



An anonymized bibliometric analysis of the publications by the applicants for a funding initiative

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Bibliometric analysis of the publications by the applicants for the *****
funding initiative "*****"

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Introduction

The ***** is about to carry out an evaluation of the funding initiative "*****". With this evaluation, the ***** intends to assess the process of priority setting, the funding instruments, the course and the results of the funding initiative. The evaluation is accomplished under the special guidance of an evaluation panel of experts in the field of *****.

The initiative was established in 1999, the last grants were awarded in March 2005. The main objective of the initiative was the implementation of integrative projects, as a collaboration of two or more research groups. Approximately 185 scientists in 37 projects were funded. There was also the possibility of funding for methodically orientated projects, 7 scientists used this possibility. In addition to these 192 grant recipients there were nearly 40 declined projects with 3 to 5 scientists.

As an important step of the evaluation, a bibliometric analysis of the publications and citations of the grant recipients and the declined applications was made to be performed. The present report outlines the methodology, comprises the results and gives some hints on the possible conclusions of this analysis.

Methodology

Compilation of publication and citation data

Names and institutions of all applicants (principal researchers and participants) of all accepted grant applications in 44 funded projects and of all principal researchers of the rejected applications were provided by the *****. These lists were considered the fundamental basis of all further data collection and analysis.

Publication lists of most of the the applicants were also provided by the *****. These lists were of rather heterogeneous quality, partly compiled by the applicants themselves, partly retrieved from various databases (mainly Medline). Even those of the first type were not unconditionally reliable, several of them were admittedly incomplete ("selected publications", "major contributions", etc.), others were clearly outdated or belonged to a team or group of researchers rather than to a single individual. Among the second type, in many cases homonyms were not properly filtered out or, on the opposite, name variants were not properly taken into account. The lists became, thereby, "noisy" or incomplete.

We decided, therefore, to retrieve publication data of all applicants uniformly from the Thomson-ISI Web of Science (WoS) database; this appeared to be a reasonable choice also taking into account the requirements of the subsequent step of the assessment: the citation analysis, the WoS being the only database allowing full-scale citation retrieval. Publications retrieved from the WoS database were then carefully cross-checked with the publication lists

provided by the *****; in controversial cases other databases or internet sources were consulted.

Papers published in the period beginning with two years before the year of application were retrieved up to the latest available date.

Publication data were then cleaned for the purposes of the bibliometric analysis, and we kept only what was called "citable items". It included all publications of journals and other serials covered by the WoS database as source titles, provided they belonged to "citable" document types (mainly articles, reviews, letters and notes – but definitely not meeting abstracts, editorials, corrections, etc.), furthermore all publications not covered by the WoS as source items but having been actually cited.

The total number of citations to each such "citable item" was then retrieved from the date of publication up to the latest available date. No adjustment for self-citations was made. Special efforts were made to collect all citations to the items, even if they were recorded in the database with incomplete or erroneous bibliographic data.

In total, the analysis was based on the data of 7665 different "citable items" receiving 107782 citations. (Several items had multiple occurrences because of co-authorship, multiple applications, etc.)

Bibliometric indicators

In order to assess the influence of the accepted or rejected application to the scientific performance of the applicants, indicators for each applicant were determined in two time periods. The period "before application" was in each case a three-year period ending with the year of application. The period "after application" started with the year right after the application and ended with 2005 (the last full year to be analyzed) except for applications in 2005, when the "after-application" period was nothing but the incomplete (practically, half) year 2006.

For both periods, the following indicators were determined:

Number of publications: the number of "citable items" as defined above.

Annual publication productivity: the number of publications divided by the length of the period. The length of the year 2006 (used only for applications in 2005) was considered 1/2 year.

Average impact factor:* to each item the average impact factor of the publishing journal was assigned, which was calculated for as many years (within the 2000-2005 period) as long as they were covered by the *SCI/SSCI Journal Citation Reports*. These values were then averaged for all publications in both periods.

Number of citations: for publications in both periods the total number of citations was retrieved from the date of publication up to the latest available date. Citations to papers published in 2006 (used only for applications in 2005) have not been considered.

* The impact factor (mean number of citations in a given year to items published in the preceding two years) of a journal indicates its visibility or, in a broader sense, its influence or prestige. Impact factors, based on the Science Citation Index and the Social Science Citation Index components of the Web of Science database, are annually published in the *Journal Citation Reports* volumes of Thomson-ISI.

Standardized citation rate: in order to make citation numbers from citation periods of different length comparable, actual citation rates were standardized using an approximate formula. The standardized citation rate, z' , is

$$z' = \frac{z}{t} \cdot \frac{t + 0.5}{t - 0.5} ,$$

where z is the number of citations and t is the length of the citation period (2006 minus the year of publication). This standardized citation rate is, moreover, directly commensurable with the impact factor, i. e., approximately measures the average annual citation rate of papers in the two years after their publication.

Results

Summary table

A comprehensive table of the bibliometric indicators for all individual applications, each funded projects, as well as for all accepted and rejected applications in aggregate can be found in Appendix 1.

Applications of the same applicant in different years are treated as separate applications except for supplementary grants to the same person in the same project (these are assigned to the first date).

Project code "00" denotes rejected applications, titles of projects coded by "01" to "44" are listed in Appendix 2.

The "entire project" values are totals for the absolute numbers (publications and citations), properly weighted averages for the three other indicators.

Accepted vs rejected applications

The key figures for comparing the bibliometric indicators of accepted vs rejected applications are highlighted in the following table.

	Before application			After application		
	Ann. prod.	Avg. IF	Std. cit.	Ann. prod.	Avg. IF	Std. cit.
Rejected	6.27	5.21	5.39	6.39	5.23	5.02
Accepted	5.88	5.77	5.98	6.47	6.13	6.78

For the rejected applications there was a non-significant (although positive) change in the publication productivity and the average impact factor, the standardized citation rate, however, decreased. For the accepted applications there was a definite increase in all three indicators; even the annual publication productivity, the only indicator which had lower value for the accepted applications than for the rejected ones in the "before-application" period, surpassed that of the rejected applicants in the "after-application" period.

