Spanish National Plan of Science and Innovation adherence to Open Access mandates: advantages and disadvantages for scholars

Pablo Sastrón-Toledo¹
Patricia Alonso-Álvarez¹²
Jorge Mañana-Rodríguez²
Elías Sanz-Casado¹²

1. Laboratorio de Estudios Métricos de la Información (LEMI), Departamento de Biblioteconomía y Documentación, Universidad Carlos III de Madrid, Calle Madrid 126, 28093 Getafe, España.
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Background

- 2007: RECOLECTA
- 2008:
- 2009:
- 2010:
- 2011:
- 2012:
- 2013:
- 2014:
- 2015:
- 2016:
- 2017:
- 2018:
- 2019:
- 2020:
- 2021:
- 2022:

- Sci., Tech. and Innov. Law
- First OA mandate in RDI funding
- Commission for OA monitoring
- Guide for OA monitoring
- CSIC and CRUE commitment to OA
- Recommendations for OA (FECYT)
- Guide for the implementation of OA (FECYT)

De Fiippo & Mañana, 2022
Research Questions

• RQ1: Do Spanish researchers comply with Spanish Open Science mandate?
Research Questions

• RQ1: Do Spanish researchers comply with Spanish Open Science mandate?

• RQ2: In terms of publication impact, is compliance with the OA mandate beneficial or disadvantageous for Spanish researchers?
Data

Retrieval of Project data from resolutions of the Spanish National Plan 2013-2019

Identification and retrieval of publications associated with each Project using the grant field in Web of Science

Open Access data and features from OA field in Web of Science
Data

Retrieval of Project data from resolutions of the Spanish National Plan 2013-2019

Identification and retrieval of publications associated with each project using the grant field in Web of Science

Open Access data and other articles’ features from OA field in Web of Science
Data

Retrieval of Project data from resolutions of the Spanish National Plan 2013-2019

Identification and retrieval of publications associated with each Project using the grant field in Web of Science

Open Access data and other articles’ features from OA field in Web of Science
Data

19773 projects

105067 publications
Data

19773 projects

105067 publications
Methods

RQ1: Do Spanish researchers comply with Spanish Open Access mandate?

Descriptive statistics to analyze:
- Evolution of publications in Open Access.
- Evolution of publications in Open Access by area.
Methods

RQ2: In terms of publication impact, is compliance with the OA mandate beneficial or disadvantageous for Spanish researchers?

Mann Whitney tests and negative binomial regression to analyze:
- The influence of Open Access in publications’ impact (measured as citation count and being in the first quartile).
Methods

RQ2: In terms of publication impact, is compliance with the OA mandate beneficial or disadvantageous for Spanish researchers?

Mann Whitney tests and negative binomial regression to analyze:
- The influence of Open Access in publications’ impact (measured as citation count and being in the first quartile.)
Results

Percentage of papers published in OA

57.72% 58.53% 62.40% 62.69% 63.62% 66.37% 65.09%

Results

Percentage of articles published in OA by area

Life sciences and biomedicine


Percentage: 60.65%, 59.78%, 60.81%, 60.91%, 62.48%, 64.63%, 67.79%
Results

Percentage of articles published in OA by area

- Physical sciences

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>54.29%</td>
</tr>
<tr>
<td>2015</td>
<td>59.52%</td>
</tr>
<tr>
<td>2016</td>
<td>65.04%</td>
</tr>
<tr>
<td>2017</td>
<td>67.09%</td>
</tr>
<tr>
<td>2018</td>
<td>67.95%</td>
</tr>
<tr>
<td>2019</td>
<td>70.78%</td>
</tr>
<tr>
<td>2020</td>
<td>69.15%</td>
</tr>
</tbody>
</table>
Results

Percentage of articles published in OA by area

- Technology

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OA%</td>
<td>59.12%</td>
<td>58.86%</td>
<td>62.87%</td>
<td>63.06%</td>
<td>63.59%</td>
<td>67.87%</td>
<td>62.96%</td>
</tr>
</tbody>
</table>
Results

