Relevance and Challenges of Altmetrics for Repositories –
answers from the *metrics project

**Maryam Mehrazar, Jan Weiland, Wolfgang Riese (ZBW),
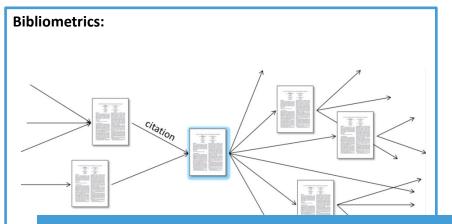Julius Stropel (VZG), Astrid Orth (SUB)**

Outline

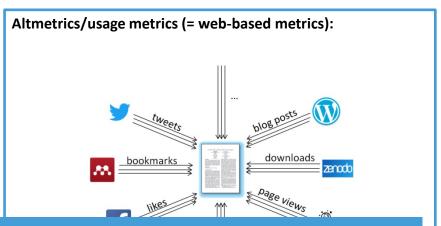1. **What can Altmetrics do for Repositories?**
2. **Answers from *metrics project**
3. **EconStor as a use case**

1. What can Altmetrics do for Repositories?

Bibliometrics:

Altmetrics/usage metrics (= web-based metrics):

Timing: availability very early after publication of scientific results

Access: greater openness, transparency, wider re-use than costly citation databases

Reach: broader impact (disciplines, geographies, and societal groups)

Objects: go beyond articles, measure relevance of software, data, other formats

Reliability & Perception of *metrics

- **How reliable are *metrics?**
  - How are researchers using social media?
  - Are all platforms used similarly?
  - Are there differences in usage of functions?
  - What does this mean for the construction of metrics?
- **How are *metrics perceived?**
  - What do researchers think about them?
  - Are they understanding and using them?
- **Practical challenges when crawling for *metrics data**

2. *metrics Project

- **DFG-funded**
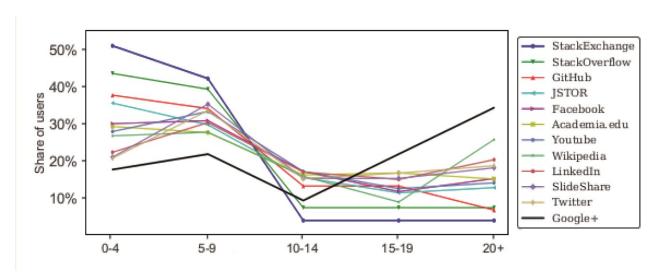 01/2017 – 05/2019

- **Partner**
  - **State and University Library Göttingen (SUB),**
  - **Leibniz-Informationszentrum Wirtschaft (ZBW)**
  - **Headoffice Gemeinsamer Bibliotheksverbund (VZG)**
  - **Leibniz Institute for the Social Sciences (GESIS)**

Differences in use of platforms

Choice of platforms depending on career level
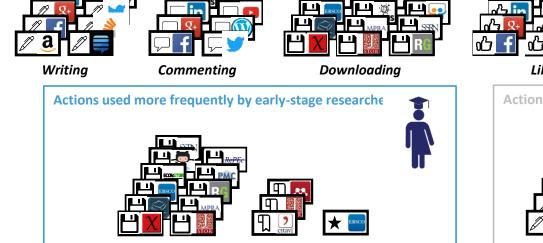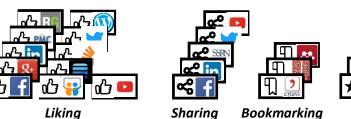
Survey of ~3400 participants

Patterns in use of functions

58 actions (used by at least 150 survey respondents)

Writing   *Commenting*   *Downloading*   *Liking*   *Sharing*   *Bookmarking*   *Other*

Actions used more frequently by early-stage researchers:

Actions used more frequently by professors:

FINDINGS I - Usage of social media platforms

*metrics

- **Users of different career stages:**
  - Select different platforms for communication
  - Use different functions on the same platform