Changes in bibliometric indicators on project level

The charts in Appendix 3 depict the project-level changes in the three bibliometric indicators from the "before-application" period to the "after-application" period. The projects are classified into four quartiles according to the adjusted relative change, Δx , of the respective indicators calculated as

$$\Delta x = 2 (x_2 - x_1) / (x_2 + x_1) ,$$

where x_1 is the "before-application" value of the indicator and x_2 is its "after-application" value.

"After-application" values and, thereby, relative changes of standardized citation rates were not applicable for projects started in 2005.

Two of the projects (codes 09 and 40) were in the first quartile in all three indicators, a third one (code 01) had two first-quartile and a second-quartile position. These can be considered the "most successful" projects from bibliometric point of view.

Conclusions

Bibliometric indicators represent a rather specific, particular aspect of scientific performance, which may, nevertheless, be highly relevant. From this specific point of view, the grants funded by the ***** in the frame of the initiative "*****" proved to be, in general, successful. Indicators of the supported applicants in the "after-application" period surpassed both their "before-application" values, and the corresponding indicators of the rejected applicants.

The interpretation of the findings of this study is by far not unambiguous. Whether an increase in the publication productivity is the consequence of an ever growing quantity of high-level research achievements or of an increased stress to extend the publication list, cannot be assessed by merely measuring the indicator values. Higher citation rate may as well indicate more inescapable knowledge as a deeper embedding of the author(s) into the network of the professional community – this latter also being a desirable consequence of an initiative with explicit integrative purpose.

Whatever the interpretations, the facts and figures reported in this study will hopefully serve as a useful supplement (and by no means as a substitute) of the expert evaluation, and will modestly contribute to the even more successful continuation of the invaluable activity of the ***** in funding high-level scientific research.

Appendix 1: Publication and citation characteristics of individual applicants and accepted projects

Applicant's name	Project code	Appl. year	Before application				After application					
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.
*****	00	2004	11	183	3.67	6.26	6.84	0	0	0.00	0.00	0.00
*****	00	2004	10	411	3.33	14.12	15.29	3	25	3.00	13.18	25.00
*****	00	2000	21	1700	7.00	13.54	13.79	35	1217	7.00	9.85	15.20
*****	00	2001	20	203	6.67	3.13	2.14	8	48	2.00	4.89	3.64
*****	00	2005	82	454	27.33	3.66	4.80	32	0	32.00	4.67	0.00
*****	00	2004	20	222	6.67	8.41	6.03	8	22	8.00	10.76	8.25
*****	00	2004	47	276	15.67	3.74	2.58	13	2	13.00	3.40	0.46
*****	00	2004	2	5	0.67	1.73	2.08	2	1	2.00	4.54	1.50
*****	00	2004	13	71	4.33	4.67	2.50	6	8	6.00	4.71	4.00
*****	00	2003	32	792	10.67	8.15	8.04	29	160	14.50	7.08	10.72
*****	00	2004	27	105	9.00	2.19	1.81	3	9	3.00	0.40	9.00
*****	00	2004	23	172	7.67	4.08	3.41	9	6	9.00	4.50	2.00
*****	00	2005	11	117	3.67	3.30	11.55	2	0	2.00	6.57	0.00
*****	00	2003	12	97	4.00	3.71	3.06	9	23	4.50	3.63	3.82
*****	00	2000	8	46	2.67	1.27	0.89	14	42	2.80	1.62	1.93
*****	00	2004	25	496	8.33	10.28	12.50	8	10	8.00	4.94	3.75
*****	00	2005	18	119	6.00	6.12	4.84	4	0	4.00	6.72	0.00
*****	00	2005	14	147	4.67	6.22	9.68	10	0	10.00	3.80	0.00
*****	00	2001	16	193	5.33	2.27	2.30	16	75	4.00	2.52	2.96
*****	00	2005	13	93	4.33	6.66	8.45	2	0	2.00	2.69	0.00
*****	00	2000	36	733	12.00	7.42	3.25	39	202	7.80	4.48	2.23
*****	00	2000	15	319	5.00	2.63	3.38	45	243	9.00	2.66	2.99
*****	00	2000	61	1540	20.33	3.15	4.28	109	1215	21.80	4.25	5.94
*****	00	2003	39	1196	13.00	8.24	9.69	36	220	18.00	5.28	8.28
*****	00	2005	54	529	18.00	6.63	8.19	30	0	30.00	4.46	0.00
*****	00	2005	29	260	9.67	6.14	7.56	6	0	6.00	5.31	0.00
*****	00	2003	7	53	2.33	4.03	2.98	6	18	3.00	4.37	6.47
*****	00	2004	27	572	9.00	7.45	9.34	7	30	7.00	7.51	12.86
*****	00	2005	1	5	0.33	4.72	2.33	2	0	2.00	3.03	0.00
*****	00	2005	13	63	4.33	3.91	2.99	4	0	4.00	23.50	0.00
*****	00	2000	10	771	3.33	17.11	12.71	10	355	2.00	11.13	13.42
*****	00	2005	39	246	13.00	5.62	6.30	24	0	24.00	6.52	0.00
*****	00	2004	3	7	1.00	7.37	0.75	2	1	2.00	1.18	1.50
*****	00	2003	1	30	0.33	17.19	14.00	0	0	0.00	0.00	0.00
*****	00	2002	3	42	1.00	1.86	3.77	4	6	1.33	2.28	1.79
*****	00	2004	14	319	4.67	6.78	9.45	2	4	2.00	4.20	6.00
*****	00	2000	1	5	0.33	2.42	0.82	9	39	1.80	2.64	5.39
*****	00	2000	12	279	4.00	4.28	4.35	62	437	12.40	3.96	3.96
*****	00	2003	15	198	5.00	2.85	3.50	11	76	5.50	3.34	6.74
*****	00	2004	25	230	8.33	7.81	4.35	8	15	8.00	4.64	5.63
*****	00	2004	31	253	10.33	3.06	5.12	12	13	12.00	2.72	3.25

