

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

---

Pablo Sastrón-Toledo<sup>1</sup>

Patricia Alonso-Álvarez<sup>12</sup>

Jorge Mañana-Rodríguez<sup>2</sup>

Elías Sanz-Casado<sup>12</sup>

**uc3m**



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.
2. Research Institute for Higher Education and Science (INAECU), UC3M-UAM, 28093 Getafe, España.

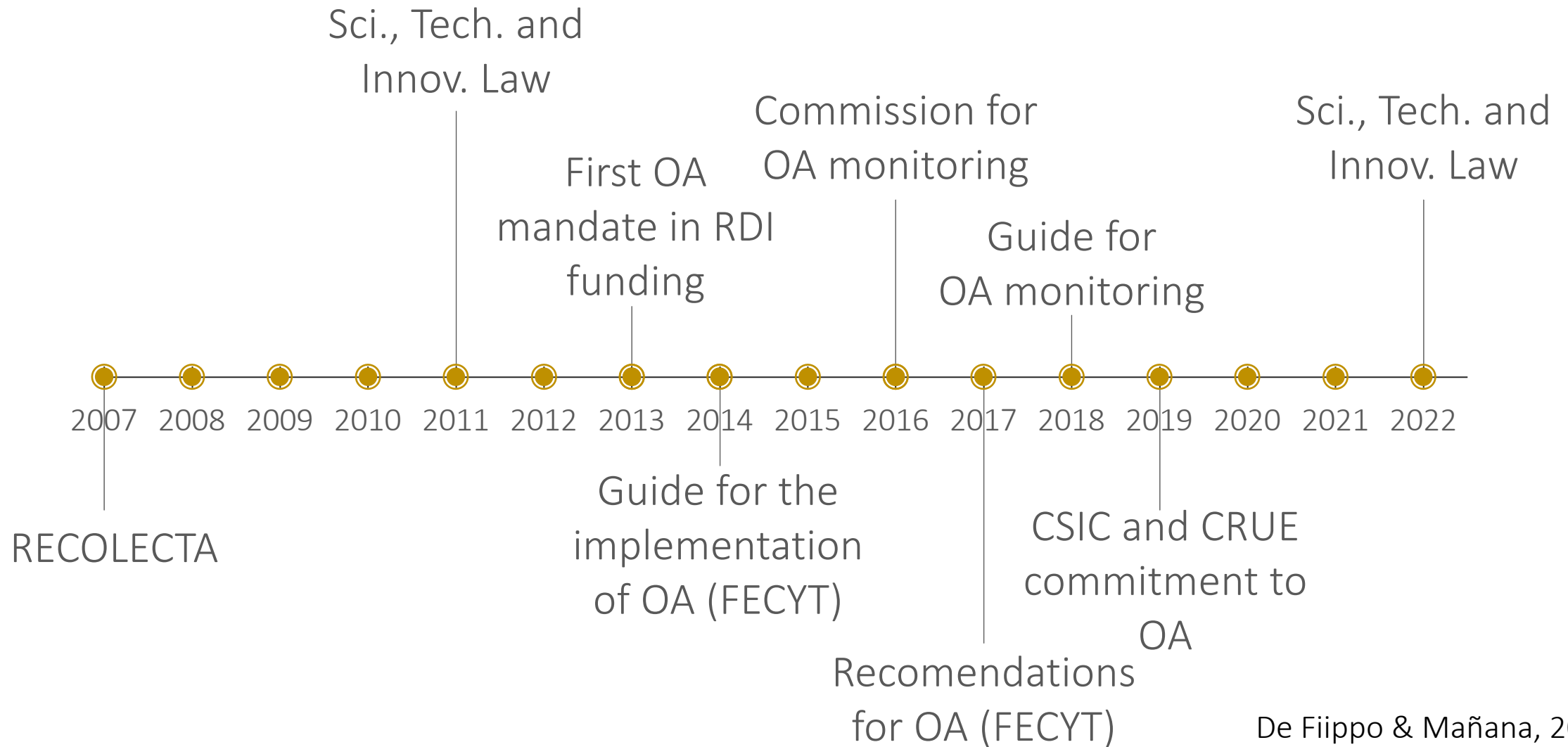
# Spanish National Plan of Science and Innovation adherence to Open Access mandates: advantages and disadvantages for scholars

---

This work was supported under the project "Diagnosis of open science in the Spanish university system and mechanisms for its transformation and improvement" (DOSSUET, PID2019-104052RB-C21), a project financed by the Spanish State Research Agency under the National RDI Plan's RETOS call.



