NCP) in particular are well advised to encourage targeted consulting for H2020 consortia in order to enable targeted research funding. The empirical identification of success factors can provide valuable support in this consulting process.

References

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