BEHAVIOUR ON SOCIAL MEDIA PLATFORMS IS COMPLEX AND DIVERSE WHICH PROHIBITS SIMPLE AGGREGATIONS

Perception of *metrics

Usefulness of different types of *metrics for researchers

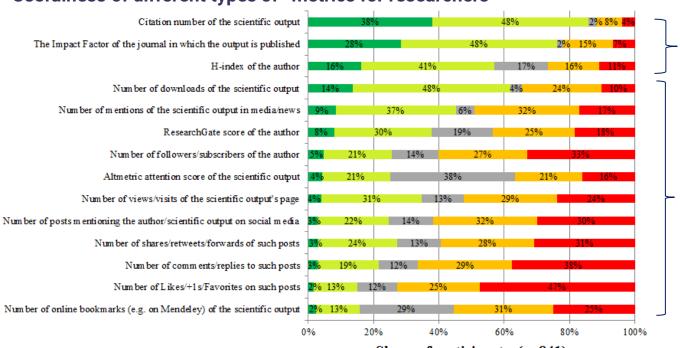| Indicator	Very useful	Useful	No answer/Don't know	Hard to use	Useless
Citation number of the scientific output	38%	48%	2%	8%	4%
The Impact Factor of the journal in which the output is published	28%	48%	2%	15%	7%
H-index of the author	16%	41%	17%	16%	11%
Number of downloads of the scientific output	14%	48%	4%	24%	10%
Number of mentions of the scientific output in media/news	9%	37%	6%	32%	17%
ResearchGate score of the author	8%	30%	19%	25%	18%
Number of followers/subscribers of the author	5%	21%	14%	27%	33%
Altmetric attention score of the scientific output	4%	21%	38%	21%	16%
Number of views/visits of the scientific output's page	4%	31%	13%	29%	24%
Number of posts mentioning the author/scientific output on social media	3%	22%	14%	32%	30%
Number of shares/retweets/forwards of such posts	3%	24%	13%	28%	31%
Number of comments/replies to such posts	3%	19%	12%	29%	38%
Number of Likes/+1s/Favorites on such posts	2%	13%	12%	25%	47%
Number of online bookmarks (e.g. on Mendeley) of the scientific output	2%	13%	29%	31%	25%

Bibliometric indicators (Citation number, Impact Factor, H-index)

Alternative indicators (remaining items)

Share of participants (n=841)

■ Very useful ■ Useful ■ No answer/Don't know ■ Hard to use ■ Useless
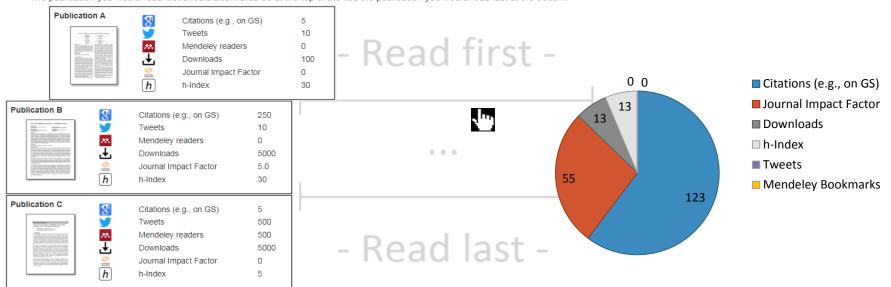
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Application of *metrics

You are doing literature research for a topic you are not yet familiar with.
Your query in the scholarly search engine of your choice reveals 3 potentially relevant publications alongside their impact metrics.
Please rank those publications in the order in which you would read them by dragging them to the area on the right.
The publication you would read first should afterwards be at the top of the list, the publication you would read last at the bottom.

Publication A

Citations (e.g., on GS)	5
Tweets	10
Mendeley readers	0
Downloads	100
Journal Impact Factor	0
h-Index	30

- Read first -

Publication B

Citations (e.g., on GS)	250
Tweets	10
Mendeley readers	0
Downloads	5000
Journal Impact Factor	5.0
h-Index	30

...