# Background



# 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  
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

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

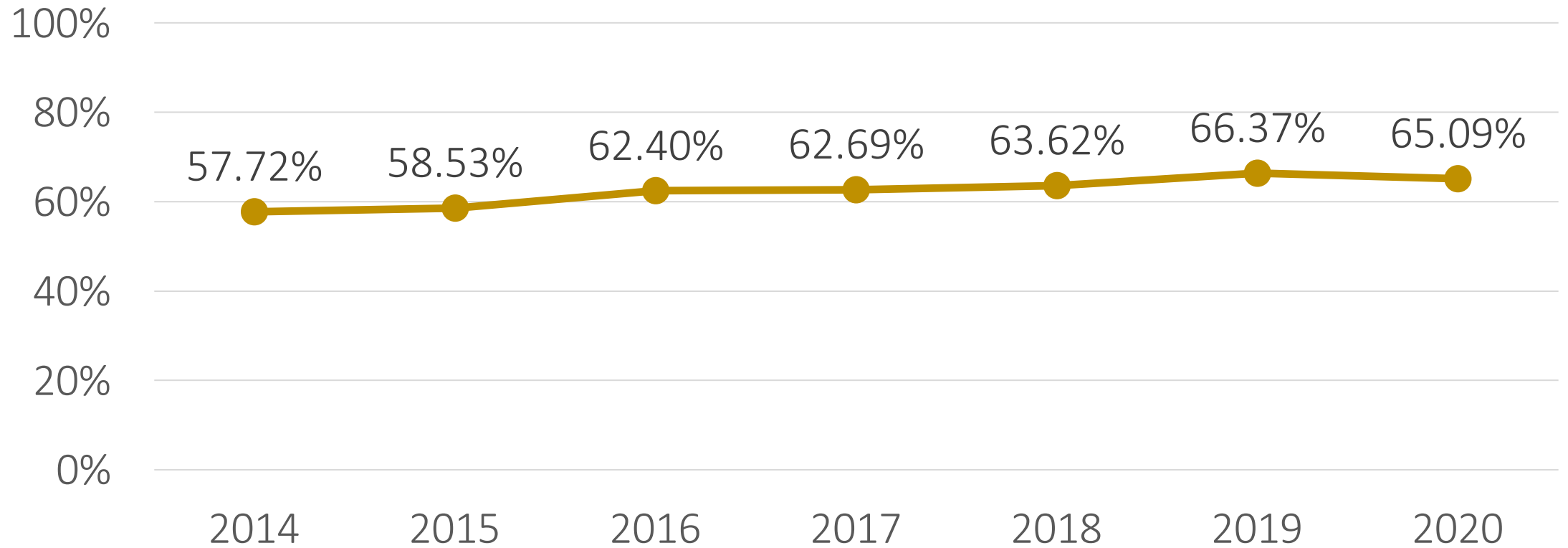
RQ2: In terms of publication impact, is compliance with the OA mandate beneficial or disadvantageous for Spanish researchers?

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).