Applicant's name	Project code	Appl. year	Before application				After application					
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.
*****	00	2000	23	2134	7.67	12.71	15.64	35	1077	7.00	12.54	12.16
*****	00	2004	8	100	2.67	5.16	6.86	2	4	2.00	4.22	6.00
*****	00	2000	63	4644	21.00	13.70	12.00	69	2121	13.80	14.52	14.13
*****	00	2004	30	294	10.00	4.10	4.71	13	25	13.00	5.47	5.77
*****	00	2002	4	143	1.33	5.47	11.07	10	56	3.33	4.36	4.17
*****	00	2004	26	1124	8.67	8.61	21.64	7	60	7.00	7.48	25.71
*****	00	2003	7	69	2.33	5.16	2.54	2	1	1.00	4.49	1.50
*****	00	2001	9	158	3.00	3.28	3.49	17	122	4.25	4.27	4.10
*****	00	2005	6	34	2.00	7.92	2.83	0	0	0.00	0.00	0.00
*****	00	2004	4	133	1.33	16.54	17.19	3	9	3.00	8.16	9.00
*****	00	2003	33	265	11.00	3.73	2.50	13	49	6.50	5.00	5.64
*****	00	2005	12	102	4.00	8.68	7.50	10	0	10.00	5.31	0.00
*****	00	2004	4	17	1.33	4.54	3.29	2	7	2.00	4.65	10.50
*****	00	2000	2	7	0.67	1.47	0.66	2	1	0.40	2.35	0.12
*****	00	2005	5	15	1.67	3.17	3.65	4	0	4.00	2.72	0.00
*****	00	2000	17	94	5.67	2.84	0.93	19	73	3.80	2.57	2.10
*****	00	2005	4	8	1.33	3.59	0.93	2	0	2.00	7.34	0.00
*****	00	2003	7	83	2.33	5.12	3.82	13	57	6.50	6.18	6.15
*****	00	2000	28	325	9.33	3.21	1.84	25	181	5.00	4.21	2.52
*****	00	2004	10	2	3.33	4.01	0.06	1	0	1.00	3.59	0.00
*****	00	2004	4	26	1.33	4.18	4.50	3	3	3.00	5.05	3.00
*****	00	2005	20	213	6.67	8.67	9.12	8	0	8.00	8.64	0.00
*****	00	2005	13	21	4.33	3.36	1.81	8	0	8.00	6.14	0.00
*****	00	2003	10	68	3.33	5.87	2.47	3	13	1.50	6.44	10.83
*****	00	2005	4	53	1.33	7.06	8.93	0	0	0.00	0.00	0.00
*****	00	2000	30	667	10.00	2.23	3.61	48	481	9.60	4.33	4.09
*****	00	2001	12	57	4.00	2.59	0.92	17	11	4.25	2.50	0.56
*****	00	2005	14	11	4.67	2.07	0.68	2	0	2.00	2.35	0.00
*****	00	2004	9	20	3.00	1.57	1.28	4	1	4.00	2.61	0.75
*****	00	2004	7	25	2.33	4.41	1.86	0	0	0.00	0.00	0.00
*****	00	2002	24	99	8.00	2.42	0.89	26	61	8.67	3.73	2.91
*****	00	2003	17	314	5.67	3.38	5.85	7	21	3.50	4.74	7.45
*****	00	2004	11	163	3.67	3.92	5.96	5	16	5.00	5.57	9.60
*****	00	2001	14	107	4.67	3.97	1.48	19	21	4.75	3.06	0.57
*****	00	2004	59	420	19.67	3.76	3.93	12	33	12.00	5.31	8.25
*****	00	2005	56	321	18.67	4.07	5.15	28	0	28.00	3.32	0.00
*****	00	2004	12	30	4.00	2.35	1.32	3	2	3.00	2.29	2.00
*****	00	2003	45	423	15.00	3.93	2.85	33	56	16.50	3.12	2.20
*****	00	2004	16	113	5.33	3.98	2.99	6	2	6.00	7.05	1.00
*****	00	2000	11	159	3.67	3.66	2.64	36	151	7.20	3.99	2.72
*****	00	2001	62	504	20.67	1.60	1.66	73	224	18.25	1.85	2.18
*****	00	2000	25	441	8.33	4.33	2.72	39	305	7.80	5.92	3.03
*****	00	2004	19	166	6.33	3.03	4.26	4	7	4.00	2.19	5.25
*****	00	2002	42	307	14.00	1.93	1.73	9	40	3.00	3.08	2.81

