

Policy Citations tracked by Overton.io versus Altmetric.com: Case Study of Finnish Research Organizations in Social Sciences

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The citing of academic publications in policy documents is an important indication of social impact and there is increasing interest in using policy documents as evidence of scientific impact on policy and the society more broadly. This research compared the policy coverage of 18,996 Scopus publications authored by researchers affiliated to 17 Finnish universities and research institutes. The coverage and overlap of two sources of policy citations, namely Overton and Altmetric.com, were analyzed. The overall results suggest that about 39% of publications in various social science fields from Finland are cited by policy documents tracked by Overton and 9% by those tracked by Altmetric.com. There is on average about 5% overlap between the sources, while 0,6% of the policy document citations are unique to Altmetric.com and 19% to Overton. Combining results from Overton and Altmetric.com thus provides most coverage.

Keywords: science policy, research policy, research policy impact, Finland, Finnish research institutes, research impact, societal policy, cultural policy

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Introduction

Policy documents are often based on scientific evidence, i.e., they use and cite scientific publications. Finland is increasingly emphasizing the integration of academic work into policy decision-making, as demonstrated by science advice initiatives such as the [SOFI](#). Nevertheless, identifying policy citations to research outputs can pose challenges from both technical and theoretical perspectives. Emphasizing robust scientific evidence and utilizing review papers becomes crucial when assessing the policy implications of research (Minx et al., 2017; Bornmann et al., 2022). Conversely, different sources may present varying accounts of policy impact, raising concerns about the methodological limitations associated with harnessing policy impact. To address this issue, it is crucial to compare the characteristics of policy citations identified across different sources. Therefore, this research aims to compare the policy citation patterns of top social science research institutes in Finland across multiple sources to gain a better understanding of their impact on policy decisions.

In recent years, several sources have been developed to identify and track policy citations to academic publications. Altmetric.com is a service that has been providing policy citations, along with other social impact sources, for over a decade. Overton.io is a more recent service that exclusively tracks policy citations and provides broader coverage, including numerous national-level non-English policy document sources. This allows for the tracking of local policy implementation of scientific evidence. Overton also tracks reverse citations, from scholarly publications to policy documents, as well as policy-to-policy citations (Szomszor & Adie, 2022). Other citation-indexing service providers, such as Elsevier and Clarivate, rely on data from Overton. Dimensions of Digital Science also includes policy citations along with full-text policy documents in English language, using data from Altmetric.com.

Recently, there have been a few attempts to assess the practicality of using policy citations from different databases and in specific contexts. For instance, Haunschild and Bornmann (2017) and Fang et al. (2020) both studied how Web of Science (WoS) -indexed publications were cited in policy documents identified by Altmetric.com, matching 0.5% and 1.12% of publications, respectively. Bornmann et al. (2022) matched 2,071,085 DOIs cited in Overton to 1996-2019 Scopus papers which accounted for 4.98% of publications. The study by Bornmann et al. (2022) also associated 1.36% of all policy citations (10,846 of 799,716 Overton policy citations by May 2020) with the topic of climate change. A case study on policymaking related to autonomous vehicles (Hicks, Kingsley & Souweidane, 2022) had a critical assessment on coverage of sources on Overton.io. As academics are commonly mentioned

in policy documents (perhaps without citing their research) one study investigated the number of Overton citations to researchers from Flanders, Belgium (Jonker & Vanlee, 2022). However, by the time this research was conducted no comparison has been made between Overton.io and Altmetric.com to highlight the differences in their coverage of policy citations and characterize their differences, although some research has used both databases to capture the distinct affordances both databases offer (Dorta-González, Rodríguez-Caro & Dorta-González, 2024). This research will explore differences between Altmetric.com and Overton.io in the context of fields with most policy citations in social sciences and regarding research publications from Finnish universities and research institutes.

Method

A total of 18,996 Scopus publications across 8 selected social science fields with high policy citation coverage were retrieved from Scopus, and then checked for Overton.io and Altmetric.com datasets via DOI during September 2022. The dataset covered scientific publications of 18 of the most productive Finnish universities and research institutes. The data represents Scopus-indexed publications in 2011-2020 in selected sub-fields and from Finnish universities and research institutes. The fields were selected based on a primary analysis of Overton, which identified the most highly cited policy fields (Szomszor & Adie, 2022) as Social Sciences (Miscellaneous), Development, Education, Geography, Health (Social Science), Law, Sociology, and Political Science. The study investigated three types of research organizations (18 in total) as sources of scientific publications with policy impact in the selected fields that were predominantly from Finland or had strong co-authorship ties with Finnish authors:

- 1) 11 Universities: Aalto University, Åbo Akademi University, University of Helsinki, Helsinki University Hospital, University of Eastern Finland, University of Lapland, LUT University, University of Oulu, Tampere University, University of Turku, University of Jyväskylä
- 2) 3 University Research Institutes: Turku School of Economics (of University of Turku), Institute of Criminology and Legal Policy (at University of Helsinki), and Tampere Peace Research Institute (of Tampere University)
- 3) 4 State Research Institutes: Finnish Institute of Foreign Affairs, Finnish Environment Institute, National Institute for Health and Welfare (Finland – THL), and Natural Resources Institute Finland (Luke).

We removed one institution, United Nations University World Institute for Development Economics Research, that appeared among top 20 institutes but was a non-Finnish Intergovernmental Organization appearing in 70 collaborative publications with Finnish institutes.

