



LIBRARY AND INFORMATION CENTER OF
THE HUNGARIAN ACADEMY OF SCIENCES
DEPARTMENT OF SCIENCE POLICY AND SCIENTOMETRICS

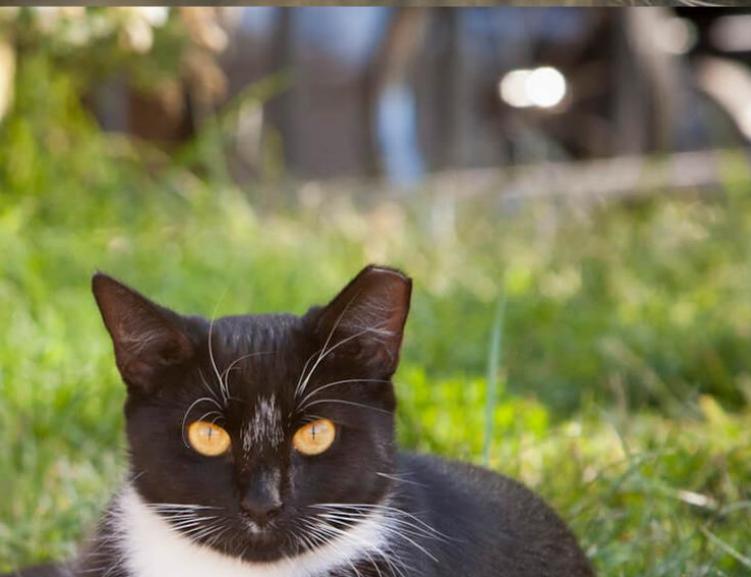
Scientometric frameworks for the management of open science

– Beyond the rhetoric –

Soós Sándor



DC CAT COUNT PROJECT SYNOPSIS



Debates about outdoor cat policy are rarely productive and are often confrontational. This is in part because there are no broadly-accepted or objective criteria for estimating cat population size or evaluating the impacts of population



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1.

Open Science (Access) and scientometrics



- **Role as perceived** by research managers and sales managers
- Situation: contemporary collection management (subscriptions, APCs etc.)
- Framework: evaluative
- Argument:
 - highly ranked journal collection (along some measures) →
 - high quality content →
 - Necessary scientific information → must subscribe
 - OS-management questions: paywall vs. OA and APCs
 - Problem: are these the real factors behind the supply of and demand for scientific information?



- **Role as provided by the unexploited potential** of different scientometric frameworks
- Scientometrics: quantitative science studies (bibliometrics: quantitative study of scholarly communication)
- Areas of OS management aided by scientometric evidence:
 - Scientific information services, optimal portfolio balancing paywall subscriptions, OA venues and APC-related deals:
 - Incentives for OA publishing:
 - Interventions for OA publishing: Plan S
 - Evaluation of OA mandates and policies

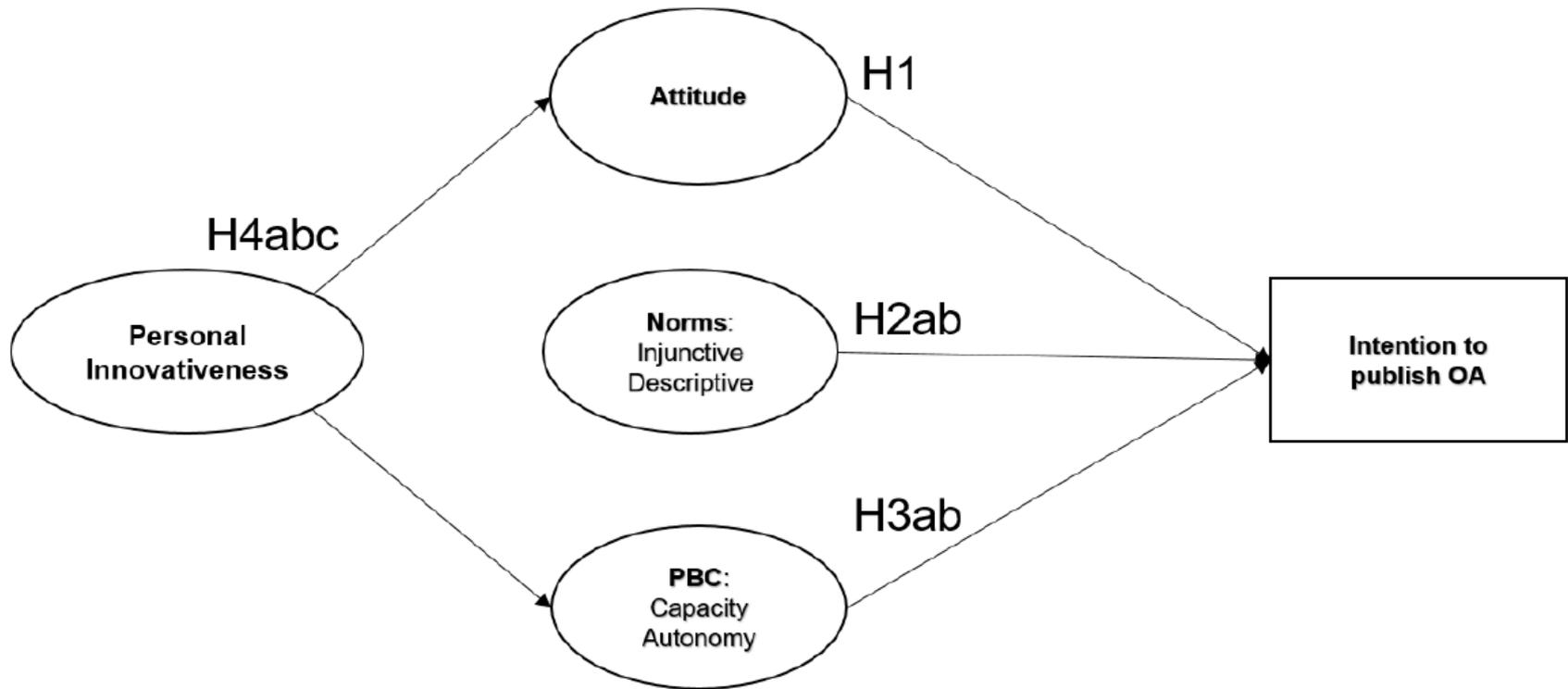
- Factors of OA publishing (versus paywall publishing): **bibliometric modelling of OA publishing**

Table 5 Logistic regression of access type by authors' institutional affiliation (odds ratios).