Applicant's name	Project code	Appl. year	Before application				After application					
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.
*****		2004	24	147	8.00	4.01	2.98	6	6	6.00	2.62	3.00
*****	00	2000	37	452	12.33	3.46	1.92	24	89	4.80	3.70	3.31
*****	00	2004	8	54	2.67	3.74	2.91	0	0	0.00	0.00	0.00
*****	00	2004	25	260	8.33	5.97	5.39	10	27	10.00	7.30	8.10
*****	00	2001	24	500	8.00	2.84	4.33	41	291	10.25	3.09	4.44
*****	00	2004	7	43	2.33	3.08	2.56	4	21	4.00	5.84	15.75
*****	00	2004	19	234	6.33	6.14	6.22	4	24	4.00	10.71	18.00
*****	00	2004	9	95	3.00	4.49	5.97	4	5	4.00	3.60	3.75
*****	00	2003	8	148	2.67	6.05	6.94	5	10	2.50	5.60	5.13
*****	00	2004	6	49	2.00	1.21	4.25	0	0	0.00	0.00	0.00
*****	00	2000	43	2113	14.33	5.94	8.02	36	486	7.20	3.51	6.58
*****	00	2005	11	8	3.67	1.55	0.61	0	0	0.00	0.00	0.00
*****	00	2005	10	57	3.33	8.59	4.11	2	0	2.00	4.72	0.00
*****	00	2005	11	67	3.67	3.91	3.61	8	0	8.00	2.26	0.00
*****	00	2004	6	106	2.00	7.27	6.96	3	8	3.00	7.08	8.00
*****	00	2000	6	40	2.00	1.45	0.99	13	69	2.60	6.75	2.55
*****	00	2003	9	254	3.00	11.68	10.15	10	87	5.00	10.34	12.02
*****	00	2002	6	99	2.00	9.56	3.56	7	28	2.33	3.52	2.60
*****	00	2004	27	490	9.00	6.06	8.72	19	45	19.00	7.80	7.11
*****	00	2000	34	1361	11.33	4.28	6.76	88	1160	17.60	4.92	6.12
*****	00	2004	1	3	0.33	3.43	1.40	0	0	0.00	0.00	0.00
*****	00	2004	11	125	3.67	3.37	7.46	1	3	1.00	3.47	9.00
*****	00	2005	10	35	3.33	4.59	3.42	4	0	4.00	18.84	0.00
*****	00	2004	7	160	2.33	10.53	9.11	2	7	2.00	12.07	10.50
*****	00	2003	12	62	4.00	3.60	1.54	7	6	3.50	2.08	1.02
All rejected	00		2070	34993	6.27	5.21	5.39	1581	12185	6.39	5.23	5.02
*****	01	2000	23	304	7.67	0.96	2.11	50	521	10.00	3.28	5.20
*****	01	2000	3	31	1.00	3.17	1.68	7	32	1.40	4.21	6.01
*****	01	2000	26	1028	8.67	4.67	6.41	40	443	8.00	6.24	6.35
*****	01	2000	12	150	4.00	1.40	1.83	14	117	2.80	3.92	5.21
Entire project	01	2000	64	1513	5.33	2.65	3.79	111	1113	5.55	4.49	5.67
*****	02	2000	13	140	4.33	1.50	1.71	21	672	4.20	7.73	12.22
*****	02	2002	9	68	3.00	2.40	2.10	4	7	1.33	1.64	0.82
*****	02	2000	6	101	2.00	2.77	2.82	6	79	1.20	5.86	7.34
Entire project	02	2000	28	309	3.11	2.06	2.08	31	758	2.07	6.58	9.80
*****	03	2000	2	63	0.67	2.17	5.19	7	24	1.40	4.04	4.88
*****	03	2000	18	194	6.00	1.99	1.66	20	50	4.00	2.88	1.31
Entire project	03	2000	20	257	3.33	2.01	2.01	27	74	2.70	3.18	2.23
*****	04	2000	14	1153	4.67	10.55	13.87	16	560	3.20	12.99	16.14
*****	04	2000	17	1109	5.67	10.48	10.68	25	919	5.00	15.75	17.30
*****	04	2000	19	475	6.33	4.72	4.22	36	557	7.20	8.57	9.86
*****	04	2000	33	950	11.00	5.89	4.89	43	857	8.60	7.66	9.41
*****	04	2000	11	347	3.67	6.37	5.27	13	148	2.60	5.18	5.98
*****	04	2000	6	290	2.00	6.31	7.78	8	214	1.60	13.48	14.17

Applicant's name	Project code	Appl. year	Before application				After application					
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.
Entire project	04	2000	100	4324	5.56	7.18	7.22	141	3255	4.70	10.04	11.64
*****	05	2000	13	503	4.33	7.64	6.90	75	1416	15.00	6.82	9.01
*****	05	2000	26	372	8.67	11.91	2.48	41	447	8.20	9.20	4.56
*****	05	2000	7	158	2.33	1.00	4.01	41	238	8.20	4.00	3.21
*****	05	2000	79	2454	26.33	4.60	5.41	158	2415	31.60	5.32	7.05
Entire project	05	2000	125	3487	10.42	6.24	4.88	315	4516	15.75	6.01	6.69
*****	06	2000	20	364	6.67	3.01	3.05	35	157	7.00	2.29	2.47
*****	06	2000	39	858	13.00	2.91	3.60	56	732	11.20	4.24	5.29
*****	06	2000	17	229	5.67	3.44	2.25	38	398	7.60	6.69	4.78
*****	06	2000	4	110	1.33	4.27	4.00	8	57	1.60	5.71	3.68
*****	06	2000	40	780	13.33	2.92	3.23	81	635	16.20	3.91	4.63
Entire project	06	2000	120	2341	8.00	3.05	3.21	218	1979	8.72	4.29	4.45
*****	07	2000	6	125	2.00	0.19	3.77	11	68	2.20	2.04	3.70
*****	07	2000	8	75	2.67	1.58	1.55	31	67	6.20	5.32	1.00
Entire project	07	2000	14	200	2.33	0.99	2.50	42	135	4.20	4.46	1.71
*****	08	2001	17	383	5.67	9.41	4.34	28	244	7.00	9.08	6.66
*****	08	2001	3	19	1.00	2.07	1.35	7	37	1.75	3.24	2.97
*****	08	2001	7	93	2.33	4.21	2.67	7	25	1.75	4.41	1.86
*****	08	2001	2	15	0.67	2.40	1.60	8	54	2.00	3.74	2.91
Entire project	08	2001	29	510	2.42	6.91	3.44	50	360	3.13	6.76	4.87
*****	09	2001	10	101	3.33	5.65	2.08	28	178	7.00	4.99	3.79
*****	09	2001	8	51	2.67	1.71	1.29	12	59	3.00	3.22	1.68
*****	09	2001	7	23	2.33	0.93	0.67	13	72	3.25	5.57	3.54
Entire project	09	2001	25	175	2.78	3.07	1.43	53	309	4.42	4.73	3.25
*****	10	2001	2	120	0.67	20.78	9.89	1	7	0.25	2.84	5.83
*****	10	2001	7	140	2.33	5.12	4.12	6	35	1.50	5.41	2.88
*****	10	2001	4	37	1.33	0.53	1.53	9	21	2.25	2.31	0.85
*****	10	2001	14	107	4.67	3.97	1.48	19	21	4.75	3.06	0.57
*****	10	2001	31	696	10.33	6.26	4.29	31	264	7.75	4.46	5.27
*****	10	2001	5	46	1.67	1.20	1.59	4	21	1.00	1.99	1.69
Entire project	10	2001	63	1146	3.50	5.32	3.43	70	369	2.92	3.72	3.02
*****	11	2001	8	288	2.67	8.82	7.22	18	197	4.50	5.51	6.51
*****	11	2005	17	88	5.67	7.71	3.08	4	0	4.00	2.98	0.00
*****	11	2001	15	228	5.00	1.28	3.28	23	198	5.75	4.56	4.40
*****	11	2001	9	166	3.00	6.55	3.55	20	138	5.00	6.30	6.86
*****	11	2005	18	123	6.00	6.46	7.36	12	0	12.00	6.10	0.00
*****	11	2001	36	964	12.00	6.15	5.03	67	637	16.75	6.00	6.20
*****	11	2001	16	676	5.33	5.70	8.60	15	272	3.75	13.60	13.72
*****	11	2001	19	831	6.33	8.10	9.86	29	418	7.25	7.71	9.88
Entire project	11	2001	138	3364	5.75	6.25	6.01	188	1860	5.88	6.62	6.72
*****	12	2001	6	103	2.00	2.96	2.94	17	227	4.25	13.11	8.19
*****	12	2001	5	69	1.67	5.86	2.98	8	96	2.00	5.38	7.00
*****	12	2001	8	670	2.67	14.29	15.42	5	135	1.25	12.96	12.72