Percentage of articles published in OA by area

- 2014: 70.00%
- 2015: 43.77%
- 2016: 49.21%
- 2017: 47.38%
- 2018: 47.18%
- 2019: 49.72%
- 2020: 45.18%

Social sciences
Results

Percentage of articles published in OA by area

- Arts and Humanities
Results

Percentage of articles published in OA by area

Arts and Humanities

2014: 100.00%
2015: 20.00%
2016: 46.34%
2017: 28.97%
2018: 46.15%
2019: 46.67%
2020: 44.44%
Results: OA publications by institution type

<table>
<thead>
<tr>
<th>Institution</th>
<th>Percentage articles in OA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish National Research Council (CSIC)</td>
<td>74%</td>
</tr>
<tr>
<td>Regional R+D Centres</td>
<td>74%</td>
</tr>
<tr>
<td>Universities</td>
<td>60%</td>
</tr>
<tr>
<td>Public Research Bodies (PRBs)</td>
<td>76%</td>
</tr>
<tr>
<td>Hospitals</td>
<td>73%</td>
</tr>
<tr>
<td>Innovation Hubs</td>
<td>77%</td>
</tr>
<tr>
<td>Private entities</td>
<td>32%</td>
</tr>
</tbody>
</table>
Results: Mann Whitney tests

<table>
<thead>
<tr>
<th></th>
<th>Cited reference count</th>
<th>WoS Core Collection Times Cited Count</th>
<th>Citations per year (2022-py)</th>
<th>Media citations per year (2022-py)</th>
<th>Total Times Cited Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Mod 1</td>
<td>Mod 2</td>
<td>Mod 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Response variable:</strong> Citation count</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Access</td>
<td>0.178*** (0.008)</td>
<td>0.116*** (0.007)</td>
<td>0.122*** (0.007)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control by RA</td>
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<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publication year</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of authors</td>
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<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter. collaboration</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
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</tr>
<tr>
<td>Article measures</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions’ effects</td>
<td>No</td>
<td>No</td>
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<td></td>
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</tr>
</tbody>
</table>
## Results: Logistic regression

<table>
<thead>
<tr>
<th></th>
<th>Mod 1</th>
<th>Mod 2</th>
<th>Mod 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response variable:</strong></td>
<td><strong>Q1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Open Access</strong></td>
<td>0.089*** (0.016)</td>
<td>-0.144*** (0.018)</td>
<td>-0.146*** (0.018)</td>
</tr>
<tr>
<td>Control by RA</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Publication year</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Interactions’ effects</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Conclusions

There is a positive correlation between publishing in Open Access and the impact in terms of cites of the publications of the Spanish National Plan (2013-2019) which is aligned with previous literature on the effects of OA.

However, publishing in OA and publishing in the first quartile are negatively correlated.
Limitations

One country.

One funding scheme.

Possible tech limitations: publications that do not include the grant number in WoS acknowledgements field are not retrieved.
Next steps

• To analyze the effects of Open Access types.
• To analyze institutional effects.
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Huge differences between OA types: positive relationships between all types of OA and citation count except for Gold OA.
Next steps

• To analyze the effects of Open Access types.
• To analyze institutional policies.

Huge differences between OA types: positive relationships between all types of OA and citation count except for Gold OA.

Institutions play a significant role on OA publication: Spanish Research Council (CSIC), regional research centres and Public Research Bodies significantly overperform other institutions in percentage of publications in OA.
Discussion

How can we address the publishing in Open Access with the negative (in terms of impact) effects of some OA types? Ex.: Gold OA is rising in SNP publications but its effects on both publications’ impact and visibility are negative.

Institutions seem to highly influence OA publications. How can we improve institutional policies to encourage researchers to publish in OA?
Thank you!

email: patalons@bib.uc3m.es