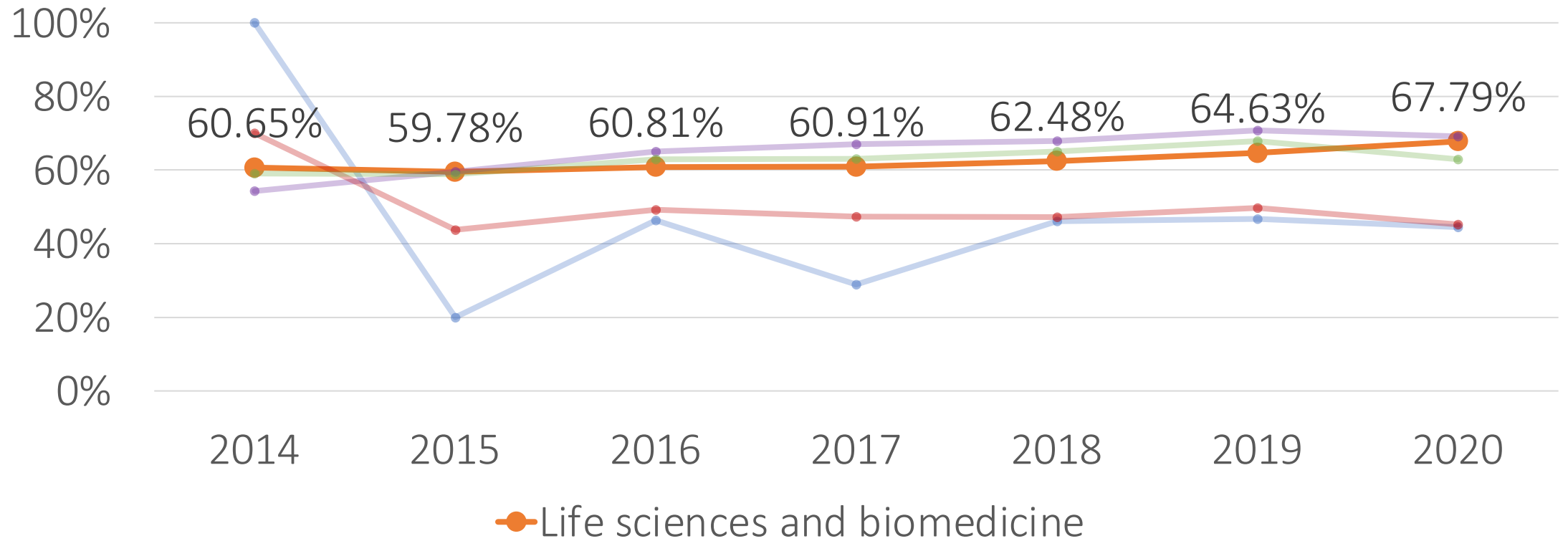
# Results

Percentage of papers published in OA



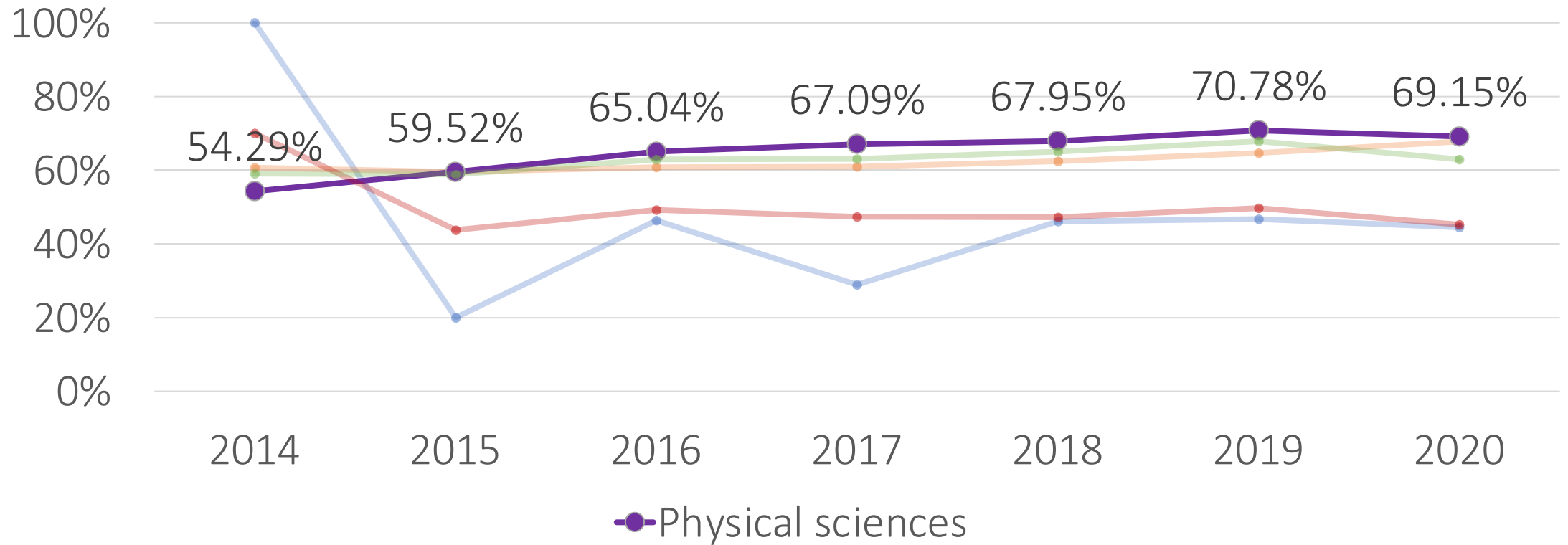
