

# The Economics of Biology Journals and the Prospects for Open Access

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# Acknowledgements

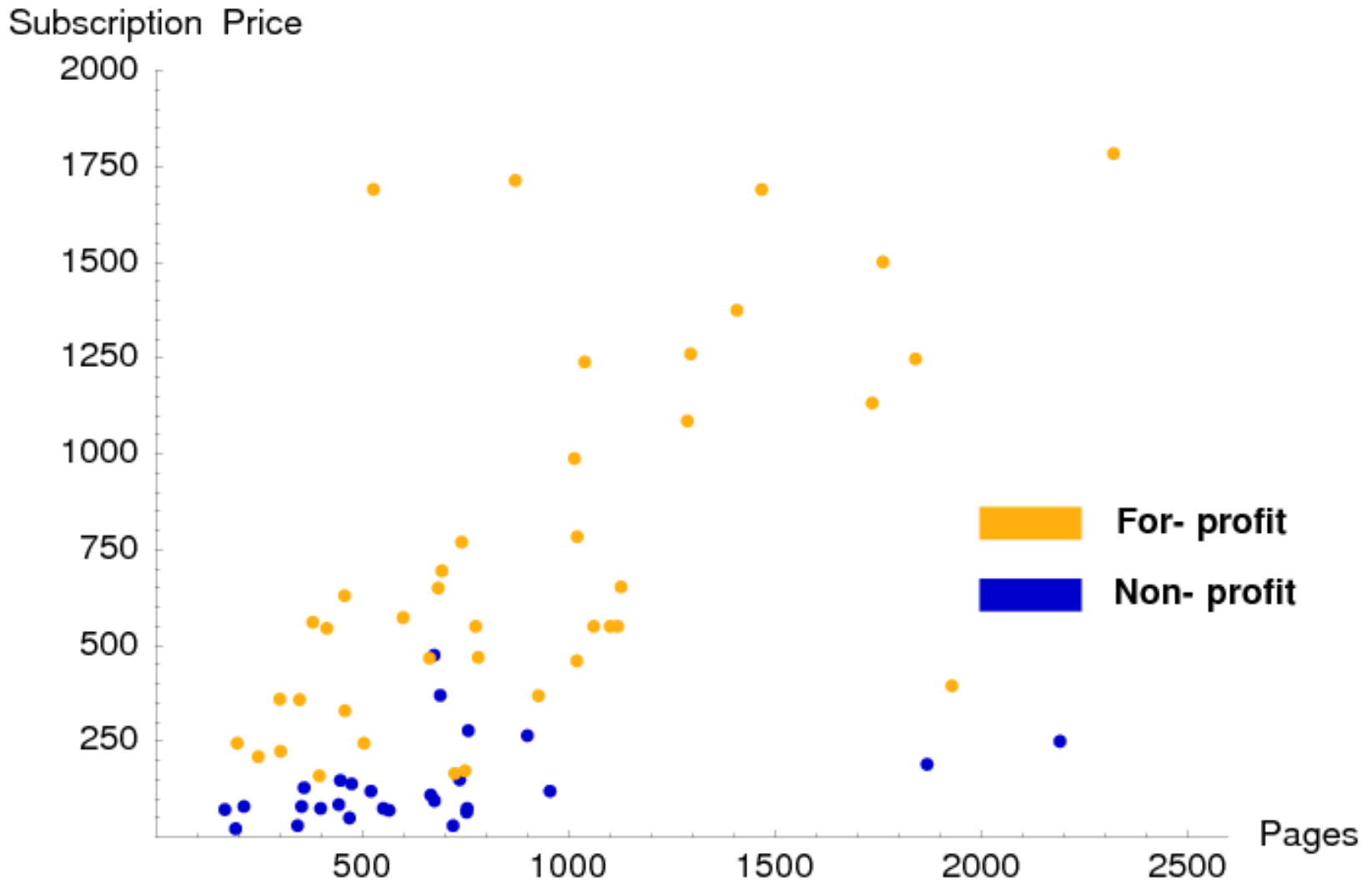
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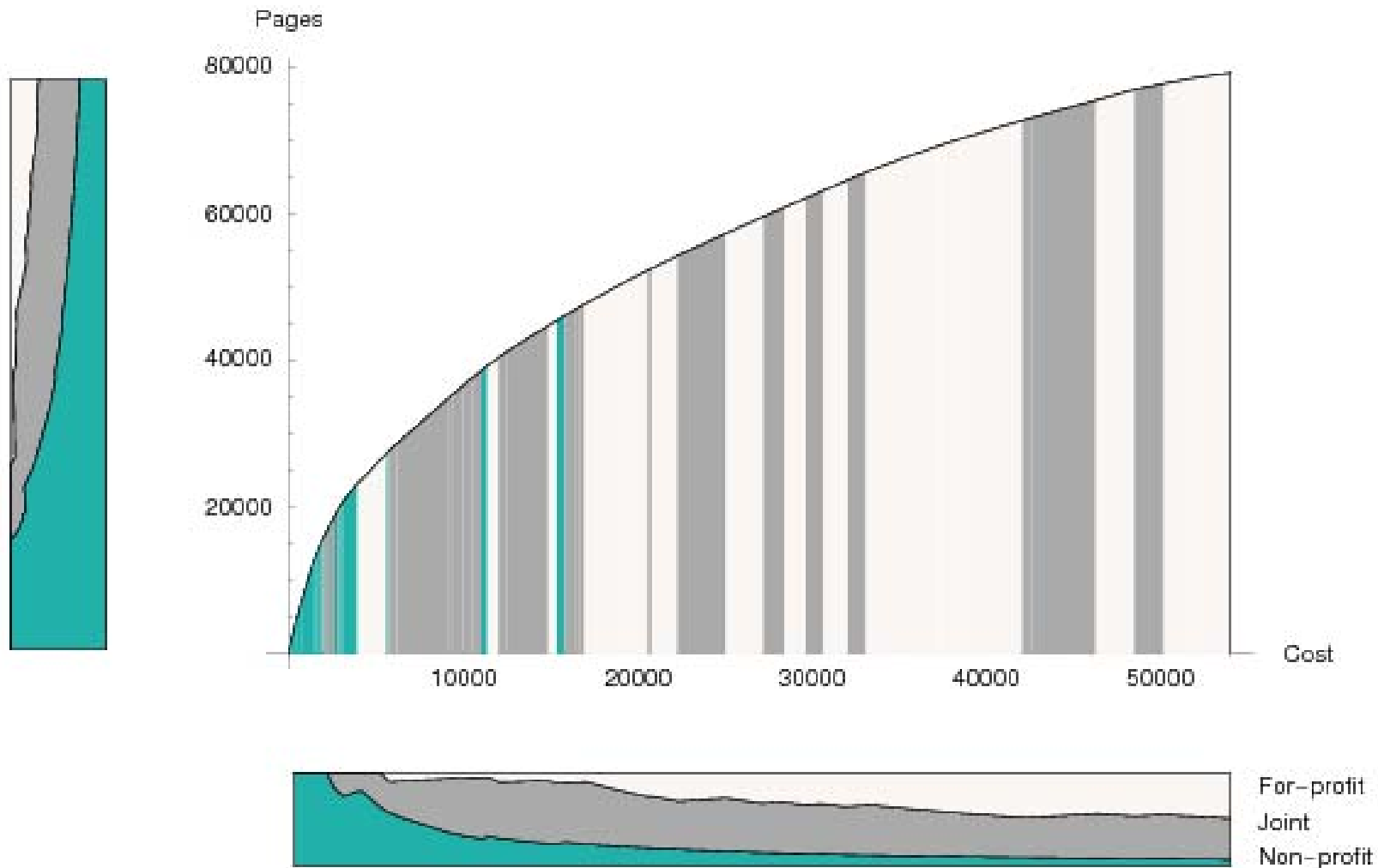
# Price and value in scholarly publishing