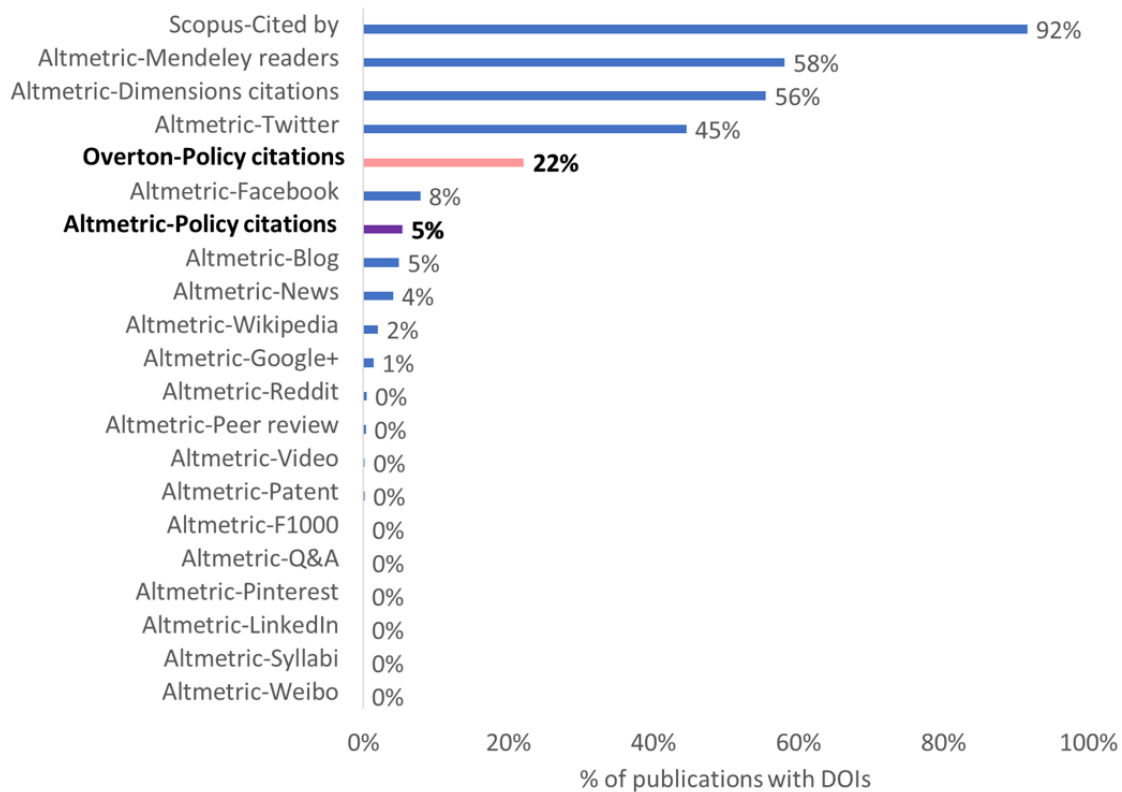


Figure 1. Comparison of proportion of publication with at least one citation in Scopus, mention in altmetric sources and Overton.

Altmetric.com and Overton.io policy citations were retrieved using the DOIs (Digital Object Identifiers) of the publications. Figure 1 compares the availability of Scopus Citations, Altmetric.com indicators and Overton.io policy citations for our dataset of scientific publications, suggesting that there were 4.4 times more publications with policy citations in Overton.io (22%) than Altmetric.com (5%). It also shows the substantial coverage of scientific publications in policy, only preceded by citations from scientific literature including Scopus and Altmetric – Dimensions citations (56%-92%), Mendeley saves (58%) and Twitter.com posts (45%), based on Overton data.

To contrast the policy results of these datasets, we identified publications with unique and shared results due to overlapping entries in both databases. For publications with

citations identified by both Altmetric.com and Overton, we performed a webometric analysis of the URLs to identify unique and shared policy citation sources at the domain level across the databases. A manual check of the shared top-level domain (TLD) was performed to determine whether they referred to the same policy source. This verification was necessary because Altmetric.com and Overton.io may report different URL paths for the same PDF or HTML documents that were included in the policy citations (e.g. linking directly to the PDF document vs linking to the webpage containing the link to the PDF document).

Findings

The results indicate that a total of 9,665 policy citations were identified from Overton (8,544, 88%) and Altmetric.com (1,121, 12%). Of the 18,996 publications across fields, 4,202 (24%) had policy citations identified by Overton and 984 (6%) by Altmetric.com, with 882 (5%) having citations identified by both of the databases. Distinctly, publications with policy citations solely identified by Overton (19%) significantly outnumbered those identified by Altmetric.com (0.6%).

Comparison of Policy citations in Overton and Altmetric.com

An analysis of Overton data showed that policy citations to research publications across subject fields vary from 14% in Education to 31% in Development (Also Appendix Table 3). In Altmetric.com, however, the variation between subject fields is between approximately 3% in Education to 8% in Development.

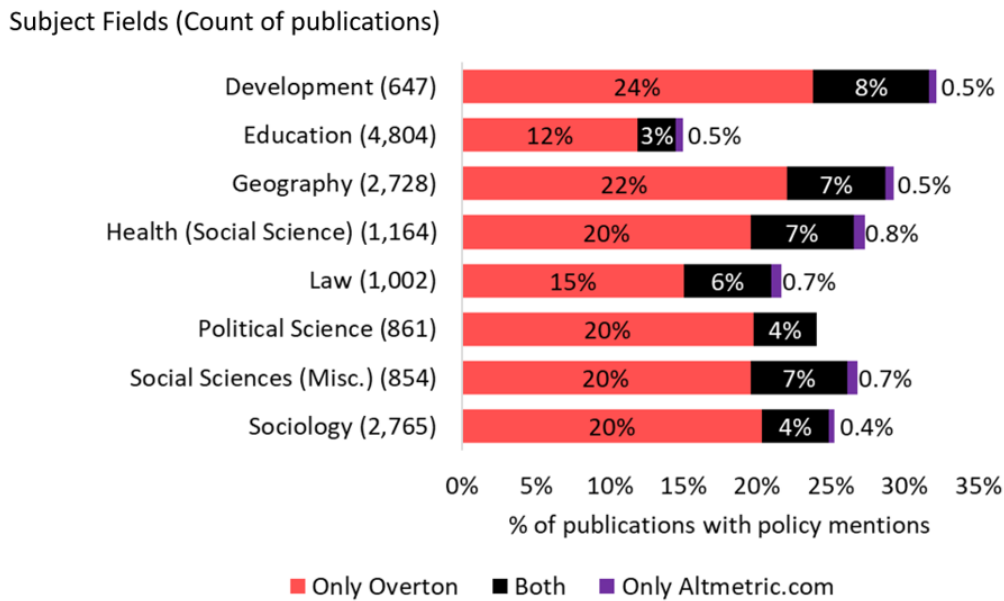


Figure 2. Count and proportion of publications cited in policy documents indexed in only Overton, only Altmetric.com and both across subject fields.