# Results

Percentage of articles published in OA by area



# Results

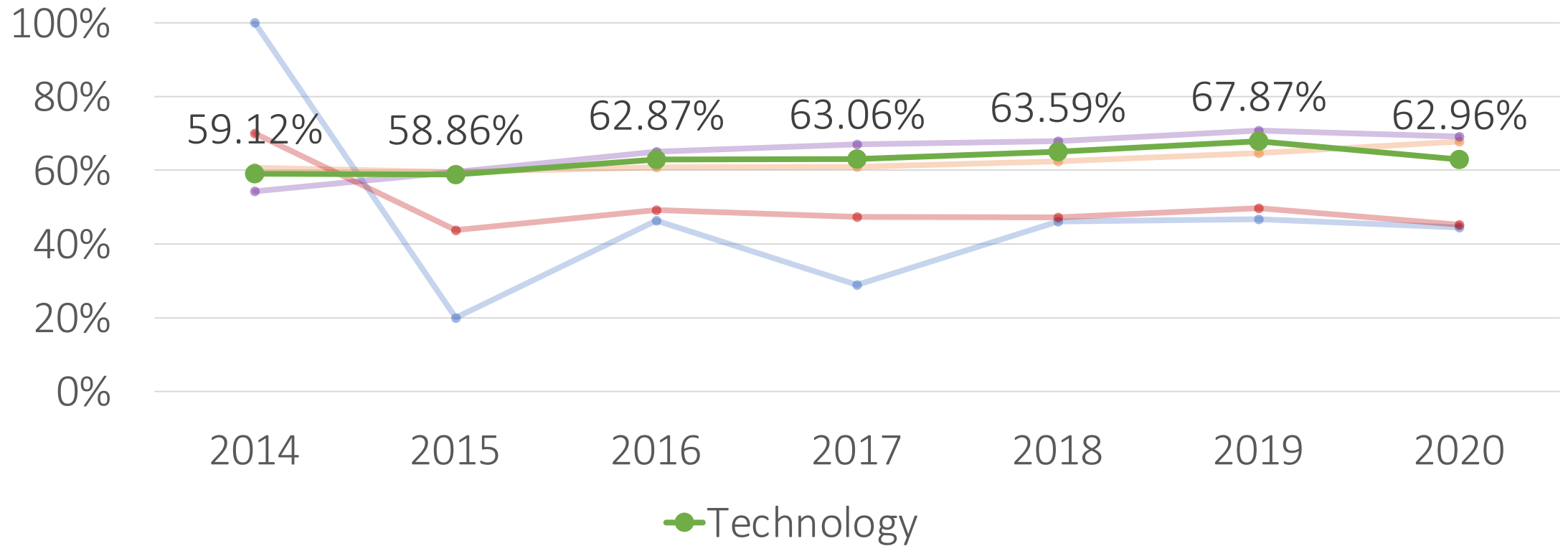
Percentage of articles published in OA by area