Applicant's name	Project code	Appl. year	Before application				After application					
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.
*****	12	2001	9	267	3.00	7.35	5.51	19	279	4.75	8.19	16.43
*****	12	2001	4	423	1.33	14.45	20.42	9	206	2.25	7.88	11.46
*****	12	2001	7	387	2.33	7.12	11.27	27	413	6.75	7.23	10.25
*****	12	2001	10	164	3.33	10.31	3.13	11	93	2.75	9.63	4.22
*****	12	2001	7	133	2.33	6.21	4.44	13	150	3.25	10.38	9.89
*****	12	2001	10	265	3.33	8.97	5.63	20	201	5.00	8.95	6.38
Entire project	12	2001	66	2481	2.44	8.66	7.35	129	1800	3.58	9.09	9.72
*****	13	2001	8	188	2.67	16.42	5.29	20	306	5.00	14.01	8.94
*****	13	2001	45	3100	15.00	7.34	13.49	48	900	12.00	7.97	13.57
*****	13	2001	38	900	12.67	7.24	4.80	26	125	6.50	6.13	6.60
*****	13	2001	12	710	4.00	11.10	12.30	20	336	5.00	11.70	12.01
Entire project	13	2001	103	4898	8.58	8.45	9.51	114	1667	7.13	9.26	10.89
*****	14	2001	7	122	2.33	7.93	3.74	11	183	2.75	6.26	6.84
*****	14	2001	10	176	3.33	6.00	3.45	14	192	3.50	7.85	8.86
*****	14	2001	14	124	4.67	5.80	1.86	12	23	3.00	3.05	0.91
Entire project	14	2001	31	422	3.44	6.35	2.80	37	398	3.08	5.82	5.68
*****	15	2001	19	254	6.33	4.06	2.64	19	79	4.75	4.68	2.97
*****	15	2000	3	5	1.00	2.24	0.24	2	2	2.40	3.74	0.05
*****	15	2000	30	1367	10.00	7.62	7.16	32	488	6.40	7.72	7.70
Entire project	15	2001	52	1626	5.78	6.01	5.11	63	569	5.25	6.05	4.82
*****	16	2001	7	174	2.33	5.72	5.18	31	280	7.75	6.04	7.28
*****	16	2001	19	1243	6.33	12.02	12.42	27	380	6.75	8.84	8.75
Entire project	16	2001	26	1417	4.33	10.32	10.47	58	660	7.25	7.34	7.96
*****	17	2001	14	338	4.67	3.48	5.35	14	162	3.50	4.20	9.09
*****	17	2001	21	563	7.00	3.58	5.33	20	303	5.00	4.96	10.38
Entire project	17	2001	35	901	5.83	3.54	5.34	34	465	4.25	4.64	9.85
*****	18	2001	2	9	0.67	2.39	0.74	6	7	1.50	1.73	0.70
*****	18	2001	15	341	5.00	3.50	4.73	28	225	7.00	3.74	5.89
*****	18	2001	8	14	2.67	0.74	0.38	10	9	2.50	0.85	0.81
Entire project	18	2001	25	364	2.78	2.53	3.02	44	241	3.67	2.81	4.03
*****	19	2002	35	1187	11.67	7.36	8.45	39	305	13.00	7.42	9.71
*****	19	2002	18	617	6.00	2.93	7.21	25	88	8.33	2.88	3.20
*****	19	2002	21	283	7.00	4.61	3.38	18	94	6.00	3.79	3.90
*****	19	2002	3	68	1.00	6.25	7.06	7	69	2.33	5.99	6.63
*****	19	2002	4	18	1.33	5.44	1.35	7	18	2.33	7.86	6.79
*****	19	2002	24	525	8.00	4.98	5.21	28	173	9.33	6.28	6.40
*****	19	2002	33	430	11.00	4.91	3.04	46	447	15.33	5.04	6.99
*****	19	2002	43	1238	14.33	4.95	7.38	58	443	19.33	4.50	5.59
Entire project	19	2002	181	4366	7.54	5.21	5.89	228	1637	9.50	5.24	6.35
*****	20	2002	29	417	9.67	4.00	3.97	33	85	11.00	3.78	2.34
*****	20	2002	10	308	3.33	16.78	7.80	6	57	2.00	15.56	5.84
*****	20	2002	39	1154	13.00	5.93	7.06	21	142	7.00	4.49	5.10
*****	20	2002	13	805	4.33	9.66	14.23	16	358	5.33	8.87	23.05

