



## PEERE International Conference on Peer Review

Transformation of ex-ante evaluation in academic project funding: the case of PRIN

Emanuela Reale, Antonio Zinilli  
 IRCRES CNR  
[emanuela.reale@ircres.cnr.it](mailto:emanuela.reale@ircres.cnr.it)  
[antonio.zinilli@ircres.cnr.it](mailto:antonio.zinilli@ircres.cnr.it)

## AIM OF THE PAPER

The paper takes stock from other analyses already developed (Reale and Zinilli, 2016; Id., 2017; Zinilli, 2016) on the peer-review process within PRIN.

Our goal is a meta-analysis of peer-review system in a specific competitive project-funding scheme in Italy, namely the Research Project of the National Interest (PRIN).

We want to verify -on the base of results achieved, conditions under which reforms of peer-review mechanisms in the ex-ante evaluation might produce transformative effects, modifying beliefs and motivations for actions, which are likely to influence the actors' behavior.

Transformative effects: *reliability and transparency* of the process beyond the effectiveness selecting the best proposals

## RESEARCH QUESTIONS

- How have the peer-review mechanisms of academic project funding been transformed to achieve the goal of reliability and transparency?
  - Does the transformation address the need to have more trustable assessment processes for the scholars' community?
1. Transformation in ex-ante peer assessment can be realized only by enforcing open, direct and continuous interactions of peers involved.
  2. Information resources and new rules, criteria and scoring systems are not able to influence biases coming from local habits and national self-reference of the academic community.



## BACKGROUND

Many authors have analyzed biases and constraints affecting the peer-review process but few consider peer review in research project proposals.

Langfeldt (2006) talked about the problems that emerge evaluating interdisciplinary projects, saying that the current criteria are not adequate.

Laudel (2006) demonstrated that the quality of the principal investigator and the quality of the research proposal, even though they are important, are not the main criteria influencing the final decision (such as local conditions, field characteristics and institutional rules).

Van Den Besselaar and Arensbergen analysing the capability of grant for talented researchers of the Dutch Research Council to impact research career(2013).

Squazzoni (2010) put into evidence that "peer review is a fragile social mechanism undermined by increasing social pressures and expectations" and few drawbacks can produced biased results.

Langfeldt and Kyvik (2011a) the dual role of each researcher, who is at the same time evaluator and evaluated in the respective field, it is difficult to prevent conflicts of interest.

Some authors have also suggested radical changes of rules for funding allocation (Gillies, 2008; Frey and Steiner, 2014; Ioannidis, 2011).



## METHODOLOGY

The paper uses the projects submitted to competitive project funding that were admitted for funding.

The empirical base are the PRIN-Projects of National Interest- a funding scheme for collaborative academic research in all the scientific fields implemented in Italy

Limitations:

- No information about all the applicants but only on beneficiaries
- Only local communities are represented in the study (Italy)

Data refer to twelve years (from 2000 to 2011) and four fields of science (Physics, Chemistry, Economics and Social sciences)

The methodology combines secondary data on proponents and proposals approved (source MIUR), interviews (17) and a survey on 983 scholars involved as coordinators (COs) of the projects and principal investigators (PIs) representing 23% of the projects approved in the 4 fields analysed.

## PRIN-Projects of National Interest

- Most important funding scheme in Italy, devoted to support the university research
  - Providing resources for collaborative research at the University, either curiosity driven or applied, in all the disciplinary fields
- PRIN represents a share of 4% of the total project funding (1.372,6K€ and 9.032 projects from 2000 to 2011 for all the disciplinary fields)
- The four selected fields funded 1.810 project (334,5K€) in the considered period, involving 4.322 academics

# FACTORS AFFECTING EX-ANTE PEER REVIEW

## SURVEY: REVIEWERS AND REVIEWED: COHERENCE OR BIASES?

Index of importance for questions and their distance: the higher the index the higher the importance

Criteria used by peers for PRIN project ex-ante assessment	REVIEWERS: What were the most important criteria you used in the PRIN evaluation?	REVIEWED: What were the most important criteria with which you were assessed?	Difference *(t-test)
The Importance of the coordinator	5,39	7,19	-1,8*
The Importance of the principal investigators	5,72	6,47	-0,75*
Clarity of the project	6,94	6,18	0,77*
The reviewer's interest in the project	2,87	4,5	-1,63*
Interdisciplinarity	4,18	3,76	0,42*
Social relevance/impact	3,99	3,49	0,5*
Originality of the project	7,48	6,09	1,38*
Methodological strength	6,64	5,27	1,37*
Geographical localization	1,83	2,04	-0,21

Emanuela Reale, Antonio Zinilli (2016), La valutazione dei Programmi di ricerca di interesse nazionale PRIN: quali criteri usa la comunità scientifica? in "Rivista Italiana di Valutazione" 64, pp. 27-52.