	Closed		Gold (APC)		Gold (Free)		Green		Hybrid	
	First author	Last author	First author	Last author	First author	Last author	First author	Last author	First author	Last author
Company	.641 (.254)	.800 (.295)	1.284 (.591)	1.112 (.509)	1.885 (1.178)	[Null]	.623 (.246)	.880 (.318)	3.225*** (1.430)	2.403 (1.120)
Government	.635 (.167)	.815 (.201)	.856 (.301)	.838 (.283)	3.437*** (1.206)	4.600*** (.1522)	.881 (.218)	.625 (.162)	.971 (.277)	1.092 (.454)
Hospital	1.062 (.199)	1.254 (.229)	.708 (.205)	.825 (.218)	.711 (.343)	1.058 (.447)	.856 (.164)	.681* (.135)	1.177 (.249)	1.677 (.476)
Non-profit	.847 (.160)	.784 (.144)	1.511 (.342)	.849 (.211)	2.676*** (.795)	2.735*** (.810)	.531*** (.109)	.849 (.154)	1.658** (.323)	1.740* (.466)
Research Institute	1.203 (.301)	1.023 (.257)	1.198 (.397)	1.059 (.349)	1.146 (.617)	1.840 (.842)	.712 (.191)	.829 (.214)	1.200 (.341)	1.045 (.465)
Scientific Association	.892 (.492)	1.091 (.467)	.428 (.445)	.505 (.377)	[Null]	[Null]	1.514 (.791)	1.490 (.620)	.554 (.423)	.522 (.538)
University	[Omitted]	[Omitted]	[Omitted]	[Omitted]	[Omitted]	[Omitted]	[Omitted]	[Omitted]	[Omitted]	[Omitted]
Constant	.561*** (.040)	.550*** (.040)	.167*** (.016)	.180*** (.017)	.051*** (.008)	.047*** (.008)	.578*** (.041)	.568*** (.041)	.278*** (.023)	.083*** (.011)

Siler, K., Haustein, S., Smith, E., Larivière, V., & Alperin, J. P. (2018). Authorial and institutional stratification in open access publishing: the case of global health research. *PeerJ*, 6, e4269.

- Factors of OA publishing (versus paywall publishing): behavioral models



Moksness, L., & Olsen, S. O. (2017). Understanding researchers' intention to publish in open access journals. *Journal of Documentation*, 73(6), 1149-1166.



- Some important factors identified in bibliometric and behavioral models:
 - Need to publish in esteemed/highly ranked/quality journals (scepticism for OA journals, Hybrid choices)
 - Availability of financial resources
 - Sensitivity to the risk non-conservative publication venues
 - Adoption of innovative methods



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2.

Plan S: a scientometric approach



- **Plan S:** top-down approach to implementing OA mandates
- Direct intervention to publishing behavior
- Key notion: compliance
- Assumes free choice and substitution of outlets
- However...
- Publication behavior constrained by field culture and social factors of the community (peer review, outlet quality, collaboration etc.)
- Conservative
- **Scientometric evidence: elasticity of publication behavior within scientific communities**

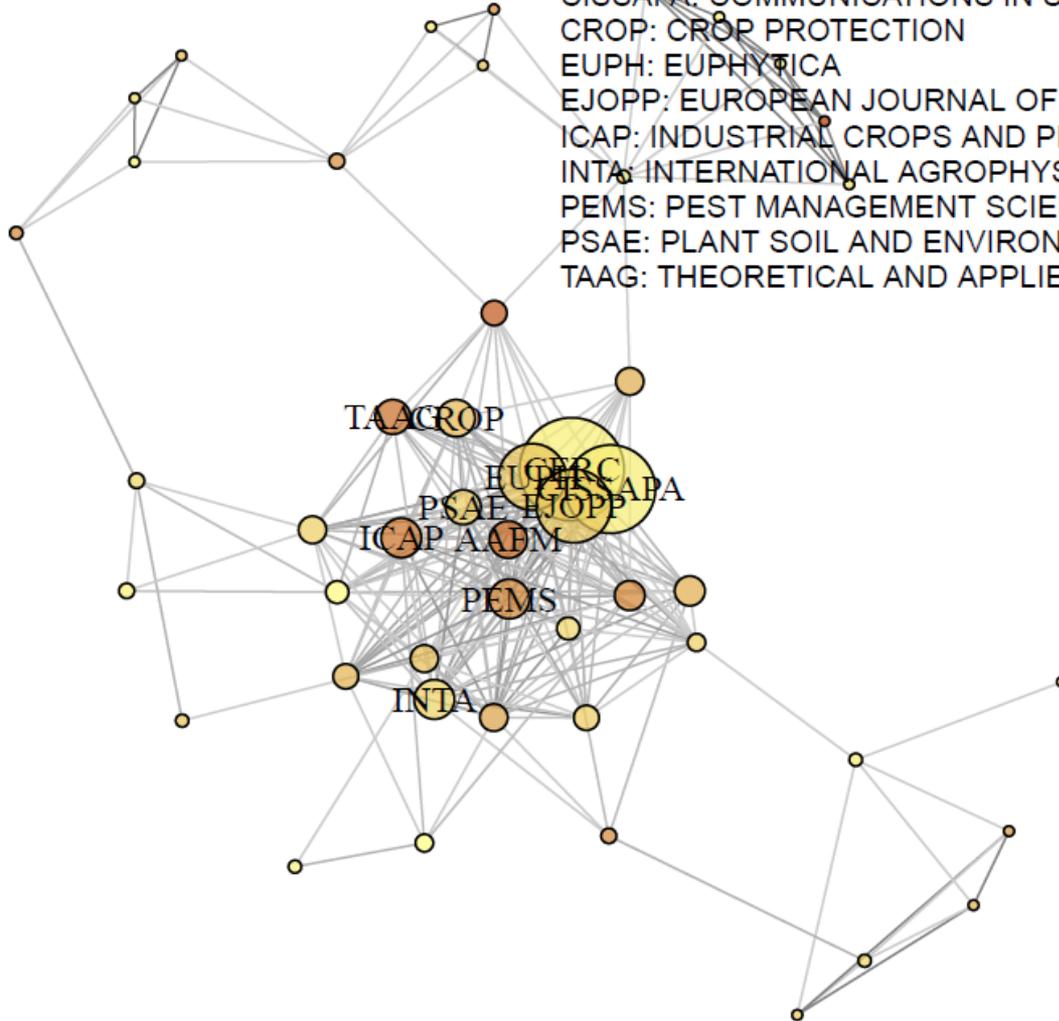


- **Plan S:** top-down approach to implementing OA mandates
- Direct intervention to publishing behavior
- Key notion: compliance
- Assumes free choice and substitution of outlets
- However...
- Publication behavior constrained by field culture and social factors of the community (familiarity with venue-related practices, expert perceptions of journal quality, collaboration etc.)
- Therefore is expected to be conservative
- **Scientometric evidence: elasticity of publication behavior within scientific communities**