Applicant's name	Project code	Appl. year	Before application				After application						
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	
*****	20	2002	13	364	4.33	7.14	6.71	6.71	10	35	3.33	7.09	4.72
Entire project	20	2002	104	3048	6.93	7.05	7.12	7.12	86	677	5.73	6.11	7.39
*****	21	2002	3	2	1.00	3.95	0.21	0.21	4	17	1.33	3.00	3.98
*****	21	2002	17	439	5.67	7.50	6.22	6.22	13	77	4.33	4.98	5.36
Entire project	21	2002	20	441	3.33	6.97	5.32	5.32	17	94	2.83	4.51	5.04
*****	22	2002	86	3657	28.67	7.00	10.74	10.74	81	1084	27.00	6.62	11.55
*****	22	2002	9	400	3.00	7.94	13.60	13.60	24	532	8.00	9.68	14.30
*****	22	2002	11	387	3.67	7.15	9.81	9.81	17	152	5.67	6.06	6.68
Entire project	22	2002	106	4444	11.78	7.09	10.88	10.88	122	1768	13.56	7.14	11.41
*****	23	2002	2	104	0.67	11.18	14.91	14.91	0	0	0.00	0.00	0.00
*****	23	2002	6	259	2.00	12.50	10.20	10.20	2	36	0.67	7.31	9.13
Entire project	23	2002	8	363	1.33	12.17	11.38	11.38	2	36	0.33	7.31	9.13
*****	24	2002	12	865	4.00	8.50	17.07	17.07	18	231	6.00	7.58	10.61
*****	24	2002	8	509	2.67	11.74	15.41	15.41	25	478	8.33	8.85	15.96
*****	24	2002	20	823	6.67	7.46	9.71	9.71	21	293	7.00	7.97	12.08
*****	24	2002	19	758	6.33	6.88	9.60	9.60	27	378	9.00	8.16	11.52
Entire project	24	2002	59	2955	4.92	8.06	11.94	11.94	91	1380	7.58	8.19	12.69
*****	25	2002	10	97	3.33	2.23	2.44	2.44	7	20	2.33	2.23	3.56
*****	25	2002	12	157	4.00	5.67	3.14	3.14	6	25	2.00	5.31	2.80
*****	25	2002	18	233	6.00	5.85	3.24	3.24	25	136	8.33	4.79	4.90
*****	25	2002	9	93	3.00	4.22	2.64	2.64	5	7	1.67	2.53	2.68
Entire project	25	2002	49	580	4.08	4.77	2.94	2.94	43	188	3.58	4.18	4.13
*****	26	2003	50	543	16.67	4.34	3.38	3.38	40	237	20.00	6.18	6.08
*****	26	2003	6	72	2.00	5.49	4.26	4.26	4	14	2.00	8.12	4.54
Entire project	26	2003	56	615	9.33	4.46	3.47	3.47	44	251	11.00	6.36	5.94
*****	27	2003	18	496	6.00	3.83	7.45	7.45	16	72	8.00	3.97	5.51
*****	27	2003	12	456	4.00	4.62	10.39	10.39	13	142	6.50	7.46	15.77
Entire project	27	2003	30	952	5.00	4.15	8.63	8.63	29	214	7.25	5.53	10.11
*****	28	2004	27	369	9.00	7.81	5.60	5.60	5	17	5.00	4.88	10.20
*****	28	2004	11	201	3.67	12.10	7.12	7.12	2	3	2.00	4.90	4.50
*****	28	2004	24	195	8.00	5.09	3.36	3.36	5	8	5.00	1.74	4.80
*****	28	2004	5	11	1.67	2.52	0.82	0.82	1	0	1.00	0.99	0.00
*****	28	2004	6	21	2.00	3.81	1.92	1.92	1	0	1.00	1.74	0.00
Entire project	28	2004	73	797	4.87	6.87	4.47	4.47	14	28	2.80	3.26	6.00
*****	29	2004	4	81	1.33	2.73	8.54	8.54	1	0	1.00	4.54	0.00
*****	29	2004	7	93	2.33	11.00	6.36	6.36	1	1	1.00	2.84	3.00
*****	29	2004	12	271	4.00	8.72	11.23	11.23	4	15	4.00	8.23	11.25
Entire project	29	2004	23	445	2.56	8.37	9.28	9.28	6	16	2.00	6.72	8.00
*****	30	2004	128	1426	42.67	4.22	5.20	5.20	39	74	39.00	4.79	5.69
*****	30	2004	18	200	6.00	4.85	4.79	4.79	6	9	6.00	4.04	4.50
*****	30	2004	16	192	5.33	7.66	6.47	6.47	9	5	9.00	4.74	1.67
*****	30	2004	9	108	3.00	7.54	4.68	4.68	5	16	5.00	9.41	9.60
*****	30	2004	6	156	2.00	9.51	8.91	8.91	5	31	5.00	10.25	18.60