With regards to the research institutions the results showed that there is an almost uniform pattern across major universities in Finland in terms of extent of all social science publications with policy citations, whereas institutes with specialty and focused research purposes indicate higher proportion of publications with policy implementation (figure 3). The overall population of social science publications in major universities with diverse range of subjects (n=10) is between 277 for LUT University to 4,183 for University of Helsinki. The average proportion of research publications that have been cited in policy documents across institutes was 21% (12%-24.5%) of which 16% only appeared on Overton (11%-20%), 0.6% only on Altmetric (0.3%-0.9%), and 4% on both of them (1%-7%). However, specialized research institutes had higher proportion of publications with most policy citations at above 40%. For example, there is a considerable policy uptake of research publications at Natural Resources Institute Finland Luke (66% Overton vs. 14% Altmetric), Finnish Institute of Foreign Affairs (46% vs. 5.4% in political science), Institute of Criminology and Legal Policy (at University of Helsinki) (41.8% and 12.7% in Law).

At subject level (Table S1 in appendix), Natural Resources Institute Finland Luke has most of publications cited by policy documents in Geography (225) and Sociology (93) according to Overton (approximately 60% and 70%, respectively), but clearly fewer in Altmetric (about 9% and 20%). Likewise, Finnish Environment Institute had a high coverage in

Geography (56.1% Overton vs. 15.7% Altmetric) and Social Science Miscellaneous (65% vs. 13.5%, respectively).

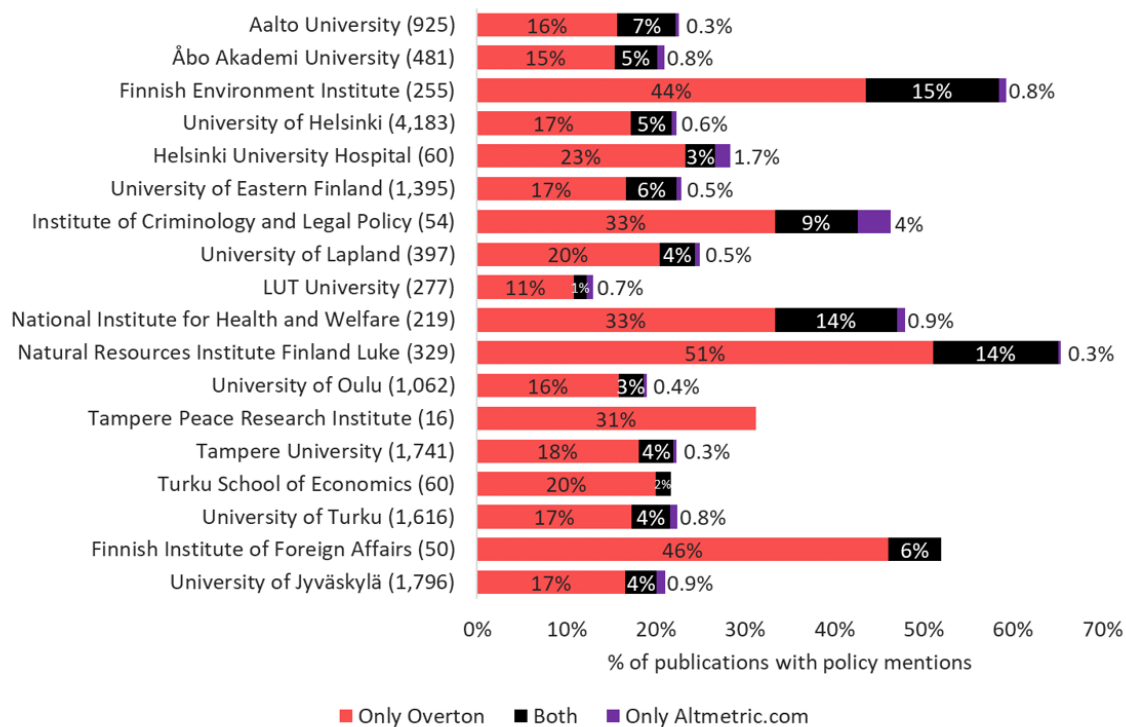


Figure 3. Count and Proportion cited of publication in policy documents indexed in Overton, Altmetric.com and both across Finnish Institutions.

The comparison between Overton and Altmetric across fields and institutions yields noticeable differences. Altmetric tends to yield more results in specific social science subjects across institutions including Social Sciences (Misc.), Law and Geography, whereas Overton indicates prominence of a more diverse set of subject fields. This can be seen in Figure 4 and Table S2 in appendix which display that both datasets have found their publications with most policy citations in Law for Tampere University (27% Overton vs. 9% Altmetric) and a similar pattern is present in Geography for University of Helsinki (25% vs. 8%, respectively). On the other hand, while Altmetric had the highest number of documents in Geography for University of Jyväskylä and Law for University of Eastern Finland, Overton shows that the publications in Development at these two universities are more likely to be cited in policy than other examined areas. Overton results also suggest that Health (Social Science) has higher proportion cited publications in University of Helsinki at about 26% than Geography at 25% but with clearly lower numbers in Altmetric results (7% and 8%, respectively). In the two universities of University of Turku and University of Oulu results are more varied across

fields, with Overton showing the highest proportion cited in Sociology (about 29% and 25%), whereas Altmetric is the largest in Social Science (Misc.) (6% and 4%, respectively). These differences suggest that the databases have somewhat different focus on different subject areas.