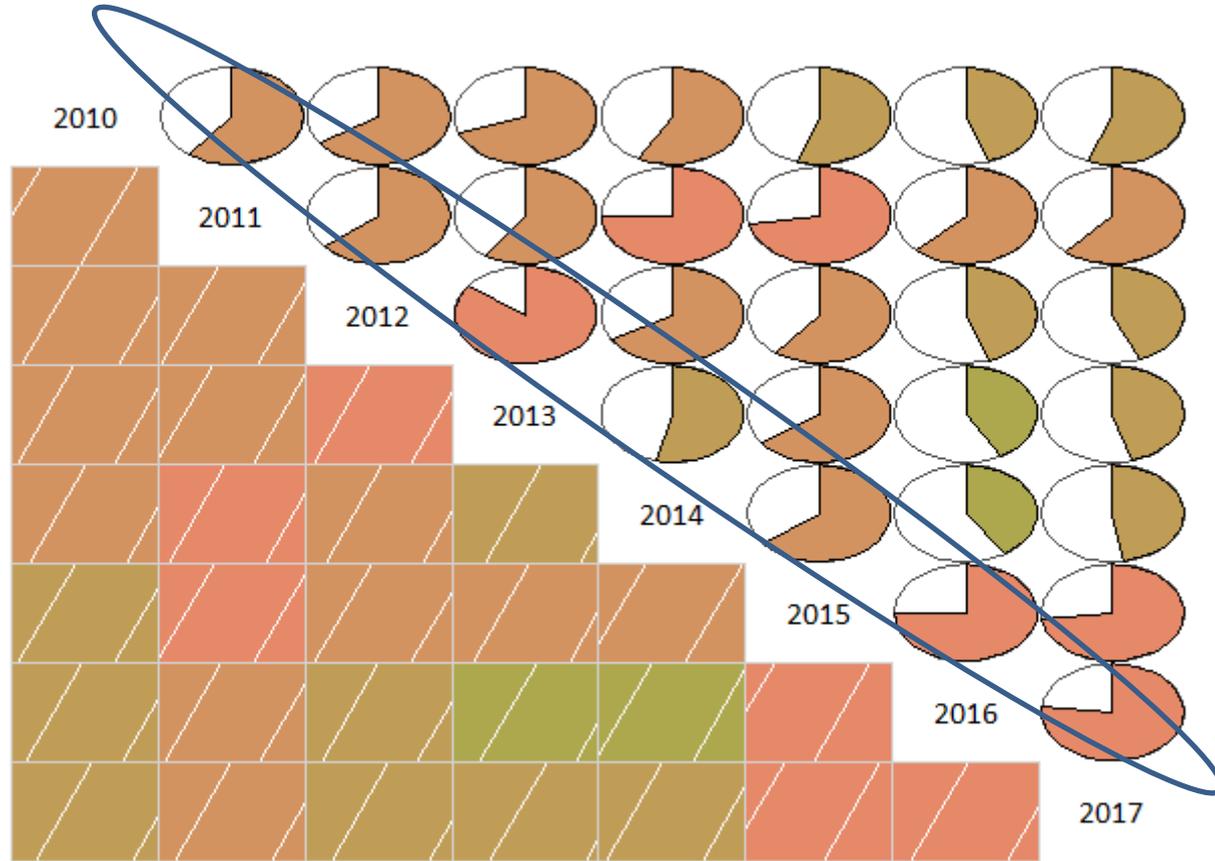


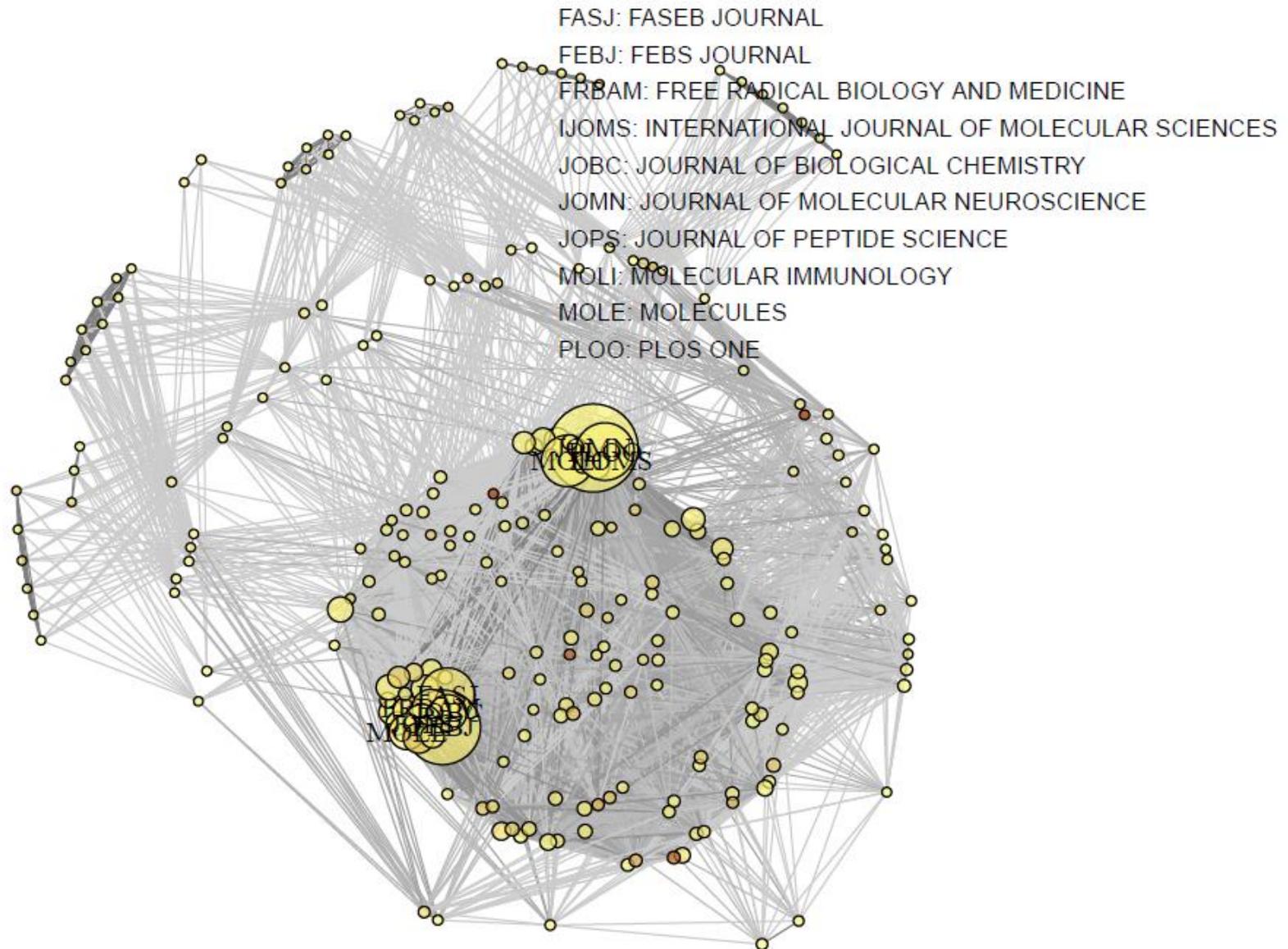
- Goal: Characterizing the long-term flexibility of publication profiles (in terms of outlets) for communities
- Key factor: field culture
- Data:
 - Hungarian WoS-indexed output within Subject Categories 2010-2017
- Method:
 - Comparing the distribution of publication venues along the entire time period
 - Mapping the similarity of the journal profiles for different periods (publication years)
 - Measure: Cosine similarity between annual journal profiles

AAFM: AGRICULTURAL AND FOREST METEOROLOGY
CERC: CEREAL RESEARCH COMMUNICATIONS
CISSAPA: COMMUNICATIONS IN SOIL SCIENCE AND PLANT ANALYSIS
CROP: CROP PROTECTION
EUPH: EUPHYTICA
EJOPP: EUROPEAN JOURNAL OF PLANT PATHOLOGY
ICAP: INDUSTRIAL CROPS AND PRODUCTS
INTA: INTERNATIONAL AGROPHYSICS
PEMS: PEST MANAGEMENT SCIENCE
PSAE: PLANT SOIL AND ENVIRONMENT
TAAG: THEORETICAL AND APPLIED GENETICS