Applicant's name	Project code	Appl. year	Before application				After application					
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.
Entire project	30	2004	177	2082	11.80	4.94	5.37	64	135	12.80	5.50	6.33
*****	31	2005	15	138	5.00	9.61	7.28	2	0	2.00	4.72	0.00
*****	31	2005	17	123	5.67	8.29	5.09	8	0	8.00	7.98	0.00
Entire project	31	2005	32	261	5.33	8.91	6.12	10	0	5.00	7.33	0.00
*****	32	2005	26	83	8.67	6.35	3.67	4	0	4.00	1.86	0.00
*****	32	2005	42	199	14.00	5.73	4.46	10	0	10.00	2.93	0.00
*****	32	2005	32	111	10.67	3.70	2.62	4	0	4.00	4.68	0.00
Entire project	32	2005	100	393	11.11	5.24	3.66	18	0	6.00	3.08	0.00
*****	33	2005	44	117	14.67	2.67	2.07	20	0	20.00	3.07	0.00
*****	33	2005	13	32	4.33	3.22	3.63	6	0	6.00	3.04	0.00
*****	33	2005	26	251	8.67	6.60	7.67	8	0	8.00	4.81	0.00
Entire project	33	2005	83	400	9.22	3.98	4.07	34	0	11.33	3.48	0.00
*****	34	2005	12	88	4.00	6.40	7.69	6	0	6.00	7.05	0.00
*****	34	2005	23	115	7.67	3.88	6.64	8	0	8.00	1.66	0.00
*****	34	2005	15	58	5.00	4.37	4.19	6	0	6.00	8.28	0.00
*****	34	2005	10	31	3.33	6.22	3.59	2	0	2.00	6.22	0.00
*****	34	2005	7	49	2.33	4.88	6.52	0	0	0.00	0.00	0.00
*****	34	2005	15	42	5.00	1.82	2.47	2	0	2.00	3.95	0.00
Entire project	34	2005	82	383	4.56	4.33	5.20	24	0	4.00	5.23	0.00
*****	35	2005	5	41	1.67	10.16	4.85	0	0	0.00	0.00	0.00
*****	35	2005	2	3	0.67	1.55	1.97	2	0	2.00	9.11	0.00
*****	35	2005	15	89	5.00	7.43	5.34	4	0	4.00	2.79	0.00
Entire project	35	2005	22	133	2.44	7.52	4.93	6	0	2.00	4.90	0.00
*****	36	2005	19	118	6.33	9.44	7.68	12	0	12.00	15.01	0.00
*****	36	2005	26	173	8.67	5.62	6.41	8	0	8.00	3.01	0.00
*****	36	2005	3	3	1.00	3.31	0.47	0	0	0.00	0.00	0.00
Entire project	36	2005	48	294	5.33	6.99	6.54	20	0	6.67	10.21	0.00
*****	37	2005	57	764	19.00	7.29	10.78	22	0	22.00	10.89	0.00
*****	37	2005	24	223	8.00	6.63	6.94	6	0	6.00	9.56	0.00
*****	37	2005	7	46	2.33	13.32	7.74	2	0	2.00	33.17	0.00
Entire project	37	2005	88	1033	9.78	7.59	9.49	30	0	10.00	12.11	0.00
*****	38	2000	11	165	3.67	2.57	2.62	24	335	4.80	3.78	6.32
Entire project	38	2000	11	165	3.67	2.57	2.62	24	335	4.80	3.78	6.32
*****	39	2000	43	3282	14.33	10.07	12.06	56	921	11.20	8.16	10.00
*****	39	2004	13	61	4.33	1.58	1.85	0	0	0.00	0.00	0.00
*****	39	2004	12	220	4.00	7.50	8.12	4	6	4.00	4.78	4.50
*****	39	2004	8	162	2.67	8.56	10.29	0	0	0.00	0.00	0.00
*****	39	2000	20	272	6.67	2.87	2.26	58	658	11.60	4.61	7.02
*****	39	2000	34	1361	11.33	4.28	6.76	88	1160	17.60	4.92	6.12
Entire project	39	2000	130	5358	7.22	6.27	7.67	206	2745	6.87	5.71	7.40
*****	40	2001	2	66	0.67	11.31	8.07	12	71	3.00	4.19	3.51
*****	40	2001	38	626	12.67	2.61	3.39	74	687	18.50	4.86	5.22
*****	40	2001	12	175	4.00	4.27	2.76	36	303	9.00	5.55	5.31

Applicant's name	Project code	Appl. year	Before application				After application					
			No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.	No. pub.	No. cit	Ann. prod.	Avg. IF	Std. cit.
Entire project	40	2001	52	867	5.78	3.33	3.42	122	1061	10.17	5.00	5.08
*****	41	2003	6	0	2.00	2.66	0.00	0	0	0.00	0.00	0.00
Entire project	41	2003	6	0	2.00	2.66	0.00	0	0	0.00	0.00	0.00
*****	42	2004	15	347	5.00	9.72	11.34	8	22	8.00	7.26	8.25
*****	42	2004	39	683	13.00	6.22	7.67	14	66	14.00	6.80	14.14
*****	42	2004	71	753	23.67	4.75	5.47	24	89	24.00	5.99	11.13
*****	42	2004	18	472	6.00	7.29	13.15	10	29	10.00	6.05	8.70
*****	42	2004	39	457	13.00	4.88	6.34	16	29	16.00	4.91	5.44
*****	42	2004	0	0	0.00	0.00	0.00	1	0	1.00	2.68	0.00
Entire project	42	2004	182	2712	10.11	5.75	7.37	73	235	12.17	6.01	9.66
*****	43	2004	13	212	4.33	6.78	8.25	8	26	8.00	7.88	9.75
*****	43	2004	25	260	8.33	5.97	5.39	10	27	10.00	7.30	8.10
Entire project	43	2004	38	472	6.33	6.25	6.37	18	53	9.00	7.56	8.83
*****	44	2005	17	95	5.67	4.53	3.19	14	0	14.00	4.93	0.00
Entire project	44	2005	17	95	5.67	4.53	3.19	14	0	14.00	4.93	0.00
All accepted			2841	63389	5.88	5.77	5.98	3070	31381	6.47	6.13	6.78