Figure 4. Spider plot comparing fields for count and proportion cited of publication in policy documents indexed in Overton and Altmetric.com across selected Finnish institutes.

Publications with Overlapping Policy Citation Coverage and Policy Citation Overlap

Table S3 shows the extent of publication overlap between Overton and Altmetric across institutions. Across all the selected fields, the proportion of publications with citations identified only by Overton (12%-24%) were 3 to 4 times greater than publications with both Overton and Altmetric citations (3%-8%), whereas Altmetric covered only a small proportion (0.5%-0.8%) of unique documents identified with policy citations.

Table S3 shows the extent of policy citation overlap across databases for each field and institution. It also shows to what extent the shared policy citations found in both databases, constitute all citations found in each database. The overall results suggest that on average 56% of citations identified on Altmetric across fields (39% in Education-76% in Political Science) were also on Overton, while 8% of citations identified on Overton (6% in Education to 12% in Social Science Health) could also be found on Altmetric, demonstrating that both databases have unique policy citations with Overton having substantially more of them.

Analysis of URLs to Policy Sources

The overlap between Altmetric and Overton results was tested by manually checking the citation information from both databases. The main pieces of information to confirm identical citations were the title of citing source and the TLD, i.e. .fi, .eu and so on. Table 1 gives an example of citations found in Overton and Altmetric for the paper below:

“Iversen, V., Krishna, A., & Sen, K. (2019). Beyond poverty escapes—social mobility in developing countries: A review article. *The World Bank Research Observer*, 34(2), 239-273. DOI: 10.1093/wbro/lkz003”

Table 1 shows that Citation source, date and country could vary for the same citing documents across databases, due to different citing source categorization. URLs pointing to the same sources were different across Overton and Altmetric.com as former provided the hyperlink to the online webpage and the later to the PDF file. For instance, the two hyperlinks below indicate the same citing source across two databases:

Overton: <https://openknowledge.worldbank.org/handle/10986/33797>

Altmetric: <https://openknowledge.worldbank.org/bitstream/10986/33797/1/Gender-Bias-and-Intergenerational-Educational-Mobility-Theory-and-Evidence-from-China-and-India.pdf>

Table 1. List of policy citations and their sources and details for Iversen, Krishna & Sen (2019).

Data-base	Cited by source	Cited by title	Cited by date	Cited by country
Overton	World Bank	Gender Bias and Intergenerational Educational Mobility: Theory and Evidence from China and India	21/05/2020	IGO
Altmetric	World Bank	Gender Bias and Intergenerational Educational Mobility: Theory and Evidence from China and India	23/05/2020 19:04	United States
Overton	Government of Uganda	Human Development Report	26/11/2019	Uganda
Overton	United Nations Development Programme	Human Development Report 2019	26/11/2019	IGO
Altmetric	América Latina Genera	Human Development Report 2019	21/08/2020 01:04	Panama
Overton	United Nations Development Programme	Inequality, Social Mobility and Career Ladders	06/07/2021	IGO
Overton	Asian Development Bank	Key Indicators for Asia and the Pacific 2022	24/08/2022	IGO
Overton	IZA Institute of Labor Economics	Multigenerational Mobility in India	23/07/2021	Germany
Overton	World Bank	The Rural-Urban Divide and Intergenerational Educational Mobility in a Developing Country: Theory and Evidence from Indonesia	05/11/2020	IGO
Altmetric	World Bank	The Rural-Urban Divide and Intergenerational Educational Mobility in a Developing Country: Theory and Evidence from Indonesia	01/11/2020 19:34	United States

In some cases, the top-level URL domains linking to the same source were also different. In rare instances of such occurrences, instead of linking to the original source, hyperlinks to copies of the policy documents stored on other external websites are provided. This primarily raises concerns about document retrieval, as there is no assurance that the external source will continue to provide access to the policy document in the long term. In one case, Altmetric URLs was not found. For instance, both of the hyperlinks below link to the United Nations’ document “Human Development Report 2019”, but one was no longer retrievable:

Overton: <http://hdr.undp.org/en/content/human-development-report-2019>

Altmetric: http://americainagenera.org/newsite/images/cdr-documents/2019/12/hdr2019_1.pdf (on 27 March, 2023 the hyperlink returned Oops, This Page Could Not Be Found!)

There was a total of 625 distinct policy sources identified of which 56 sources could be found on both databases. The number of unique URL sources in Overton was 566 unique sources, while for Altmetric.com was only 30. Table 2 displays the TLDs and the ccTLDs (country-code top-level domains), of websites that had the highest coverage of policy citations. The most frequent source of policy citations in both Overton (2,903) and Altmetric (438) was websites with the TLD .org (Table 2). While Altmetric provides citations from international sources in European Union (206 .eu TLDs) and international level (138 .int TLDs), Overton has more extensive coverage for them (1,097 .eu and 173 .int TLDs) with a much greater emphasis on policy citations from national websites from Finland (1,659 .fi ccTLDs).

Table 2. The most frequent top-level domains (TLDs) among policy citation sources (left table: sorted by top Overton results; right table: sorted by top Altmetric results).

TLDs	Altmetric.com	Overton ↓	TLDs	Altmetric.com ↓	Overton
org	438	2,903	org	438	2,903
fi	11	1,659	eu	206	1,097
eu	206	1,097	int	138	173
uk	84	367	uk	84	367
de	2	299	no	67	142
au	6	225	se	53	111

TLDs	Altmetric.com	Overton ↓	TLDs	Altmetric.com ↓	Overton
net	-	196	nl	48	122
ch	1	176	edu	28	62
int	138	173	be	21	59
gov	2	154	fi	11	1,659

There is a significant difference between the two databases in terms of identifying policy sources at various levels. Altmetric associates documents with the publication location, whereas Overton associates them with the organizations’ operation level, such as IGO and EU (Table 3) and more detailed categories listed in Table 3. Table 2 shows that majority of all policy citations in Overton (59%) come from IGOs (26%), Finland (20%), and EU (12%), while majority of citations identified by Altmetric come from documents published in Luxembourg (18%), Switzerland (16%), and Italy (15%).