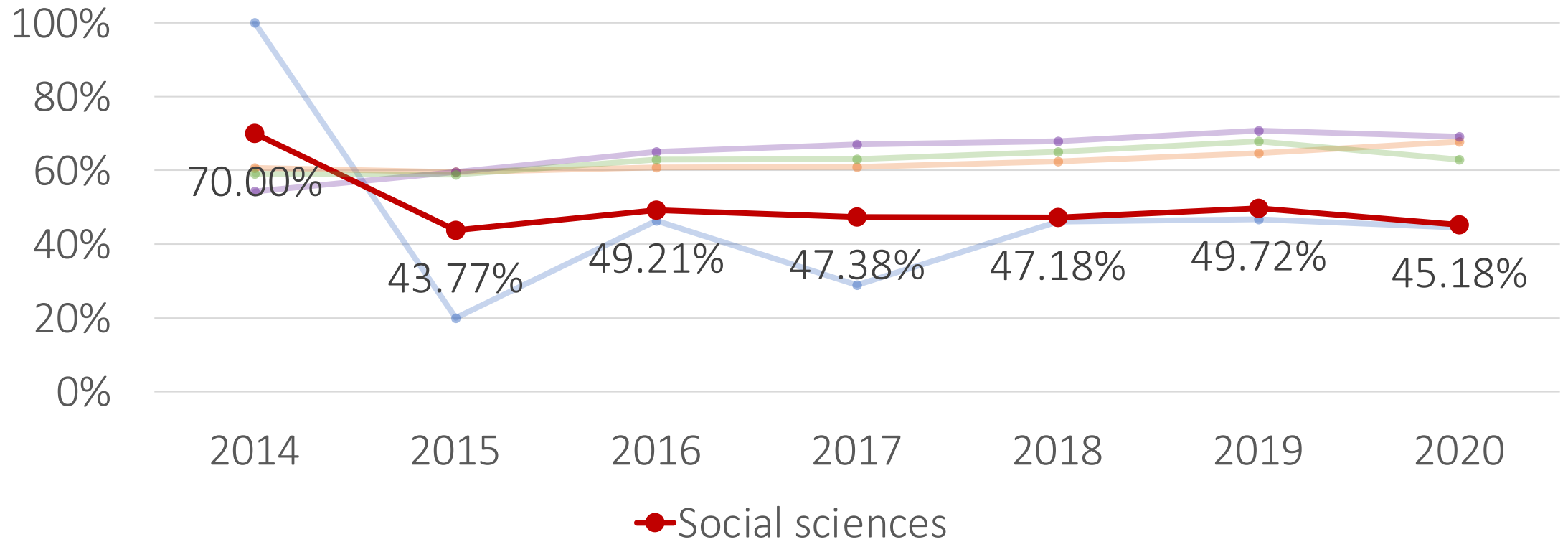
# Results

Percentage of articles published in OA by area



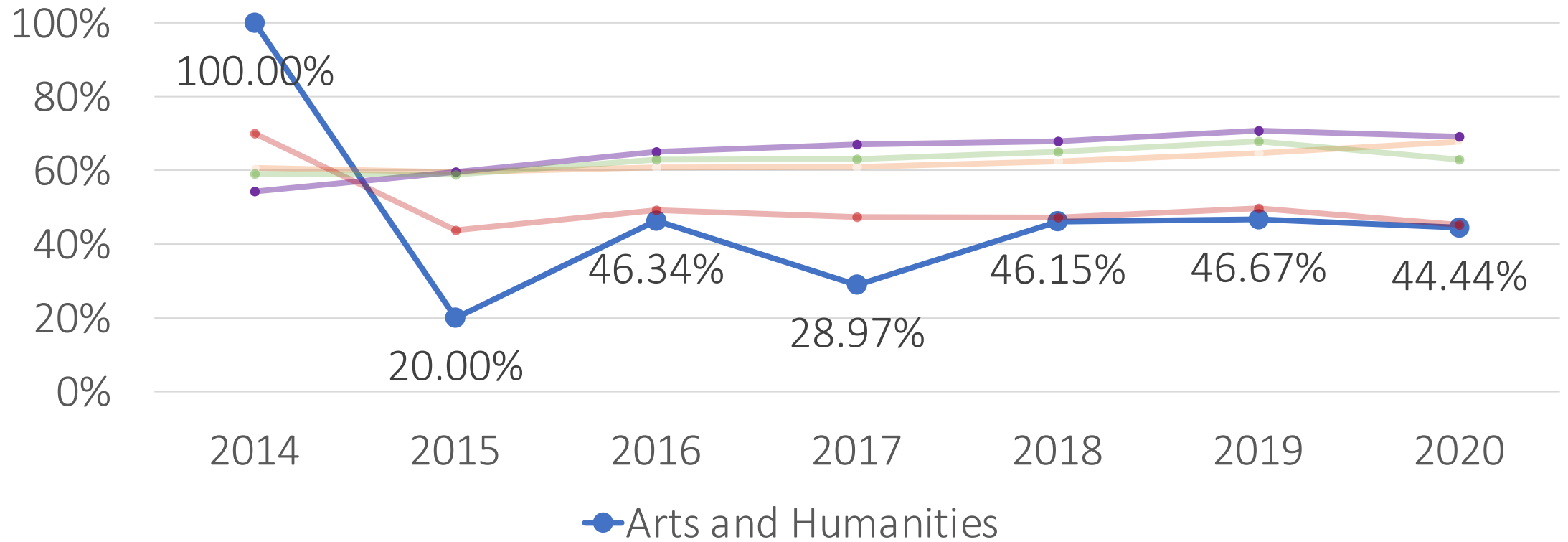
# Results

Percentage of articles published in OA by area

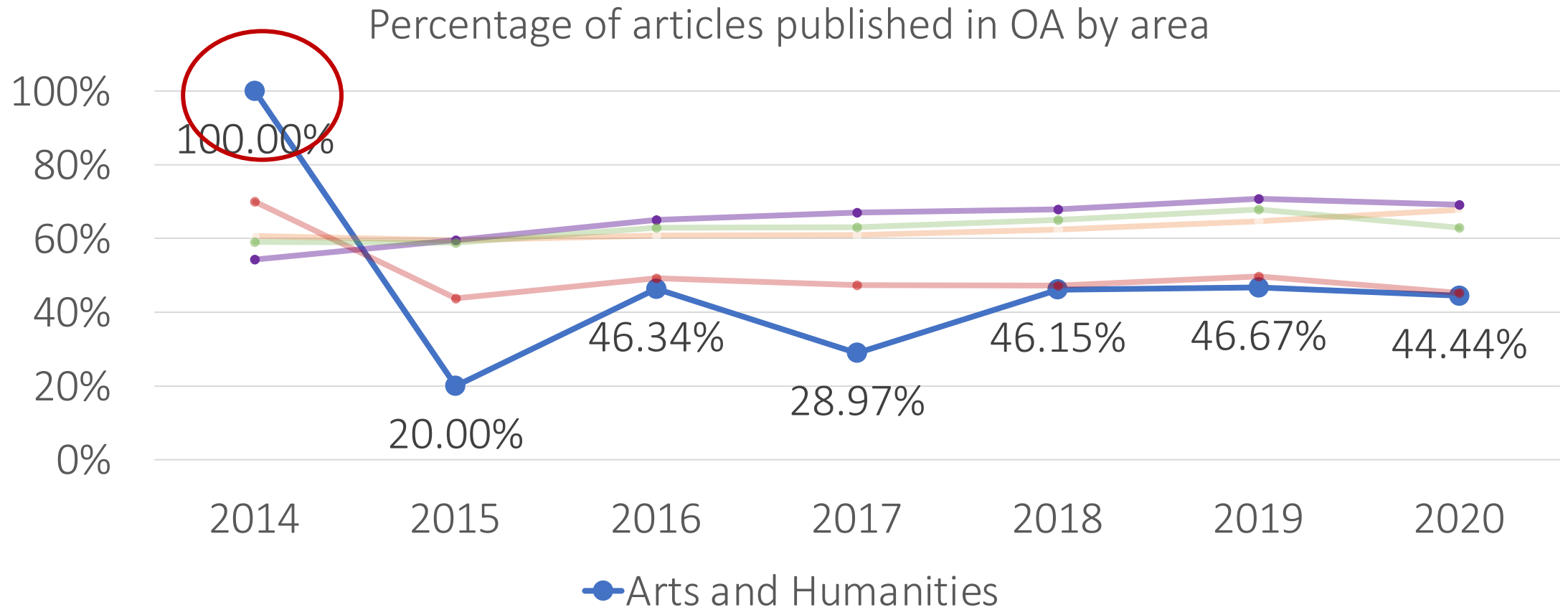


# Results

Percentage of articles published in OA by area



# Results



# Results: OA publications by institution type

Institution	Percentage articles in OA
Spanish National Research Council (CSIC)	74%
Regional R+D Centres	74%
Universities	60%
Public Research Bodies (PRBs)	76%
Hospitals	73%
Innovation Hubs	77%
Private entities	32%

# Results: Mann Whitney tests

	Cited reference count	WoS Core Collection Times Cited Count	Citations per year (2022-py)	Media citations per year (2022-py)	Total Times Cited Count
Z	-16.48	-21.645	-23.255	-16.97	-21.268
Significance	<0.001	<0.001	<0.001	<0.001	<0.001