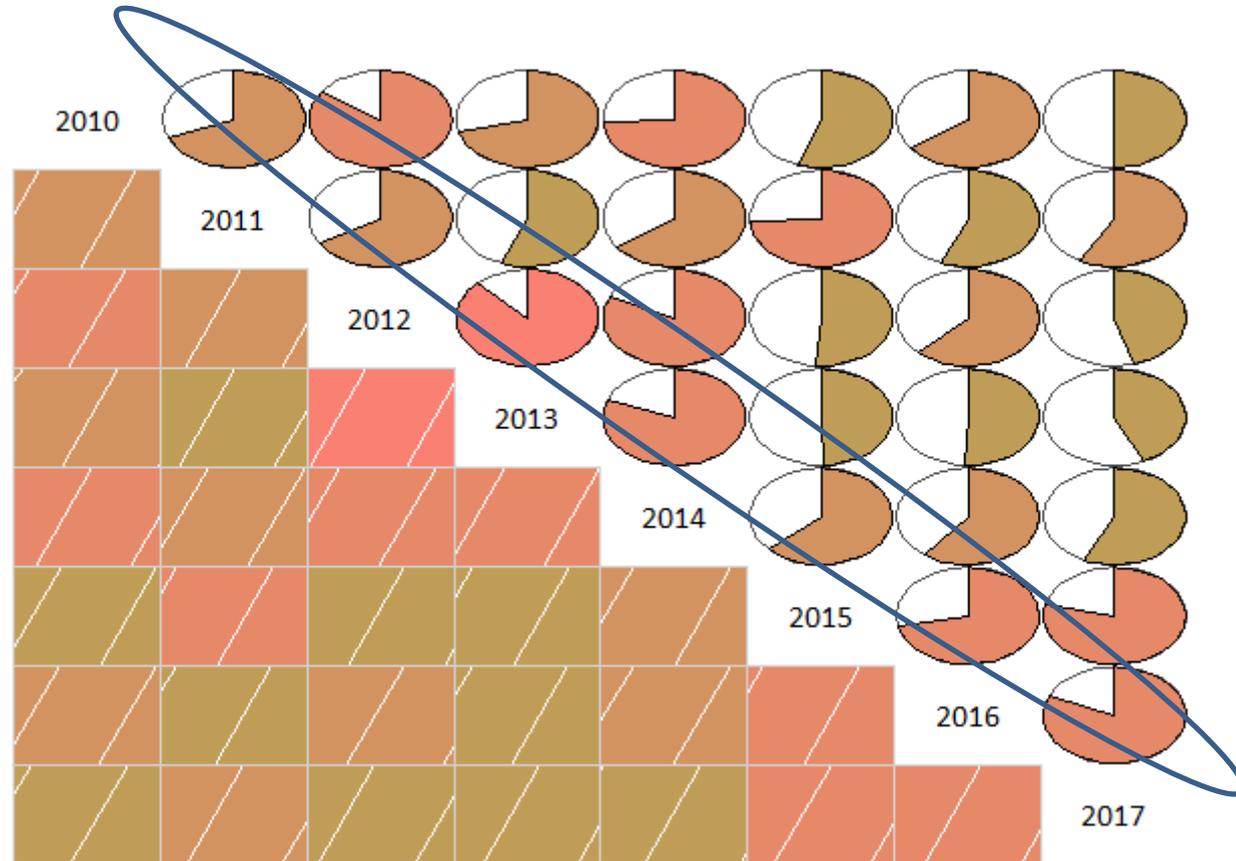


AGRONOMY

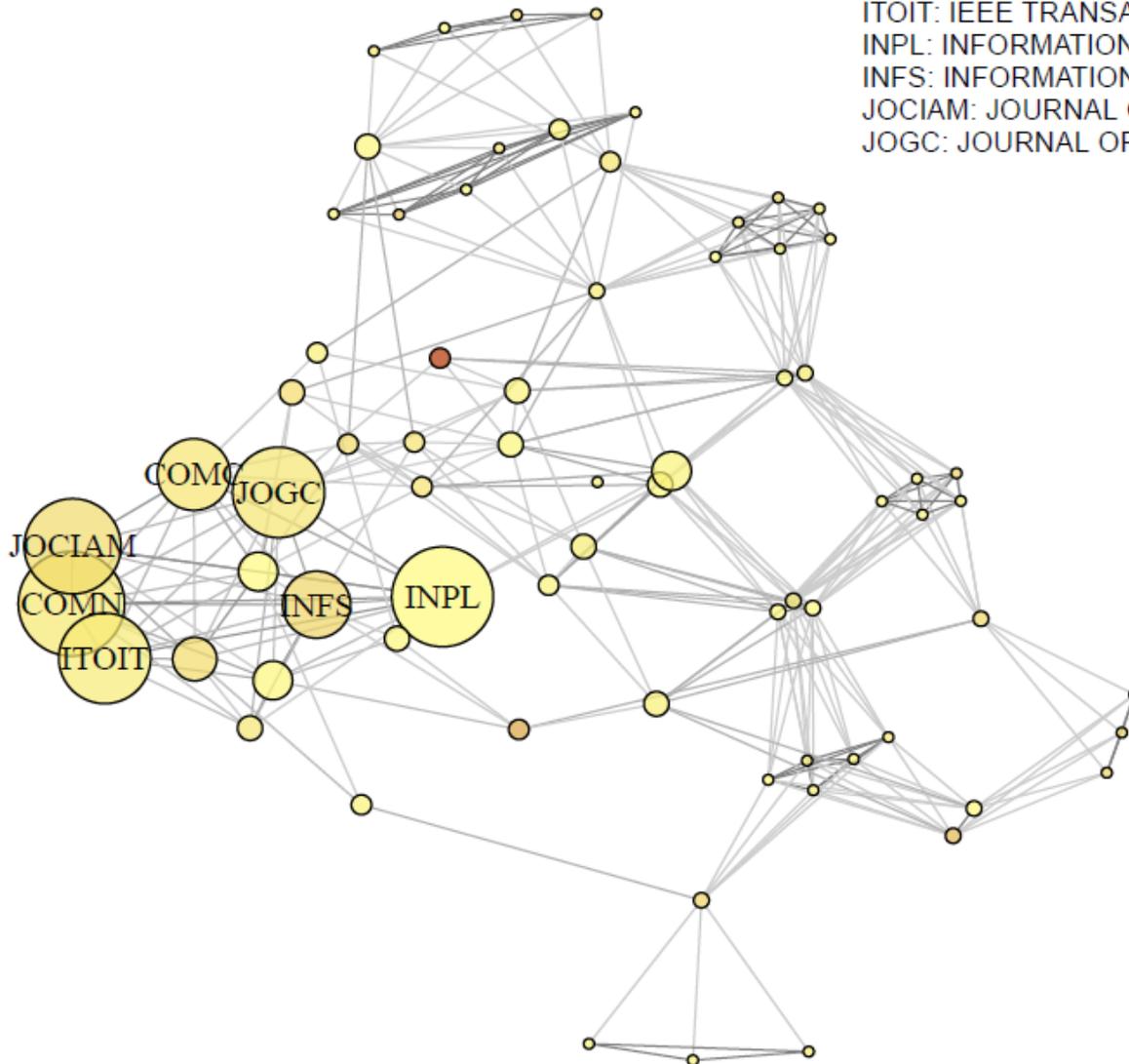




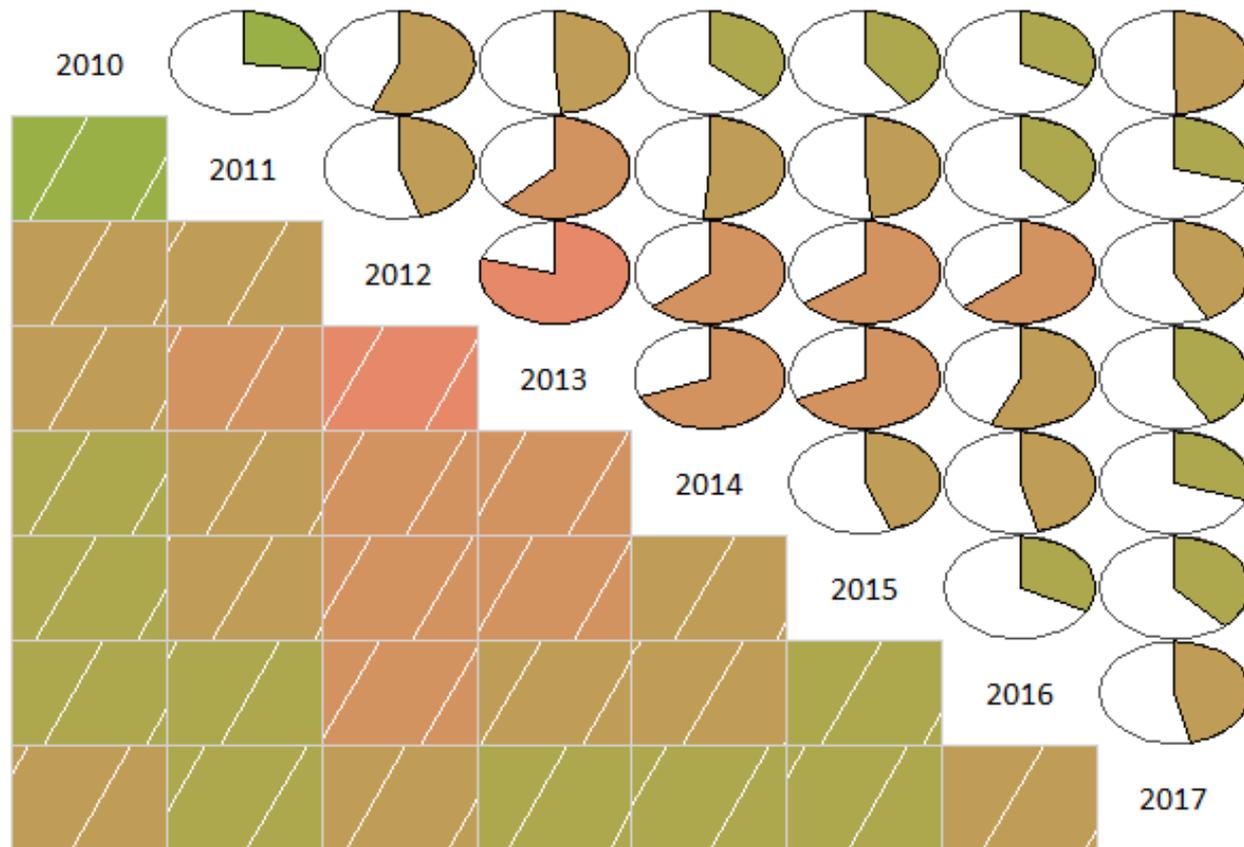