Table 3. Top countries in terms of count of policy citations in Overton and Altmetric.

Overton Cited by Country	Policy citations	Altmetric Cited by Country	Policy citations
IGO	1,959	Luxembourg	203
<i>Finland</i>	1,543	Switzerland	179
EU	927	Italy	165
Germany	528	United States	105
UK	443	United Kingdom	105
USA	419	Sweden	90
Australia	213	Norway	68
France	157	Netherlands	48
Sweden	154	France	29
Norway	148	Kenya	24
Netherlands	137	Philippines	23
Canada	128	Belgium	23

Overton Cited by Country	Policy citations	Altmetric Cited by Country	Policy citations
Belgium	124	<i>Finland</i>	10

In addition, Overton has identified policy sources as governmental (48%), intergovernmental (26%), and think tanks (23%), with two-third of cited publications mentioned by the governments and one third of them by either IGOs or think tanks (Table 4). Health agencies, government agencies and research centers cited more publications both at government (13%) and intergovernmental (7%) levels. Think tanks associated with academia also produce more policy citations (2.2%) than industry (0.2%).

Table 4. Policy citation counts based on Overton policy source type and subtype categorization.

Citing Policy Source Type	Subtype	Policy citations	Publications cited
<i>Government</i> <i>Total Publications Cited (% of all publications) = 1,904 (66%)</i> <i>Citing Policy Documents (% of all citing policy documents) = 3,640 (48%)</i>	healthcare agency	458 (6.1%)	285 (9.8%)
	agency	279 (3.7%)	207 (7.1%)
	research center	269 (3.6%)	203 (7.0%)
	legislative research	116 (1.5%)	100 (3.4%)
	bank	29 (0.4%)	18 (0.6%)
	technology assessment	25 (0.3%)	13 (0.4%)
	legislation	17 (0.2%)	13 (0.4%)
	city	15 (0.2%)	12 (0.4%)
	food and drug safety	13 (0.2%)	11 (0.4%)
	academy	8 (0.1%)	8 (0.3%)
	armed forces	1	1
	auditor	1	1
<i>Intergovernmental Organizations (IGO)</i>	development bank	232 (4.6%)	133 (4.6%)
	healthcare agency	120 (2.3%)	67 (2.3%)

Citing Policy Source Type	Subtype	Policy citations	Publications cited
<i>Total Publications Cited (% of all publications) = 895 (31%)</i> <i>Citing Policy Documents (% of all citing policy documents) = 1,959 (26%)</i>	research center	4 (0.1%)	4 (0.1%)
	bank	1	1
<i>Think Tank</i> <i>Total Publications Cited (% of all publications) = 899 (31%)</i> <i>Citing Policy Documents (% of all citing policy documents) = 1,735 (23%)</i>	university affiliated	68 (0.9%)	59 (2.0%)
	research center	100 (1.3%)	85 (2.9%)
	industry association	17 (0.2%)	12 (0.4%)
	consultancy	3	2 (0.1%)
	agency	1	1
<i>Other</i>	aggregator	205 (2.7%)	179 (6.2%)

Table 5 and Table 6 show the number of policy citations and publications cited across policy sources. According to the Overton results, Government of Finland has made the highest number of policy citations (856) to the highest number of publications (634) among all sources. While Publications Office of European Union is the second major source of policy citations according to Overton, it is the first major source of policy citations according to data from Altmetric. Overton also has high citation numbers from other national sources of policy citations, such as Finnish Institute for Health and Welfare, and Natural Resources Institute Finland LUKE. None of the top 20 policy sources based on data from Altmetric.com are, however, from Finland.

Table 5. Top 20 sources of policy citations according to Overton.

Overton Policy Source	Source Type	Policy citations	Publications cited
<i>Government of Finland</i>	Government	856	634
<i>Publications Office of the European Union</i>	Government	634	449
<i>Terveyden ja hyvinvoinnin laitos</i>	Government	345	222
<i>IPBES</i>	IGO	315	79
<i>OECD</i>	IGO	308	215
<i>Luke</i>	Government	250	194

Overton Policy Source	Source Type	Policy citations	Publications cited
<i>Analysis & Policy Observatory</i>	Other	186	163
<i>World Bank</i>	IGO	152	92
<i>Nordic Council</i>	IGO	146	131
<i>UNESCO</i>	IGO	146	82
<i>World Health Organization</i>	IGO	120	67
<i>Arctic Council</i>	IGO	116	57
<i>Food and Agriculture Organization of the United Nations</i>	IGO	115	61
<i>IZA Institute of Labor Economics</i>	Think Tank	105	68
<i>IPCC</i>	IGO	100	75
<i>European Parliamentary Research Service</i>	Government	85	74
<i>Wuppertal Institut</i>	Think Tank	81	38
<i>The UK Government</i>	Government	70	64
<i>Government of Estonia</i>	Government	68	52
<i>Joint Research Centre</i>	Government	67	55

Table 6. Top 20 sources of policy citations according to Altmetric.