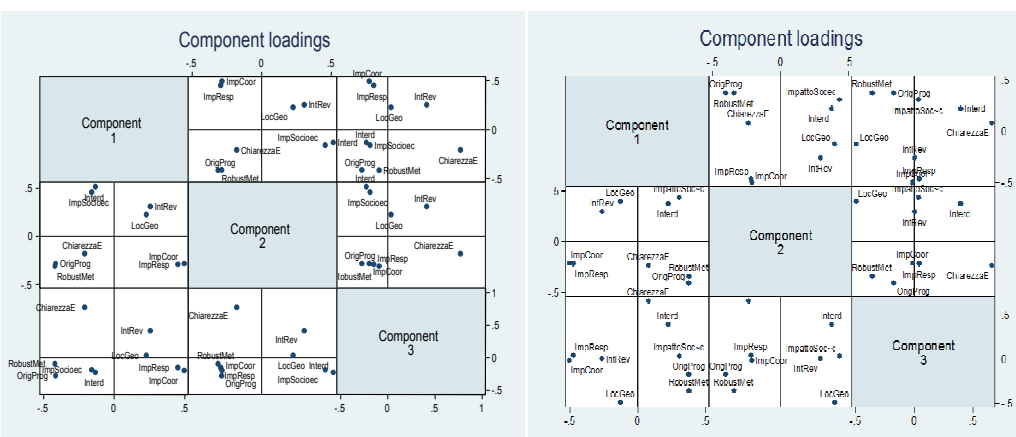


# FACTORS AFFECTING EX-ANTE PEER REVIEW

## SURVEY - MOST IMPORTANT COMPONENTS OF THE PEER ASSESSMENT

REVIEWERS: What were the most important criteria you used in the PRIN evaluation?

REVIEWED: What were the most important criteria with which you were assessed?



Emanuela Reale, Antonio Zinilli (2016), La valutazione dei Programmi di ricerca di interesse nazionale PRIN: quali criteri usa la comunità scientifica? in "Rivista Italiana di Valutazione" 64, pp. 27-52.



## FACTORS AFFECTING EX-ANTE PEER REVIEW

### SECONDARY DATA - POWER LAW DEGREE AND CENTRALITY OF FUNDED SCHOLARS

- There are some groups of researchers who, over the years, have had a central role in the process of collaboration; these show a repeated success over the years
- The power law degree distribution (Matthew effect) seems to characterize the Chemical Sciences; other areas have different degree distribution
- The geographical proximity, in all areas studied, seems to be an important variable driving the choice of research partners

Zinilli A. (2016). Competitive project funding and dynamic complex networks: evidence from Projects of National Interest (PRIN), *Scientometrics*, Volume 108, Issue 2, pp 633–652

## FACTORS AFFECTING EX-ANTE PEER REVIEW

### INTERVIEWS - EFFECTS OF CHANGES IN THE RULES AND SCORING SYSTEMS ON PEER REVIEW

Code	Item	Physics	Chemistry	Economics	Social Sciences
1	Importance given to the coordinator	--	--	--	-
	Importance of the quality of the proposal	- +	- +	- +	- +
	Impact	NA	NA	NA	+
2	Average scores	--	--	--	--
	Rating methods	--	--	-	-
	Threshold minimum	-	-	--	--
3	International peers	--	--	NA	-
	Peers Interactions	- +	- +	- +	- +

Note: +Positive reporting; -Negative reporting; -+Neither negative nor positive; NA= not emerging issue

Reale E., Zinilli A. (2017). Evaluation for the allocation of university research project funding: Can rules improve the peer review? *Res Eval* (2017) 26 (3): 190-198 doi: 10.1093/reseval/rvx019

## CONCLUSIONS

Peer review in the PRIN context is mainly affected by the different value given to the quality of the research project and the quality of the coordinator.

However, the difference between the importance given by evaluators to the various criteria, and the perception of evaluation when they are assessed, is symptomatic of the structural problems that troubled the process of peer evaluation.

Recent reforms in peer-review generate a conflict with scientific community norms, and there is a perceived bias during the assessment phase by performers, which do not produce any improvement in terms of reliability accountability and transparency.

No substantial efforts toward opening the discussion between peers

No reliable results of peer review might discourage scholars to apply