BIOCHEMISTRY & MOLECULAR BIOLOGY



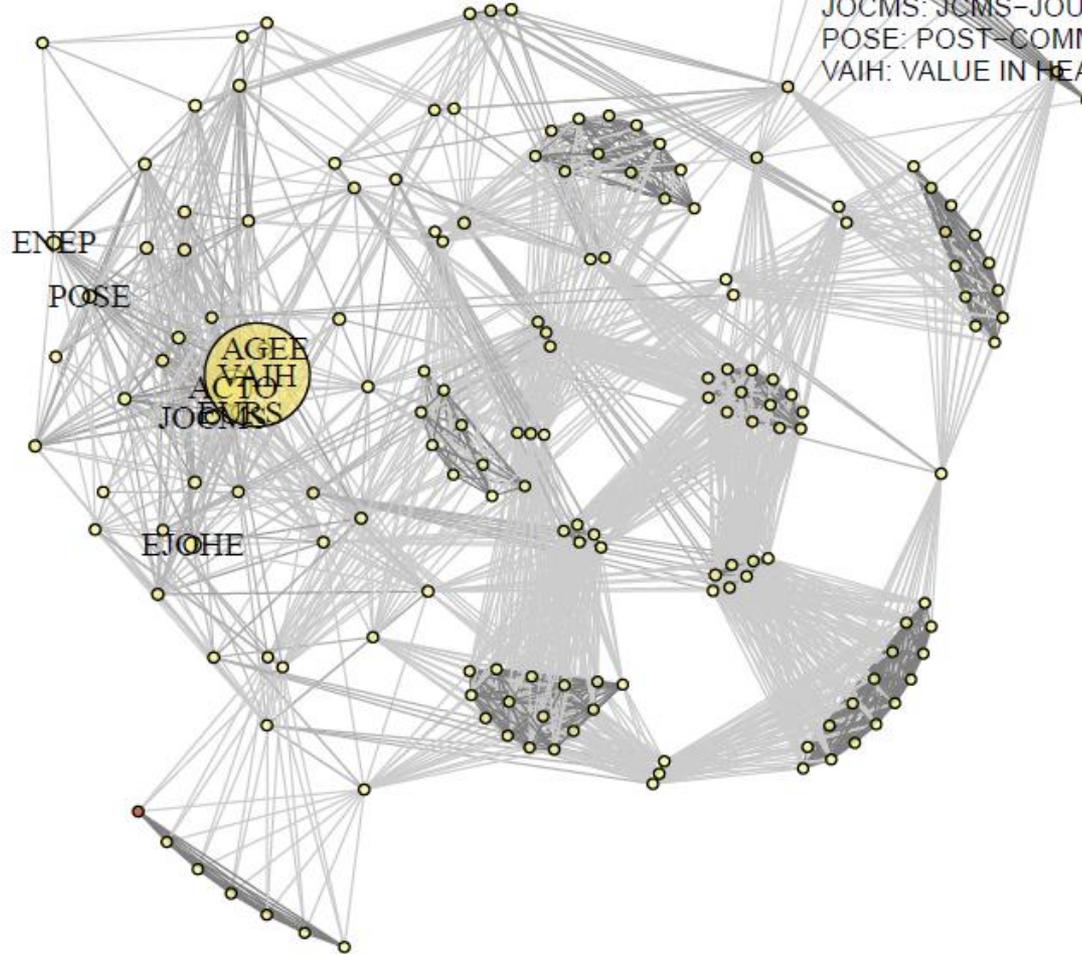
COMC: COMPUTER COMMUNICATIONS
COMN: COMPUTER NETWORKS
ITOIT: IEEE TRANSACTIONS ON INFORMATION THEORY
INPL: INFORMATION PROCESSING LETTERS
INFS: INFORMATION SCIENCES
JOCIAM: JOURNAL OF CHEMICAL INFORMATION AND MODELIN
JOGC: JOURNAL OF GRID COMPUTING