Altmetric Policy Source	Policy citations	Publications cited
<i>The Publications Office of the European Union</i>	203	171
<i>Food and Agriculture Organization of the United Nations</i>	163	60
<i>World Health Organization</i>	114	63
<i>The Norwegian Government</i>	43	39
<i>UK Government (GOV.UK)</i>	37	32
<i>World Bank</i>	32	28
<i>Stockholm Environment Institute</i>	31	22
<i>Organisation for Economic Co-operation and Development (OECD)</i>	26	26

Altmetric Policy Source	Policy citations	Publications cited
<i>Naturvardsverket</i>	25	22
<i>rijksoverheid.nl</i>	25	23
<i>The Research Council of Norway</i>	25	23
<i>Asian Development Bank</i>	23	21
<i>World Meteorological Organization (WMO)</i>	23	20
<i>National Institute for Health and Care Excellence</i>	21	7
<i>UK Parliament Briefing notes</i>	21	15
<i>Flemish Government Policy Documents</i>	20	18
<i>The InterAcademy Partnership</i>	20	18
<i>International Union for Conservation of Nature</i>	19	7
<i>National Academies Press</i>	15	14
<i>United Nations Environment Programme (UNEP)</i>	15	15

Discussion and Limitations

Although we have discovered significant differences between the coverage of policy citations between the two databases Overton and Altmetric, this study has some limitations. One limitation is that the choice of using Scopus to identify Finnish publications limits the coverage of publications in terms of size and language. An alternative source of data could have been VIRTAs Publication Information Service, which is a comprehensive source of Finnish research publications. However, Altmetric.com and Overton.io are both international databases and cover Scopus publications more thoroughly, while their coverage of publications from VIRTAs is less known and requires a separate investigation. This means that the international Finnish scientific publications published in English are central to the study’s dataset and other scientific publications that many might be in Finnish or probably Swedish languages are not comprehensively covered.

Another issue is the language of citing policy sources. In countries with more than one official languages, policy documents are often written in several languages. In Finland, important government policy documents are written in Finnish and, Swedish and sometimes

also in English. Overton counts these as a single document as it uses a hyperlink for policy source page that includes several PDF documents. This may have significant impact on the number of policy documents that both databases count.

This study compared policy citations identified by Overton.io and Altmetric.com for a number of selected social science subject areas, finding that the two databases provide different coverage and level of details about policy citations. Overton provided a significant coverage in the Finnish context and clearly more unique policy document citations and scientific publications with more policy citations. With a more comprehensive coverage of local policy impact it is more likely to be able to predict future policy impact of research (Kale et al., 2017). Altmetric.com, despite less comprehensive coverage had identified smaller but unique proportion of publications with policy citations as well as some unique policy citations, which is in line with previous observations, offering important data on policy impact at organizational level (Tattersall & Carroll, 2018). Intergovernmental sources of policy impact were found to be substantial sources of citations, again in line with findings from some earlier studies (such as Bornmann et al., 2022). A diversity in policy impact across fields and institutes was discovered, even in Social Sciences across Finnish universities, but with clear connections to health aspects, as has been discovered in previous research too (e.g. Kryle et al., 2012).

Another significant distinction between the data sources was discovered in their citation presentation: Overton offers hyperlinks to webpages, that subsequently lead to the PDF document, whereas Altmetric.com provides direct URLs to the PDF documents. Such disparities complicate cross-referencing policy sources and necessitate manual verification when merging results from the two citation sources. A potential solution could involve assigning a unique identifier, such as a DOI, to policy documents to mitigate issues arising from Title, publication time, and URL variations, ensuring a more comprehensive assessment of policy impact.

Conclusion

It is crucial to examine the distinctive approaches and advantages offered by different databases in how they identify and deliver policy citations. Our study revealed that Overton holds significant value, particularly because of its good coverage of policy documents citing Finnish research publications. Overton is able to capture and highlight the intricacies of policy

impact within national context, providing a nuanced understanding of how academic work influences national policies.

Furthermore, Altmetric.com emerges as a valuable complement, contributing to the enhancement and supplementation of the overall results, especially with regards to international English sources of policy. Its strength lies in its ability to capture the broader online attention and societal engagement surrounding academic publications. Altmetric's diverse range of sources, including social media, news, and blogs, provides a holistic perspective on the societal impact of research, thus offering much more varied data than Overton, however, those sources were not the subject of this study. But as a result, when used in conjunction with Overton, Altmetric could not only supplement the coverage but also enrich the narrative by revealing the broader societal discussions and implications surrounding academic contributions.

In conclusion, the synergy between Overton and Altmetric proves to be a powerful combination in comprehensively assessing the policy impact of Finnish academic publications. By understanding the unique strengths of both databases and leveraging their capabilities, researchers can gain a more holistic view of how their work resonates within both academic and societal spheres, facilitating a nuanced evaluation of policy influence.

Understanding the policy implications of science remains a complex area with several unexplored dimensions. Future research should explore the policy impact of scientific publications in local languages, such as Finnish and Swedish, and compare their influence with international publications authored by researchers from the same regions. Additionally, the influence of factors such as open access policies and journal indexing practices on the dissemination and impact of scientific knowledge requires further investigation to provide a more comprehensive view of how scientific outputs shape policy at both local and international levels.

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Supplements

Table S1. Comparison of overlapping and unique policy documents in Overton and Altmetric.com citing research publications from Finnish research institutions.

Institutions	Count of Scopus publications	Count of publications with DOI	Count (%) publications [policy citations] in Overton	Count (%) publications [policy citations] in Altmetric.com	Count (%) publications in both sources	Unique publications with Altmetric.com policy citations	Unique publications with Overton policy citations
Aalto University	1161	985	224 (23%) [608]	69 (7%) [112]	65 (7%)	0.4%	16%
Åbo Akademi University	619	593	122 (21%) [255]	33 (6%) [40]	28 (5%)	0.8%	16%
Finnish Environment Institute	260	255	149 (58%) [599]	40 (16%) [83]	38 (15%)	0.8%	44%
University of Helsinki	5421	5045	1,100 (22%) [2,631]	253 (5%) [425]	226 (4%)	0.5%	17%
Helsinki University Hospital	60	60	16 (27%) [35]	3 (5%) [3]	2 (3%)	1.7%	23%
University of Eastern Finland	1830	1654	395 (24%) [990]	109 (7%) [178]	102 (6%)	0.4%	18%
Institute of Criminology and Legal Policy	55	54	23 (43%) [72]	7 (13%) [11]	5 (9%)	3.7%	33%
University of Lapland	584	517	130 (25%) [312]	22 (4%) [29]	20 (4%)	0.4%	21%
LUT University	330	295	36 (12%) [64]	6 (2%) [13]	4 (1%)	0.7%	11%