# Results: Negative binomial regression

	<i>Response variable: Citation count</i>		
	<i>Mod 1</i>	<i>Mod 2</i>	<i>Mod 3</i>
Open Access	0.178*** (0.008)	0.116*** (0.007)	0.122*** (0.007)
Control by RA	No	Yes	Yes
Publication year	No	Yes	Yes
Number of authors	No	Yes	Yes
Q1	No	Yes	Yes
Inter. collaboration	No	Yes	Yes
Article measures	No	Yes	Yes
Interactions' effects	No	No	Yes

# Results: Logistic regression

	<i>Response variable: Q1</i>		
	<i>Mod 1</i>	<i>Mod 2</i>	<i>Mod 3</i>
Open Access	0.089*** (0.016)	-0.144*** (0.018)	-0.146*** (0.018)
Control by RA	No	Yes	Yes
Publication year	No	Yes	Yes
Number of authors	No	Yes	Yes
Inter. collaboration	No	Yes	Yes
Article measures	No	Yes	Yes
Interactions' effects	No	No	Yes



# 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.

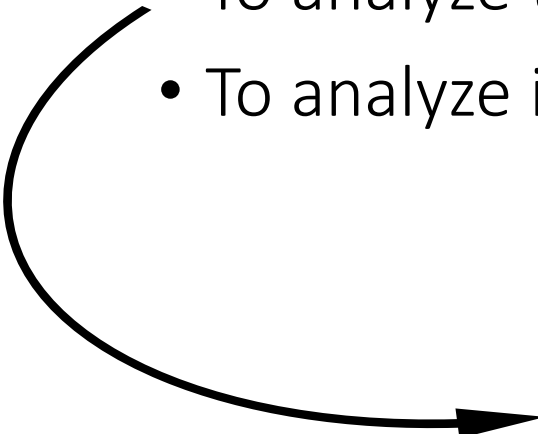
Possible tech limitations: publications that do not include the grant number in WoS acknowledgements field are not retrieved.

# Next steps

- To analyze the effects of Open Access types.
- To analyze institutional effects.

# Next steps

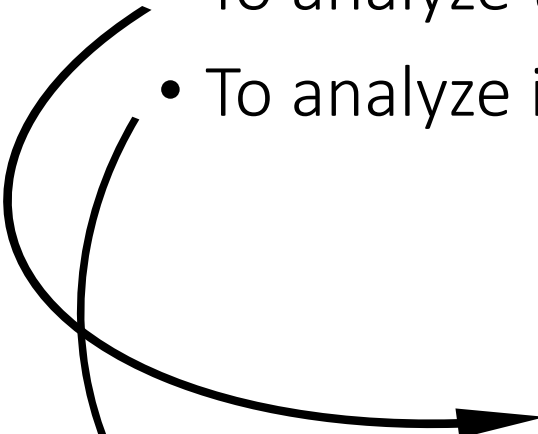
- To analyze the effects of Open Access types.
- To analyze institutional effects.



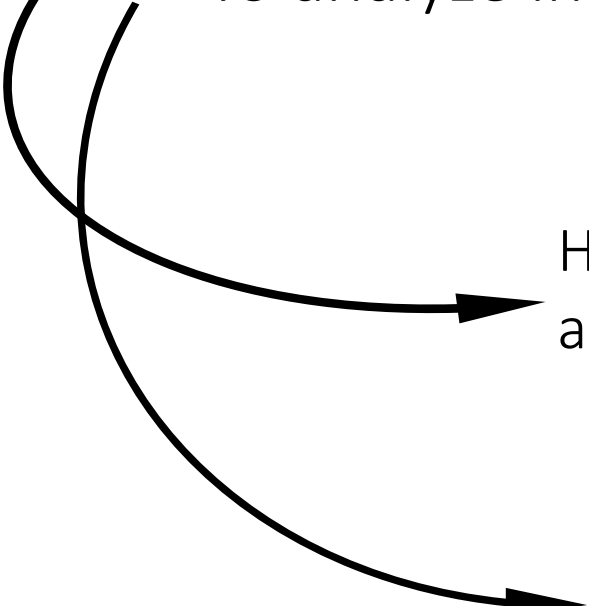
Huge differences between OA types: positive relationships between all types of OA and citation count except for Gold OA.

# 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!

---

**uc3m**



email: [patalons@bib.uc3m.es](mailto:patalons@bib.uc3m.es)