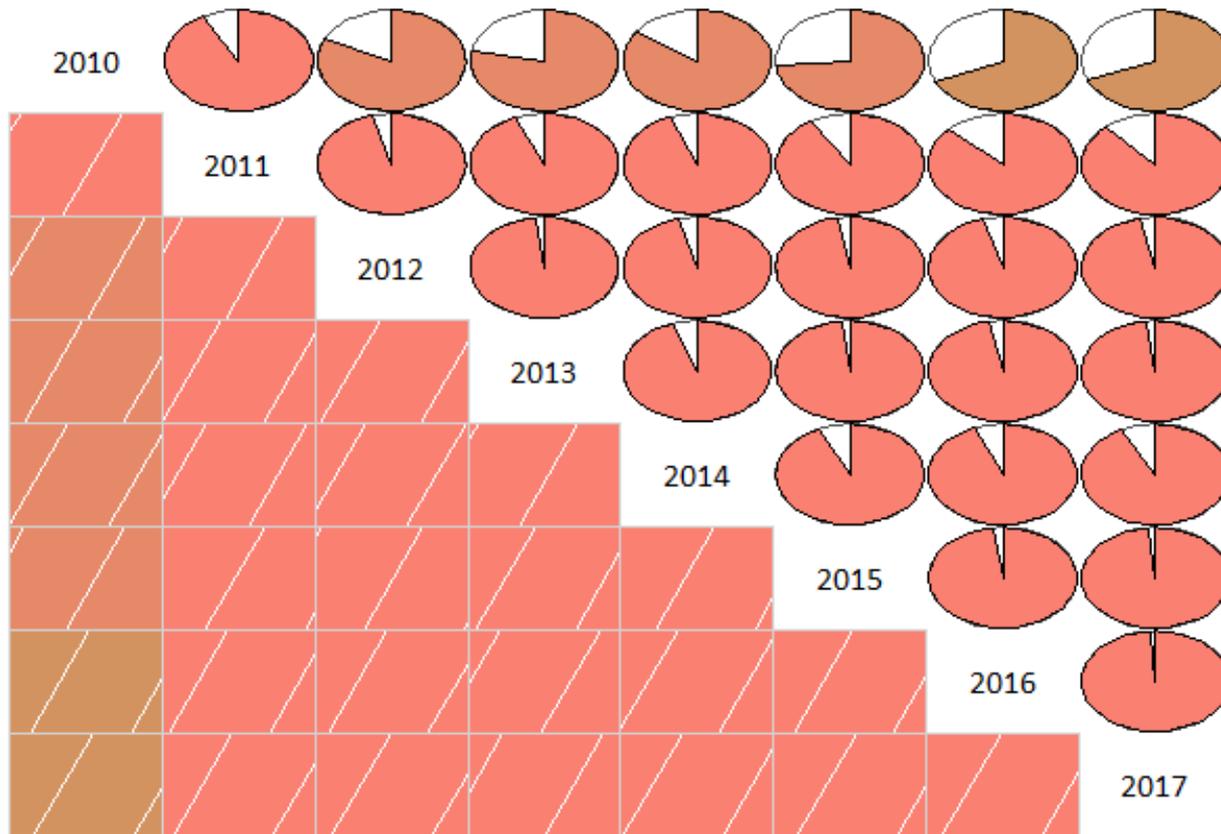
COMPUTER SCIENCE, INFORMATION SYSTEMS



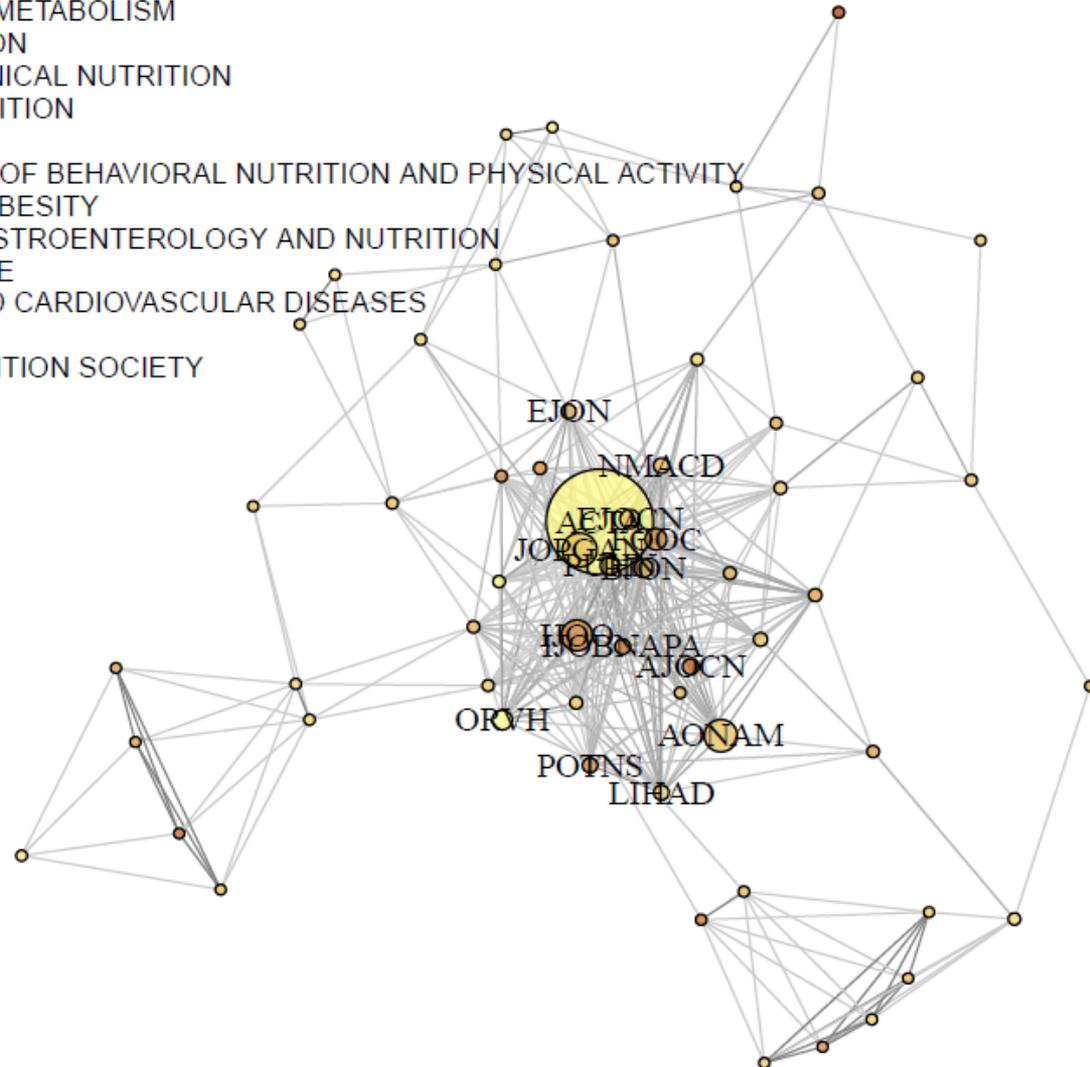
ACTO: ACTA OECONOMICA
AGEE: AGRICULTURAL ECONOMICS-ZEMEDELSKA EKONOMIK
ENEP: ENERGY POLICY
EUPS: EUROPE-ASIA STUDIES
EJOHE: EUROPEAN JOURNAL OF HEALTH ECONOMICS
JOCMS: JCMS-JOURNAL OF COMMON MARKET STUDIES
POSE: POST-COMMUNIST ECONOMIES
VAIH: VALUE IN HEALTH