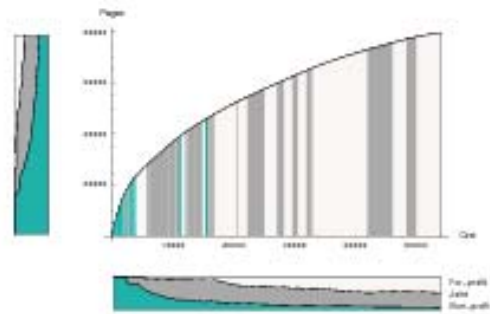


# Price versus pages: Ecology (2000)

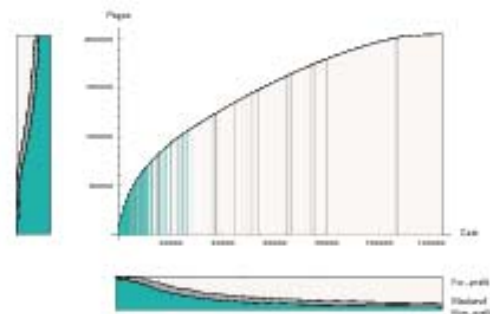


# How many ecology journal pages can you buy for a given budget?

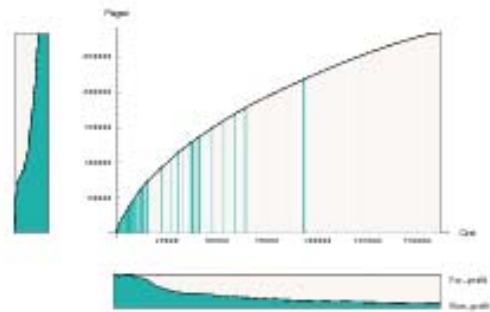




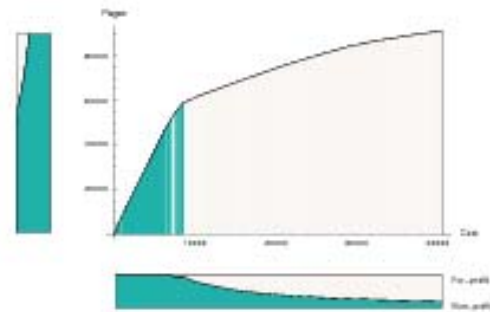
Ecology (2000)



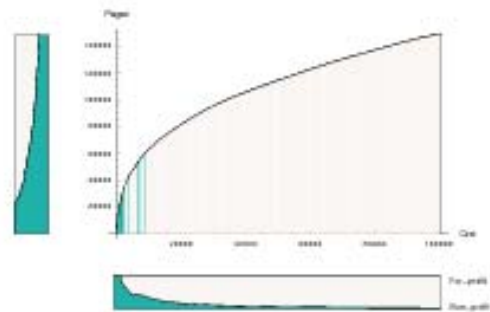
Economics (2000)



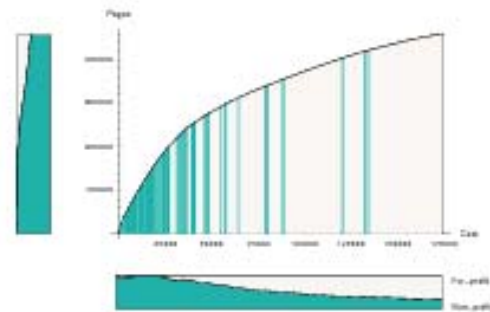
Mathematics (2000)



Atmospheric Sci. (1999)



Neurobiology (1997)



Physics (1997)

