



# The Research Impact of Open Access Journal Articles

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- Some definitions
  - Open Access
  - Research impact
  - The nature of scientific disciplines
- Methodology
- Findings
- Conclusion

# Related Terms



Open Access: “Free ...[online, full-text] access” to scientific publications

Research impact: Number of times that each article is cited in literature

Hard/soft; urban/rural; convergent/divergent scientific disciplines

# The Nature of Scientific Disciplines



Hard  
Urban  
Convergent

Soft  
Rural  
Divergent



Physics

Biology

Anthropology



# Research Questions

- ❑ Does the research impact of OA articles differ across the fields in sciences, social sciences, and arts and humanities?
- ❑ If it does, do OA articles in hard, urban and convergent fields receive more citations (hence higher research impact) than those in soft, rural, and divergent ones?

# Methodology



- ❑ DOAJ journals
- ❑ Journal selection criteria
- ❑ Nine disciplines →
- ❑ Sample

# The Nature of Scientific Disciplines



Physics  
Mathematics  
Chem. Eng.

Economics  
Env. Sci.  
Biology

Psychology  
Sociology  
Anthropology



# Sample



Subjects	# of journals in the sample	# of total articles	sample rate
Physics	6	2,543	1.2
Mathematics	16	1,092	2.7
Chemical Engineering	3	818	3.7
Economics	2	113	26.5
Environmental Sciences	3	247	12.1
Biology	7	690	4.3
Psychology	4	271	11.1
Sociology	3	97	30.9
Anthropology	2	111	27.0



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**Subject Areas** ⓘ

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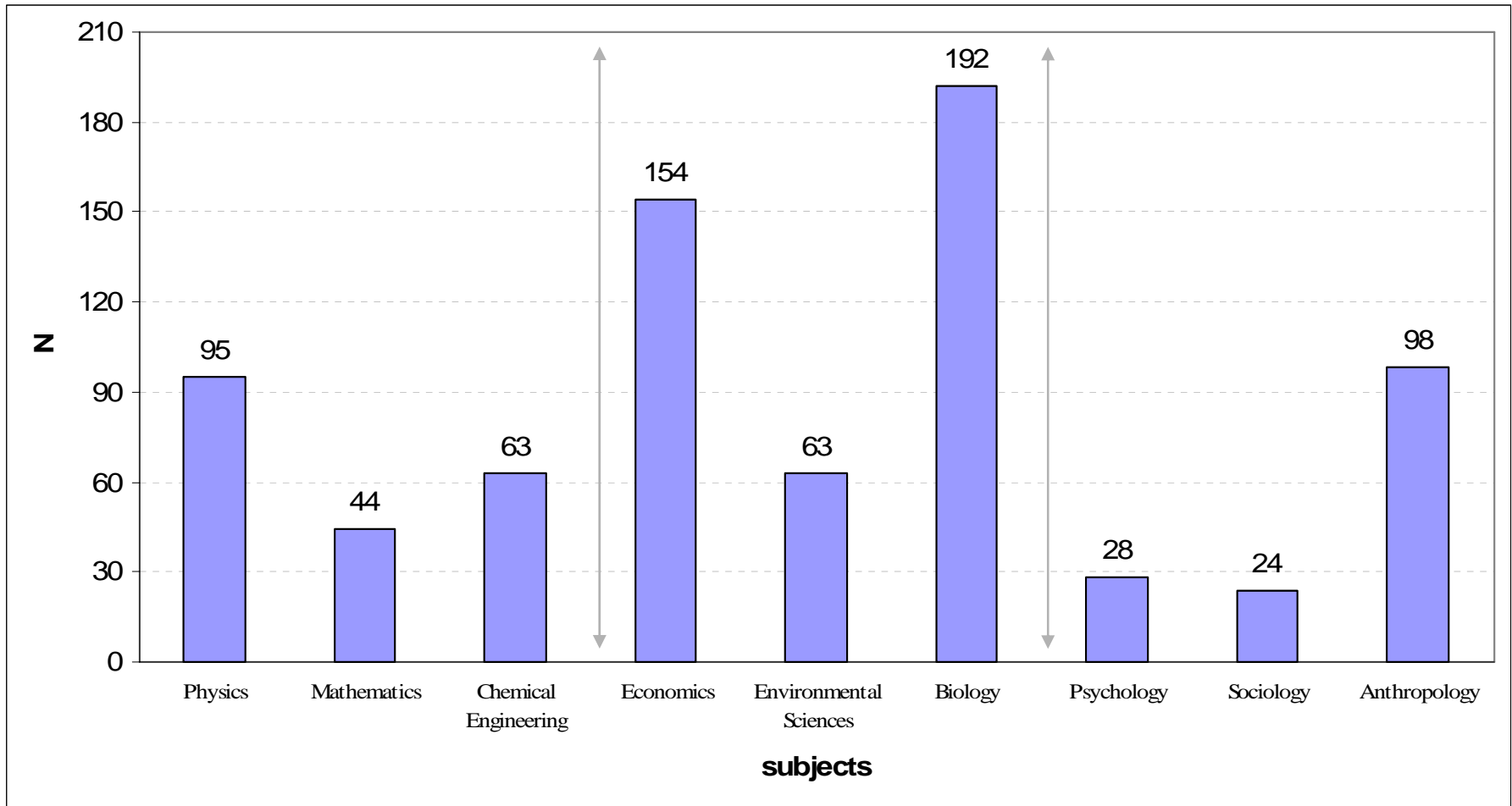
# Descriptive Statistics