Publication C

Citations (e.g., on GS)	5
Tweets	500
Mendeley readers	500
Downloads	5000
Journal Impact Factor	0
h-Index	5

- Read last -

Pie chart values: 0, 0, 13, 13, 55, 123

Legend:
- Citations (e.g., on GS)
- Journal Impact Factor
- Downloads
- h-Index
- Tweets
- Mendeley Bookmarks

Ranking of publications based on *metrics

Which indicator do you find most useful? n=~250

FINDINGS II - Use and concerns towards metrics

*metrics

- **Alternative metrics are:**
  - **Not yet widely known among researchers**
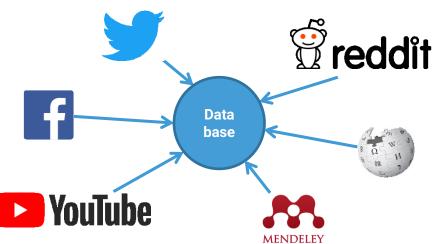 - **Used with considerable caution**

HELP RESEARCHERS BECOME METRIC-WISE

*metrician − Gathering information from social media platforms

- **Repositories**
  - **GoeScholar, EconStor, SSOAR**
  - **~ 225k works**
- **Gathering methods**
  - **DOI, Handle**
  - **Landing page URL**
  - **Metadata**
- **Access**
  - **Web http://explore.metrics.gbv.de/**
  - **API: http://api.metrics.gbv.de/v1/work/doi?v={doi}**
  - **Software: https://github.com/gbv/metrics-crawler**
  - **Data dumps (ask us)**

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FINDINGS III - Technical Challenges

- **Occurrences on platforms difficult to identify:**
  - **Different habits of identifying papers**
  - **Inconsistent or no use of identifier systems**

QUALITY VARIES WITH DATA SOURCES

RECOMMENDATIONS

- **Check for applicability**
  - **Select platforms depending on user behaviour**
  - **Weight functions according to exhibited patterns**
- **Avoid simple one-dimensional metrics**
  - **Check aggregations for their validity**
- **To gain trust and acceptance by researchers**
  - **Provide context and greater openness**
  - **Explain application areas, strengths and limitations**
- **Improve results from data sources**
  - **Develop standardizations in altmetric „citations"**
  - **Promote use of identifiers**

More information

- ***metrics in transition workshop**
  - **https://metrics-project.net/en/events/workshop2019/**
- **DINI recommendations paper**
  - **To be published soon**
  - **Leave your contact details to be notified**

ECONSTOR
Make Your Publications Visible.
as a Use Case

Overview EconStor

- Disciplinary repository for economics and business administration
- Mainly „secondary use" of publications via
  - written agreements: complete series & journals
  - open content licenses: CC licensed OA journals
- Overall content: >175,000 full texts
  - Working papers (60%)
  - Journal articles (25%)
- Focus on dissemination services: RePEc & Google Scholar
- „Classical" metrics available:
  - Citation data: CitEc (RePEc service)
  - Download statistics: COUNTER rules applied
- Software: DSpace 5

Initial Situation

- Predominantly pure DOI analysis in altmetrics services
- EconStor content:
  - Predominantly working & discussion papers (= preprints)
    - ➔ DOI assignment not common for preprints!
    - ➔ EconStor assigns Handle.net identifiers (prefix: 10419)
- Possible solution:
  - Including alternative (persistent) identifier systems in altmetrics!
    - ➔ Find mentions containing URLs like
      - hdl.handle.net/10419/*
      - econstor.eu/handle/10419/*
      - econstor.eu/bitstream/10419/*

Integration of *metrics Numbers

- Basis: Static SQL data dump from the *metrics project
  - Back end: Implemented as JSON REST web service
  - Front end: DSpace JSPUI
- Evaluation period:
  - March 2018 to January 2019
- *metrics data on EconStor landing pages visible for
  - Mendeley
  - Twitter
  - Wikipedia
- No differentiation according to subgroups like tweets/ retweets
- Backlinking to the corresponding Tweets & Wikipedia sites

Naturalization and citizenship: Who benefits?

