

Internationalization of Funding Organizations – is the WoS useful?

Peter van den Besselaar

Annamaria Inzelt, Emanuela Reale

Network Institute - VU University Amsterdam

The Netherlands

The project

- Indicators for internationalization
 - Funding organizations
 - Research performing organizations
- Share of papers funded that are internationally co-authored
 - FOs: internationally co-authored papers *funded* by the FO,
- Approach: data source = organizations
 - For FOs
 - Reporting by grant holders?
 - From CVs?
- Bibliometric databases? The new *funding field* in WoS

The new FA field

- For 2011 rather large coverage
 - Tested it for a few countries, and two-third of the papers have such an acknowledgement
 - Complete?
- Earlier years (2010, 2009) much less papers with FO
 - Retro-filling of the database?
- First test:
 - This is a first test, controls and refinements needed
 - Case: Swiss National Research Council

What indicators could be build on the funding information?

- FOs
 - Internationally coauthored papers
 - Outgoing funds
 - Co-funded research
- RPO
 - Incoming funds
- These relate to several of the selected indicators
 - Different operationalization
 - Outputs (not process or inputs)

Relation with selected indicators

Selected Indicator		Extension through WoS data
F1	Budget for joint research programs	Number internationally co-funded papers
F4	International coauthored papers	
F8	Budget spending abroad	Papers funded with only foreign authors
P7	Budget coming from abroad	Papers (co-)funded from abroad

Methodological remarks 1

- Disambiguation problem
 - Switzerland 2011 papers = 18000 different funder names
 - Swiss national council = 150 name variants
- Time series not yet available
 - In future, they may be biased because of changing data coverage and because of changing habits.
- Missing or wrong acknowledgements?
 - White noise?

Methodological remarks 2

- Web version of WoS
 - For some analyses, only top 100 funders were used
 - Disambiguation issue!
- Only WoS indexed papers,
 - Probably over-estimation international co-authored papers
- National ‘cultural’ differences
 - Different habits with respect to mentioning funding

Methodological remarks

- Papers \neq authors:
 - a similar analysis on author basis would be interesting
 - Internationalization = share of funded researchers with (strong) international co-author networks
- Papers \neq read (cited) papers
 - And: funded papers that are internationally (highly) cited.

1. Internationally co-authored papers

- International orientation indicator
 - Share of papers funded that are internationally co-authored

'international orientation' indicator

	Total	SNF**	Other funder*	No funding
All papers	23298	5608	8996	8692
International co-authors	67.7	59.7	83.4	55.8
Swiss (co-) authors only	32.0	39.7	16.6	44.2
International orientation	1.00	$59.7 / 67.7 = 0.88$	$83.4 / 67.7 = 1.23$	$55.8 / 67.7 = 0.82$

SNF, 2011, Web of Science

* No SNF funding, but at least one other funder;

** Possibly also other funders.

Findings

- Majority (68%) papers is internationally co-authored
- Of the SNF funded, the majority (60%) is internationally coauthored
 - But this is less than the national average:
 - Indicator “international orientation” = 0.88
- Explanation
 - Portfolio composition (because FO funds also fields with low international orientation)?
 - National elites rule the FO?

Portfolio issue?

	Biochem/Molbiol		Chemistry		Physics		Psychology	
	all	SNF	all	SNF	All	SNF	All	SNF
Total	1281	547	2184	772.0	2883	1080	519	63
Int co-auth	66.1%	54.8%	60.2%	45.9%	76.6%	70.3%	64.5%	66.7%
Nat auth	33.9%	45.2%	39.8%	54.1%	23.4%	29.7%	35.5%	33.3%
Internat. Orient		0.83		0.76		0.92		1.03

Field specific international orientation of funding organization (Switzerland 2011)

Is SNF different?

- Quick check
 - RCN (Norway)
 - DFG (Germany)
 - NWO (Netherlands)
- Pattern seems about the same,
- Further checks are still needed

2. International co-funded research

- International collaboration (co-authoring)
 - May bring resources together
- Indicator for co-funding
 - Inputs: funds for joint programs
 - Output: share of papers co-funded
 - Internationally co-authored
 - funded by an (some) other international FO(s)

Types of funders

Categories of funders

0. SNF

1. Other Swiss (government, agencies, foundations, universities)

2. Companies

3. Other EU (government, agencies, foundations, universities)

4. EC (FW programs, ERC)

5. International organizations (CERN)

6. USA (government, agencies, foundations, universities)

7. Elsewhere in the world (government, agencies, foundations, universities)

Papers by funders

Funder	# papers	% of category	% of SNF
0. SNF only	3348		
1. SNF + other Swiss (government, agencies, foundations, universities)	495	51.2	8.8
2. SNF + Companies	177	25.6	3.2
3. SNF + elsewhere in the EU (government, agencies, foundations, universities)	453	26.7	8.1
4. SNF + EC (FW programs, ERC)	650	31.5	11.6
5. SNF + international organizations (CERN)	19	15.8	0.3
6. SNF + USA (government, agencies, foundations, universities)	365	29.6	6.5
7. SNF + elsewhere in the world (government, agencies, foundations, universities)	138	30.3	2.5
SNF + all international excluding 1. and 2.)	1249	28.1	22.3

IRC indicator – SNF 2011 case

SNF funded papers	International funded papers	co-funded papers (overlap)
5608	4452	1249
IRC	$1249/5608 =$	22.3%

3. Funding going abroad

- Papers with SNF acknowledgement
- But without a Swiss address
- And with addresses elsewhere

- Explanation? Swiss researchers going abroad, taking the grant with them?

Funding going abroad indicator

	#	%
All papers with SNF funding in 2011	6252	100 %
All papers with SNF funding in 2011, at least one Swiss author	5808	89.7%
FGA indicator: papers with SNF funding, only non Swiss author(s)	644	10.3%

4. Foreign funding coming in

- Here done at level of the whole country
- But can also be applied on single RPO
- Indicator: nr of papers with only national authors but funded by international FOs
- Relevant to differentiate between EC funding and other international funding

The indicator

	Only international funding	Only EC funding	Other international funding
All papers	4452	2061	2906
National authored papers	466	393	73
foreign funded research indicator	10.5%	19.1%	2.5%

Overview

Indicator	IO: International orientation	ICR: International co-funded research	OF: Outgoing funding	IF: Incoming funding*
Unit	Ratio	% Publications	% Publications	% Publications
Values	1 = neutral	0-100	0-100	0-100
Germany				
Netherlands				
Norway				
Switzerland	.88	22.2	10.3	2.6

* Whole country – to be disaggregated to individual RPOs

Conclusions

- Data are useful
- Promising indicators
- New questions come up, and explanation needed
 - Why is international orientation < 1 ?
 - Why a high share funded papers with only international authors?
 - From papers to cited papers
 - From papers to authors

Thanks for you attention

Reference:

Peter van den Besselaar, Annamaria Inzelt & Emanuela Reale,
Indicators for internationalization of funding agencies .
Forthcoming in: Proceedings 2012 STI conference, Montreal
September 2012.