- 270 articles were cited 761 times
- Articles with zero citations = 95 (35%)
- Average number of citations
  - Biology 6.4
  - Economics 5.1
  - Psychology 0.9
  - Sociology 0.8

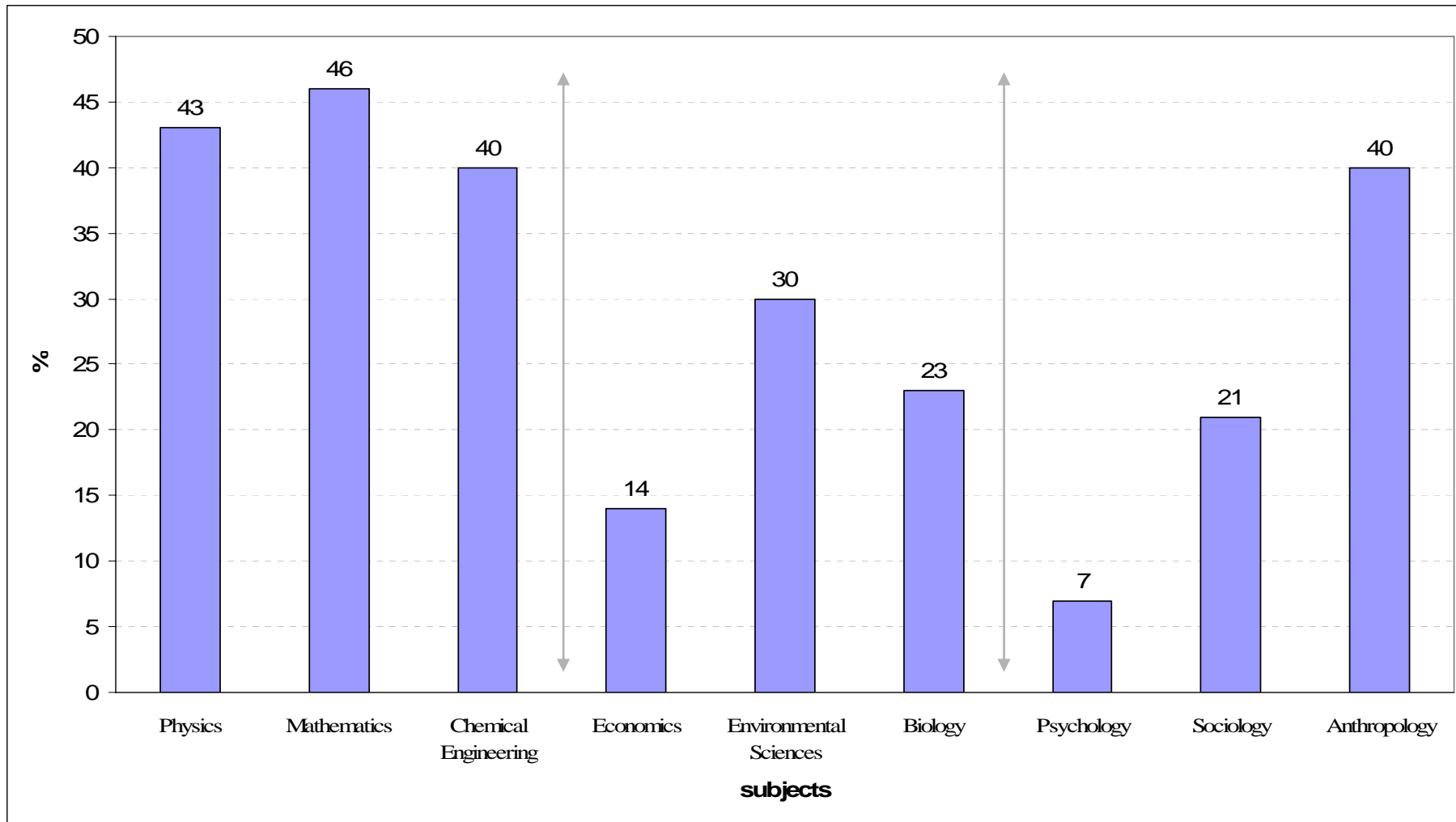


# Distribution of Citations by Subjects $N=761$



← hard, urban, convergent soft, rural, divergent →

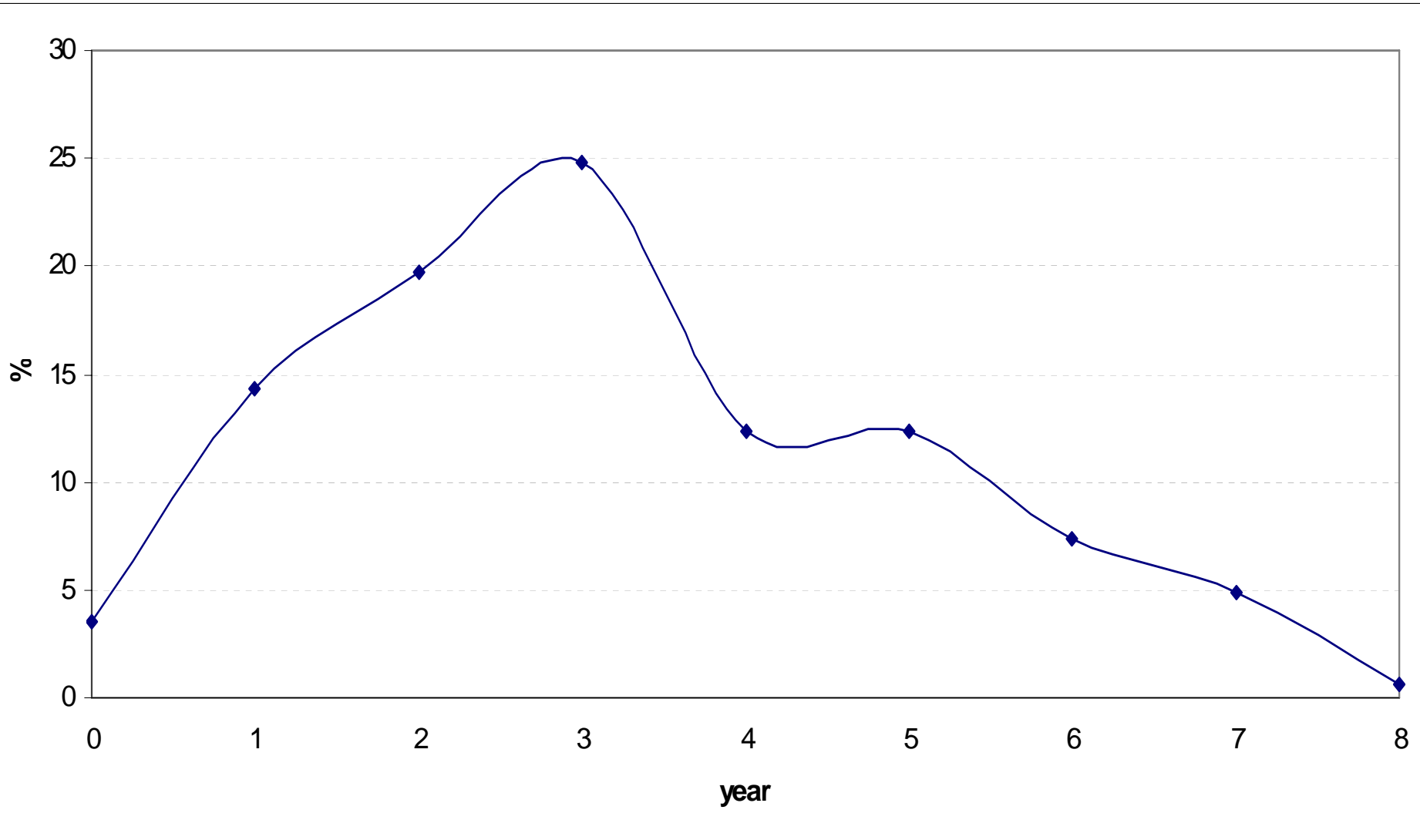
# Self-citation Rates



hard, urban, convergent

soft, rural, divergent

# Obsolescence for OA Articles



# Half-life for OA Articles



## □ 2 years

- Physics
- Mathematics
- Biology
- Psychology

## □ 3 years

- Chemical Engineering
- Economics
- Environmental Sciences
- Sociology
- Anthropology



- ❑ Citation characteristics vary among disciplines
- ❑ Citation behavior differs from self-archiving behavior
- ❑ OA articles in hard, urban and convergent fields do not necessarily have higher research impact
- ❑ OA articles in Biology, Economics and Anthropology received more citations



- A more representative study with a larger sample size needs to be carried out
- The relationship between research impact and self-archiving behavior should be investigated



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