Instituti- ons	Count of Scopus publi- cations	Count of publica- tions with DOI	Count (%) publica- tions [pol- icy cita- tions] in Overton	Count (%) publica- tions [pol- icy cita- tions] in Altme- tric.com	Count (%) publica- tions in both sources	Unique publica- tions with Alt- me- tric.com policy ci- tations	Unique publica- tions with Overton policy cita- tions
National Institute for Health and Wel- fare	222	222	104 (47%) [334]	32 (14%) [60]	30 (14%)	0.9%	33%
Natural Resources Institute Finland Luke	377	369	244 (66%) [709]	53 (14%) [113]	52 (14%)	0.3%	52%
University of Oulu	1336	1180	220 (19%) [505]	36 (3%) [56]	32 (3%)	0.3%	16%
Tampere Peace Re- search Institute	17	16	5 (31%) [11]	(0%) [0]	(0%)	0.0%	31%
Tampere University	2289	2139	480 (22%) [1,102]	91 (4%) [122]	85 (4%)	0.3%	18%
Turku School of Econo- mics	62	60	13 (22%) [34]	1 (2%) [1]	1 (2%)	0.0%	20%
University of Turku	2059	1922	431 (22%) [1,071]	107 (6%) [142]	90 (5%)	0.9%	18%
Finnish Institute of Foreign Affairs	56	50	26 (52%) [97]	3 (6%) [5]	3 (6%)	0.0%	46%
University of Jyväs- kylä	2188	2096	432 (21%) [983]	96 (5%) [134]	76 (4%)	1.0%	17%
Total	18996	17582	4202 (24%) [10,751]	984 (6%) [1,576]	882 (5%)	0.6%	19%

Table S2. The count (percentage) of Scopus publications with policy Citations in Overton (first line) and Altmetric (second line) across social science fields.

Institution	Social Sciences (Misc.)	Development	Education	Geography	Health (Social Science)	Law	Sociology	Political Science
Aalto University	13/57 (22.8%) 3/57 (5.3%)	19/57 (33.3%) 8/57 (14%)	21/438 (4.8%) 5/438 (1.1%)	133/439 (30.3%) 45/439 (10.3%)	7/23 (30.4%) 1/23 (4.3%)	8/45 (17.8%) 3/45 (6.7%)	23/102 (22.5%) 4/102 (3.9%)	-
Åbo Akademi University	4/24 (16.7%) 2/24 (8.3%)	-	21/206 (10.2%) 5/206 (2.4%)	-	16/38 (42.1%) 5/38 (13.2%)	13/80 (16.3%) 6/80 (7.5%)	51/192 (26.6%) 13/192 (6.8%)	17/79 (21.5%) 2/79 (2.5%)
Finnish Environment Institute	24/37 (64.9%) 5/37 (13.5%)	-	-	125/223 (56.1%) 35/223 (15.7%)	-	-	-	-
University of Helsinki	62/284 (21.8%) 15/284 (5.3%)	38/184 (20.7%) 9/184 (4.9%)	272/1700 (16%)	225/907 (24.8%) 68/907 (7.5%)	113/439 (25.7%) 31/439 (7.1%)	79/446 (17.7%) 24/446 (5.4%)	240/1114 (21.5%) 49/1114 (4.4%)	71/347 (20.5%) 10/347 (2.9%)
Helsinki University Hospital	-	-	-	-	16/60 (26.7%) 3/60 (5%)	-	-	-
University of Eastern Finland	19/67 (28.4%) 6/67 (9%)	18/61 (29.5%) 5/61 (8.2%)	78/643 (12.1%) 20/643 (3.1%)	118/424 (27.8%) 33/424 (7.8%)	28/123 (22.8%) 8/123 (6.5%)	33/147 (22.4%) 14/147 (9.5%)	77/283 (27.2%) 18/283 (6.4%)	24/82 (29.3%) 5/82 (6.1%)
Institute of Criminology and Legal Policy	-	-	-	-	-	23/55 (41.8%) 7/55 (12.7%)	-	-
University of Lapland	15/38 (39.5%) 3/38 (7.9%)	5/20 (25%) 1/20 (5%)	20/144 (13.9%) 2/144 (1.4%)	31/113 (27.4%) 6/113 (5.3%)	7/25 (28%) 1/25 (4%)	22/103 (21.4%) 5/103 (4.9%)	21/90 (23.3%) 2/90 (2.2%)	9/51 (17.6%) 2/51 (3.9%)
LUT University	2/19 (10.5%)	12/49 (24.5%)	6/122 (4.9%)	14/108 (13%)	-	2/32 (6.3%)	-	-