Appendix 2: Codes and titles of funded projects

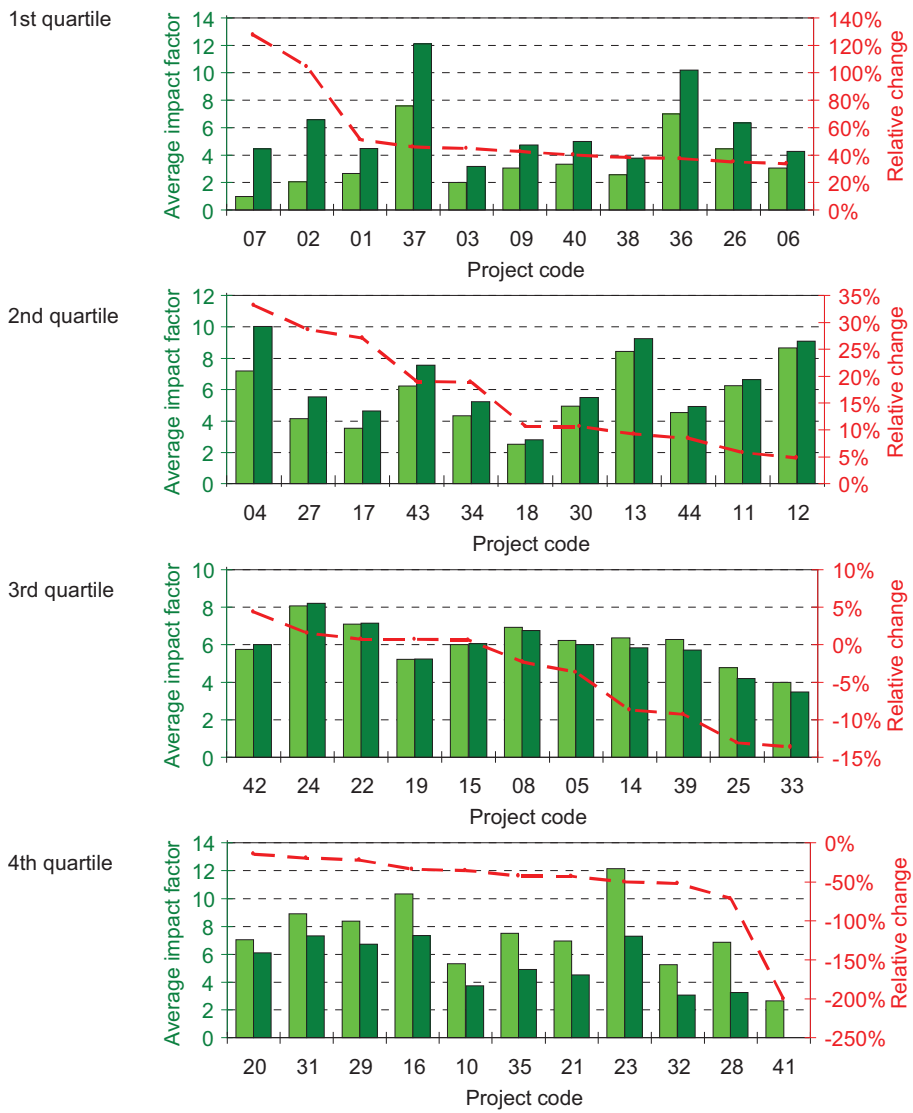
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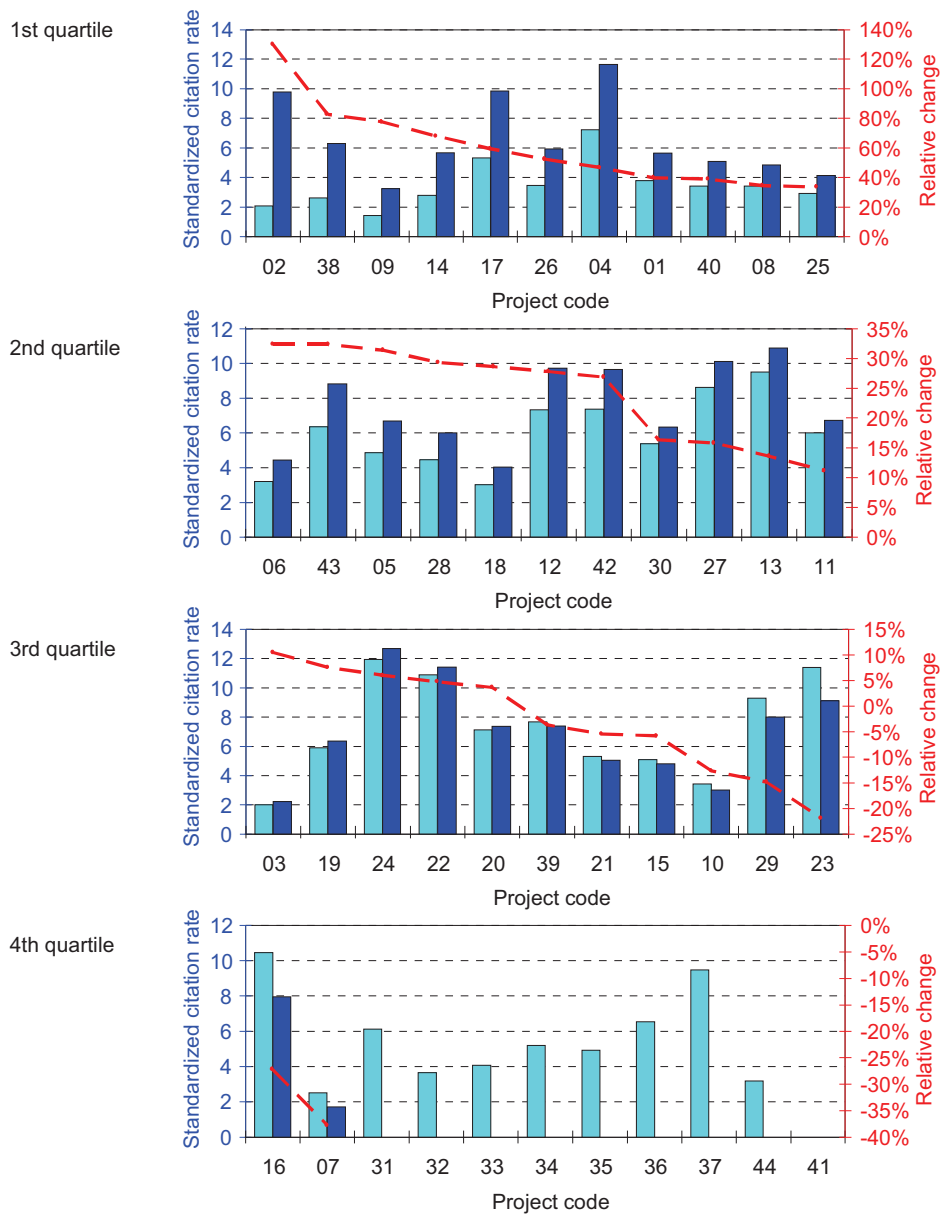
Appendix 3: Changes in project-level indicators



Change of the annual publication productivity from the "before-application" period (light columns) to the "after-application" period (dark columns)



Change of the average impact factor from the "before-application" period (light columns) to the "after-application" period (dark columns)



Change of the standardized citation rate from the "before-application" period (light columns) to the "after-application" period (dark columns)