# Average journal price per page

<b>Field</b>	<b>For-profit</b>	<b>Non-profit</b>
Ecology (n=78)	\$ 1.19	\$ 0.19
Economics (n=156)	\$ 0.81	\$ 0.16
Atmosph. Sci. (n=34)	\$ 0.95	\$ 0.15
Mathematics (n=171)	\$ 0.70	\$ 0.27
Neuroscience (n=71)	\$ 0.89	\$ 0.10
Physics (n=93)	\$ 0.63	\$ 0.19

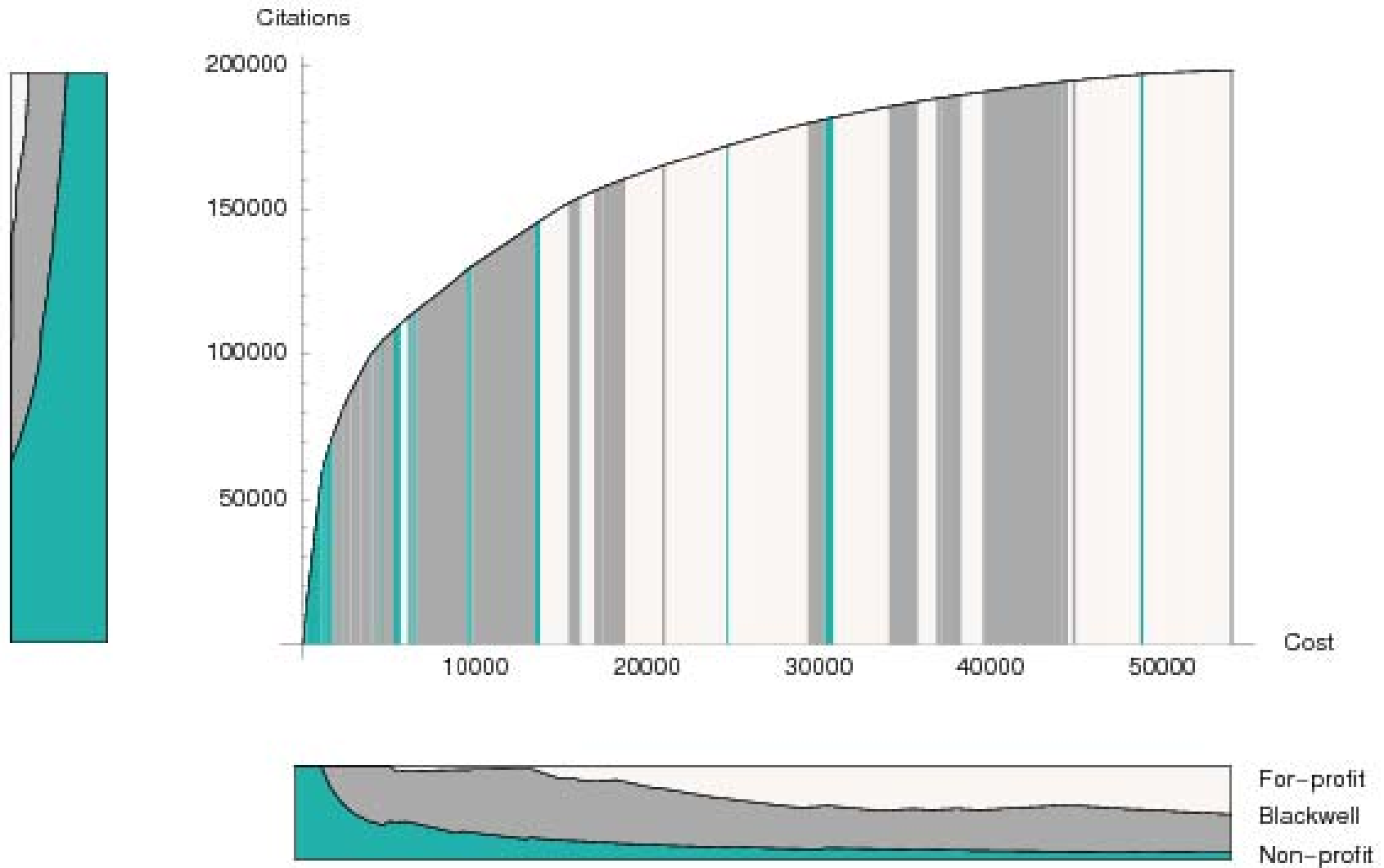
# What about value?