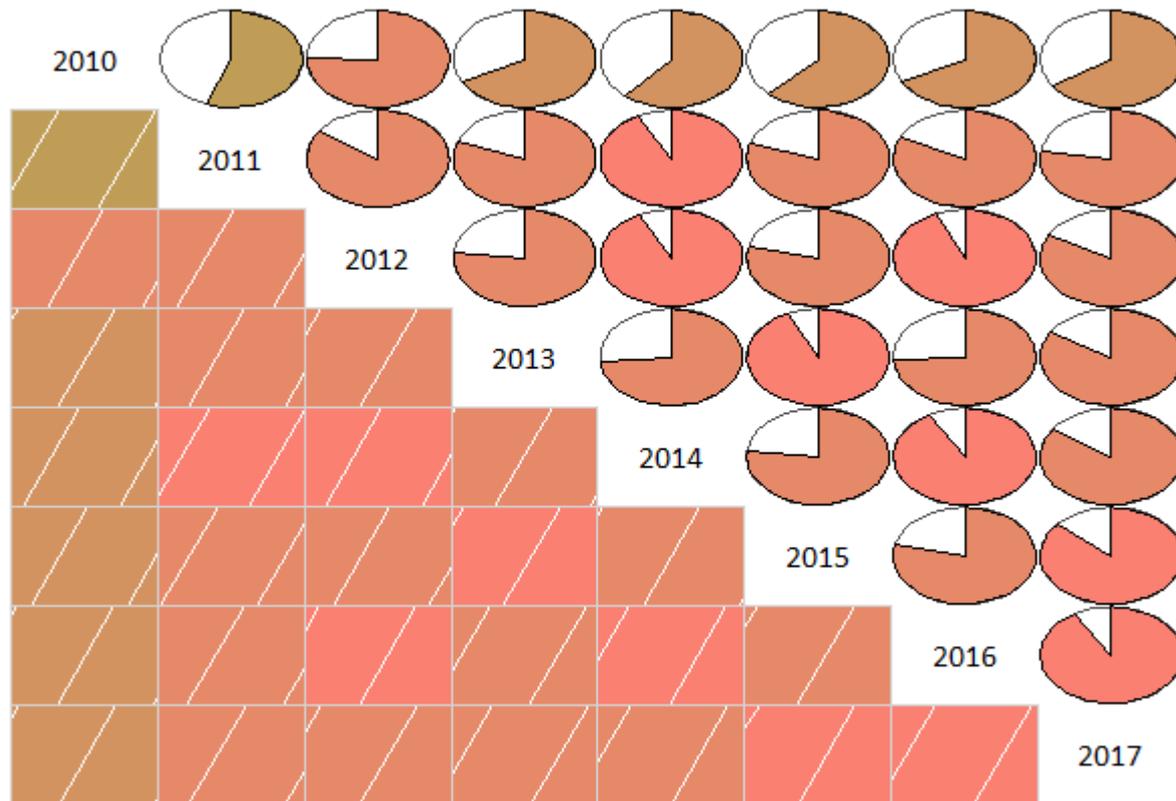
ECONOMICS



ACTA: ACTA ALIMENTARIA
AJOCN: AMERICAN JOURNAL OF CLINICAL NUTRITION
AONAM: ANNALS OF NUTRITION AND METABOLISM
BJON: BRITISH JOURNAL OF NUTRITION
EJOCN: EUROPEAN JOURNAL OF CLINICAL NUTRITION
EJON: EUROPEAN JOURNAL OF NUTRITION
FOOC: FOOD CHEMISTRY
IJOBNAPA: INTERNATIONAL JOURNAL OF BEHAVIORAL NUTRITION AND PHYSICAL ACTIVITY
IJOO: INTERNATIONAL JOURNAL OF OBESITY
JOPGAN: JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION
LIHAD: LIPIDS IN HEALTH AND DISEASE
NMACD: NUTRITION METABOLISM AND CARDIOVASCULAR DISEASES
ORVH: ORVOSI HETILAP
POTNS: PROCEEDINGS OF THE NUTRITION SOCIETY
PUHN: PUBLIC HEALTH NUTRITION



NUTRITION & DIETETICS

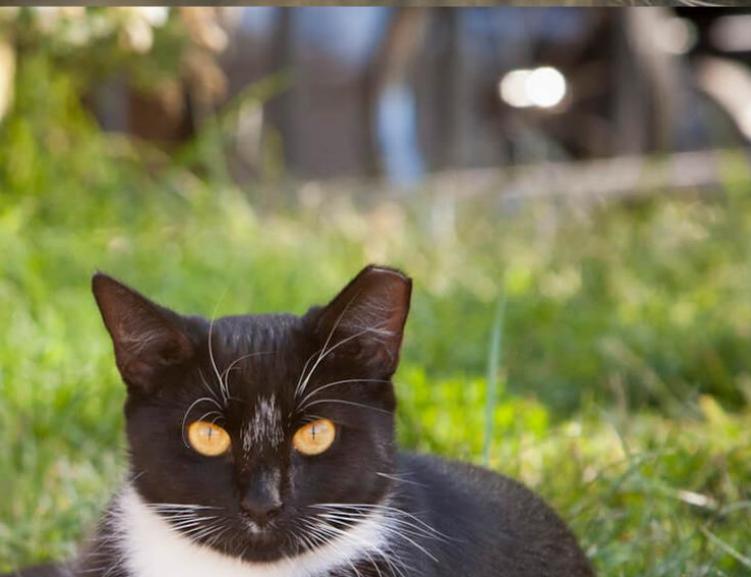




- Subject areas (national research communities) do exhibit a conservative publishing behavior at varying levels
- The models also provide evidence of some elasticity through „satellite” groups of journals
- Conservative publishing behavior is expected to be more articulated at the group or author level
- In general:
- Scientometric (bibliometric) modelling of publishing behavior is needed to inform the feasibility of Plan S



DC CAT COUNT PROJECT SYNOPSIS



Debates about outdoor cat policy are rarely productive and are often confrontational. This is in part because there are no broadly-accepted or objective criteria for estimating cat population size or evaluating the impacts of population