Institution	Social Sciences (Misc.)	Development	Education	Geography	Health (Social Science)	Law	Sociology	Political Science
	0/19 (0%)	2/49 (4.1%)	0/122 (0%)	2/108 (1.9%)		2/32 (6.3%)		
National Institute for Health and Welfare	13/25 (52%) 2/25 (8%)	-	-	-	91/197 (46.2%) 30/197 (15.2%)	-	-	-
Natural Resources Institute Finland Luke	15/19 (78.9%) 8/19 (42.1%)	28/40 (70%) 5/40 (12.5%)	-	136/225 (60.4%) 21/225 (9.3%)	-	-	65/93 (69.9%) 19/93 (20.4%)	-
University of Oulu	10/42 (23.8%) 3/42 (7.1%)	11/58 (19%) 2/58 (3.4%)	74/583 (12.7%) 10/583 (1.7%)	76/398 (19.1%) 13/398 (3.3%)	10/81 (12.3%) 3/81 (3.7%)	6/32 (18.8%) 0/32 (0%)	29/114 (25.4%) 4/114 (3.5%)	4/28 (14.3%) 1/28 (3.6%)
Tampere Peace Research Institute	-	-	-	-	-	-	-	5/17 (29.4%) 0/17 (0%)
Tampere University	34/158 (21.5%) 6/158 (3.8%)	15/67 (22.4%) 3/67 (4.5%)	103/680 (15.1%) 18/680 (2.6%)	60/305 (19.7%) 10/305 (3.3%)	65/254 (25.6%) 15/254 (5.9%)	31/115 (27%) 10/115 (8.7%)	128/524 (24.4%) 19/524 (3.6%)	44/186 (23.7%) 10/186 (5.4%)
Turku School of Economics	-	13/62 (21%) 1/62 (1.6%)	-	-	-	-	-	-
University of Turku	28/119 (23.5%) 10/119 (8.4%)	26/102 (25.5%) 4/102 (3.9%)	111/720 (15.4%) 35/720 (4.9%)	66/300 (22%) 10/300 (3.3%)	40/172 (23.3%) 11/172 (6.4%)	28/156 (17.9%) 7/156 (4.5%)	109/382 (28.5%) 23/382 (6%)	23/108 (21.3%) 7/108 (6.5%)
Finnish Institute of Foreign Affairs	-	-	-	-	-	-	-	26/56 (46.4%) 3/56 (5.4%)
University of Jyväskylä	42/177 (23.7%) 10/177 (5.6%)	19/61 (31.1%) 4/61 (6.6%)	189/1165 (16.2%) 43/1165 (3.7%)	39/161 (24.2%) 10/161 (6.2%)	30/154 (19.5%) 6/154 (3.9%)	8/51 (15.7%) 2/51 (3.9%)	93/356 (26.1%) 18/356 (5.1%)	12/63 (19%) 3/63 (4.8%)

Institution	Social Sciences (Misc.)	Development	Education	Geography	Health (Social Science)	Law	Sociology	Political Science
Total	281/1066 (26.4%)	256/831 (30.8%)	895/6401 (14%)	1023/3603 (28.4%)	423/1566 (27%)	253/1262 (20%)	836/3250 (25.7%)	235/1017 (23.1%)
	73/1066 (6.8%)	67/831 (8.1%)	185/6401 (2.9%)	253/3603 (7%)	114/1566 (7.3%)	80/1262 (6.3%)	169/3250 (5.2%)	43/1017 (4.2%)

Table S1. The count of Policy Citations overlapping between Overton (First percentage) and Altmetric.com (Second Percentage) across fields.

Institutions	Social Sciences (Misc.)	Development	Education	Geography	Health (Social Science)	Law	Sociology	Political Science
Aalto University	3 (3%) (25%)	11 (19%) (85%)	5 (11%) (71%)	35 (10%) (52%)	1 (8%) (50%)	1 (5%) (17%)	4 (9%) (80%)	
Åbo Akademi University	1 (9%) (50%)		6 (20%) (86%)		3 (10%) (50%)	4 (21%) (57%)	9 (7%) (56%)	2 (5%) (100%)
Finnish Environment Institute	7 (5%) (39%)			26 (6%) (40%)				
University of Helsinki	12 (7%) (46%)	8 (8%) (42%)	24.5 (5%) (37%)	61 (8%) (38%)	33 (11%) (69%)	18 (10%) (47%)	30 (6%) (55%)	6 (4%) (60%)
Helsinki University Hospital					2 (6%) (67%)			
University of Eastern Finland	4 (8%) (40%)	8 (24%) (89%)	10 (7%) (44%)	28 (10%) (65%)	12 (16%) (52%)	18 (15%) (73%)	15 (9%) (58%)	8 (8%) (57%)
Institute of Criminology and Legal Policy						1 (1%) (9%)		
University of Lapland	2.5 (4%) (43%)	1 (13%) (100%)	1 (3%) (50%)	3 (3%) (50%)	3 (21%) (100%)	4 (9%) (80%)	2 (6%) (67%)	2 (15%) (100%)
LUT University				1 (3%) (33%)		1 (33%) (50%)		
National Institute for	5 (7%) (71%)				37 (14%) (70%)			

Instituti- ons	Social Sciences (Misc.)	Develop- ment	Educa- tion	Geo- graphy	Health (Social Science)	Law	So- ciology	Political Science
Health and Welfare								
Natural Re- sources Ins- titute Fin- land Luke	18 (11%) (43%)	6 (8%) (67%)		22 (7%) (67%)			19 (12%) (66%)	
University of Oulu	2 (5%) (40%)	6 (25%) (100%)	3 (2%) (25%)	9 (4%) (56%)	8 (17%) (67%)		3 (7%) (75%)	1 (20%) (100%)
Tampere Peace Re- search Ins- titute								
Tampere University	3 (4%) (43%)	1 (3%) (33%)	11 (6%) (52%)	3 (2%) (25%)	19 (13%) (70%)	9.5 (12%) (77%)	17 (5%) (68%)	12 (10%) (86%)
Turku School of Economics		1 (3%) (100%)						
University of Turku	5 (5%) (31%)	4 (7%) (100%)	19 (7%) (33%)	7 (4%) (70%)	7 (7%) (41%)	4 (6%) (57%)	19 (7%) (79%)	7 (13%) (100%)
Finnish In- stitute of Foreign Af- fairs								3 (3%) (60%)
University of Jyväskylä	9 (9%) (69%)	3 (6%) (75%)	22 (6%) (33%)	7 (6%) (58%)	5 (7%) (50%)	1 (8%) (50%)	20 (9%) (83%)	3 (10%) (100%)
Total	71 (7%) (43%)	79 (10%) (63%)	102 (6%) (39%)	201 (7%) (47%)	130 (12%) (63%)	62 (10%) (53%)	137 (7%) (65%)	44 (7%) (76%)