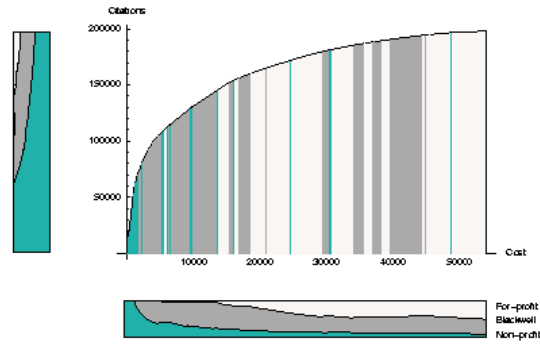
Top five ecology journals by  
year 2000 impact factor

		Price/page	Price/cite
1.	<b>Ecological Monographs</b>	\$0.16	\$0.02
2.	<b>American Naturalist</b>	\$0.37	\$0.02
3.	Global Change Biology	\$0.77	\$0.57
4.	<b>Ecology</b>	\$0.13	\$0.02
5.	<b>Evolution</b>	\$0.11	\$0.02

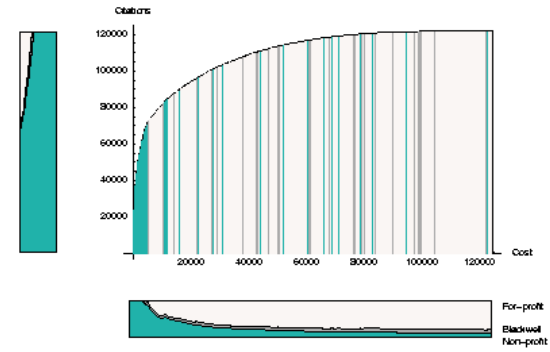


# How many cited ecology articles can you buy for a given budget?

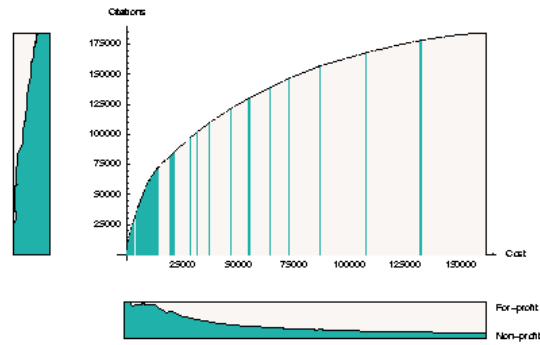




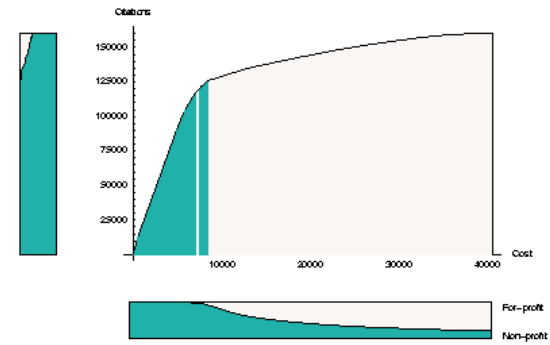
Ecology (2000)