Title:	**Naturalization and citizenship: Who benefits?**

Authors:	Gathmann, Christina
Year of Publication:	2015
Citation:	[Journal:] IZA World of Labor [ISSN:] 2054-9571 [Year:] 2015 [Issue:] 125

Abstract:	Politicians, the media, and the public express concern that many immigrants fail to integrate economically. Research shows that the option to naturalize has considerable economic benefits for eligible immigrants, even in countries with a tradition of restrictive policies. First-generation immigrants who are naturalized have higher earnings and more stable jobs. The gains from citizenship are particularly apparent among immigrants from poorer countries. A key policy question is whether naturalization causes labor market success or is taken up by those immigrants who would anyway be most likely to succeed in the labor market.

Subjects:	citizenship economic integration assimilation immigration Europe
JEL:	F22 K37
Persistent Identifier of the first edition:	doi:10.15185/izawol.125
Document Type:	Article
Appears in Collections:	IZA World of Labor, IZA – Institute of Labor Economics

Social Media Mentions:
*metrics

MENDELEY	Twitter	
11	208	1
	▶ Tweets	▶ en (1)

Is cited by:	▶ 3 documents.
Cites the following sources:	▶ 16 sources.

Persistent Identifier of the first edition:	doi:10.15185/izawol.125	
Document Type:	Article	
Appears in Collections:	IZA World of Labor, IZA – Institute of Labor Economics	

Social Media Mentions:

MENDELEY	Twitter	Wikipedia
11	208	1

▲ Tweets

- Aksel Braanen Sterri
  (Thu May 24 13:30:07 GMT 2018)
- Sondre Hansmark
  (Thu May 24 13:10:53 GMT 2018)
- Geir Ramnefjell
  (Thu May 24 07:37:20 GMT 2018)
- Andreas Økland
  (Wed May 23 18:19:28 GMT 2018)
- Putu Adi Kusuma Y.
  (Mon May 21 15:20:37 GMT 2018)
- Aprets
  (Mon May 21 15:18:49 GMT 2018)
- Olivia Goldin
  (Thu May 17 15:50:18 GMT 2018)
- Gennady Pati
  (Sat May 12 15:22:49 GMT 2018)
- Justin Yost
  (Sat May 12 01:28:00 GMT 2018)
- ©Pazza
  (Fri May 11 17:06:51 GMT 2018)
- Michele Tuccio
  (Fri May 11 11:45:15 GMT 2018)
- Gitte K. Persson
  (Fri May 11 10:54:12 GMT 2018)

▲ en (1)

- Immigration

Results (1): Mendeley

- Number of mentioned EconStor titles relatively high!
  - ➔ ~ 25,000 titles
- <u>But</u>: Due to a lack of interfaces an additional title matching used
  - ➔ Methodically problematic in economics, as working paper version and published version often have an identical title!
  - ➔ Backlinking to Mendeley has been waived

Results (2): Twitter

- Number of mentions very low!
  - ~ 460 titles overall
  - Only ~30 EconStor titles identified <u>directly</u> through a matching of Handle.net identifiers
  - ~430 EconStor titles identified through DOI matching
    - ➔ 60% originate from a single journal!
    - ➔ Primary publication platforms are more active in social media to promote their content!

Concluding Remarks

- *metrics project user studies confirmed:

  ➔ Social media tools not widely used in economics!

- Primary publication platforms more likely used for referencing

- Collection of data from social media platforms still very „tricky":

  ➔ Inaccurate usage of persistent identifiers

  ➔ Lack of interfaces

  ➔ Entries might be deleted (Tweets) or changed (Wikipedia) over time!

- Very low dissemination effects through EconStor!

  ➔ Referrer analysis: Only 0.2% downloads via Twitter sites

***metrics**

- **Thank you / Vielen Dank!**

- **Web https://metrics-project.net/**
- **Email metrics-project@sub.uni-goettingen.de**
- **Twitter [@metrics_project](https://twitter.com/metrics_project)**
- **Facebook [@metricsproject](https://facebook.com/metricsproject)**