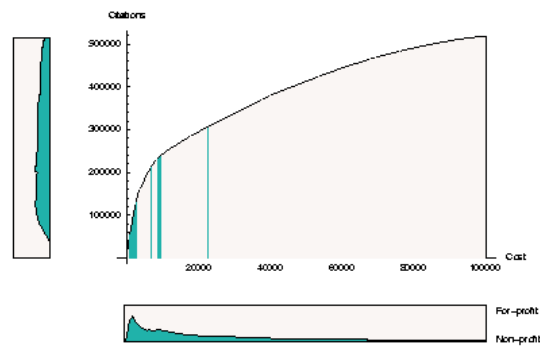
Economics (2000)



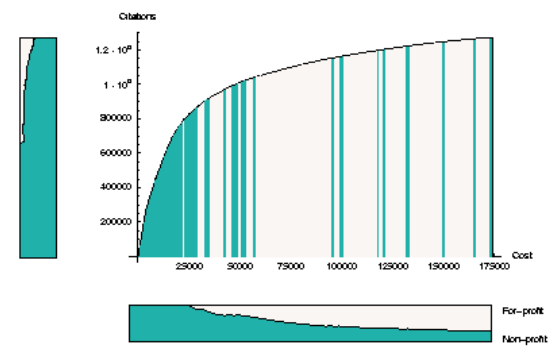
Mathematics (2000)



Atmospheric Sci. (1999)

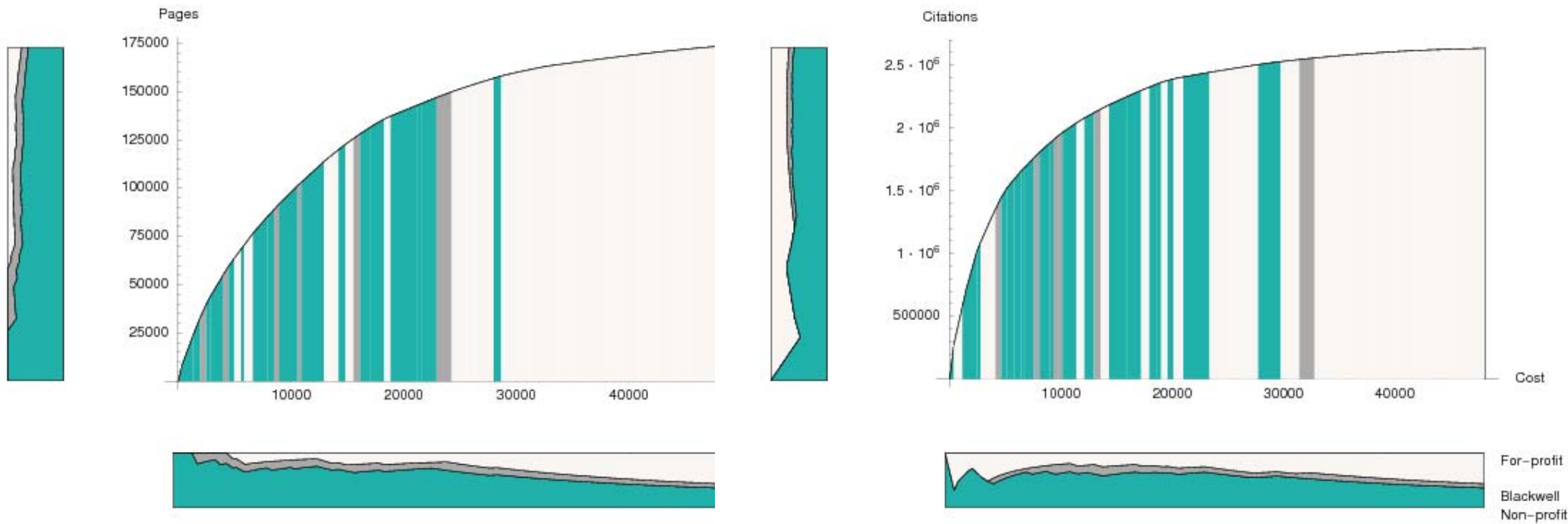


Neurobiology (1997)



Physics (1997)

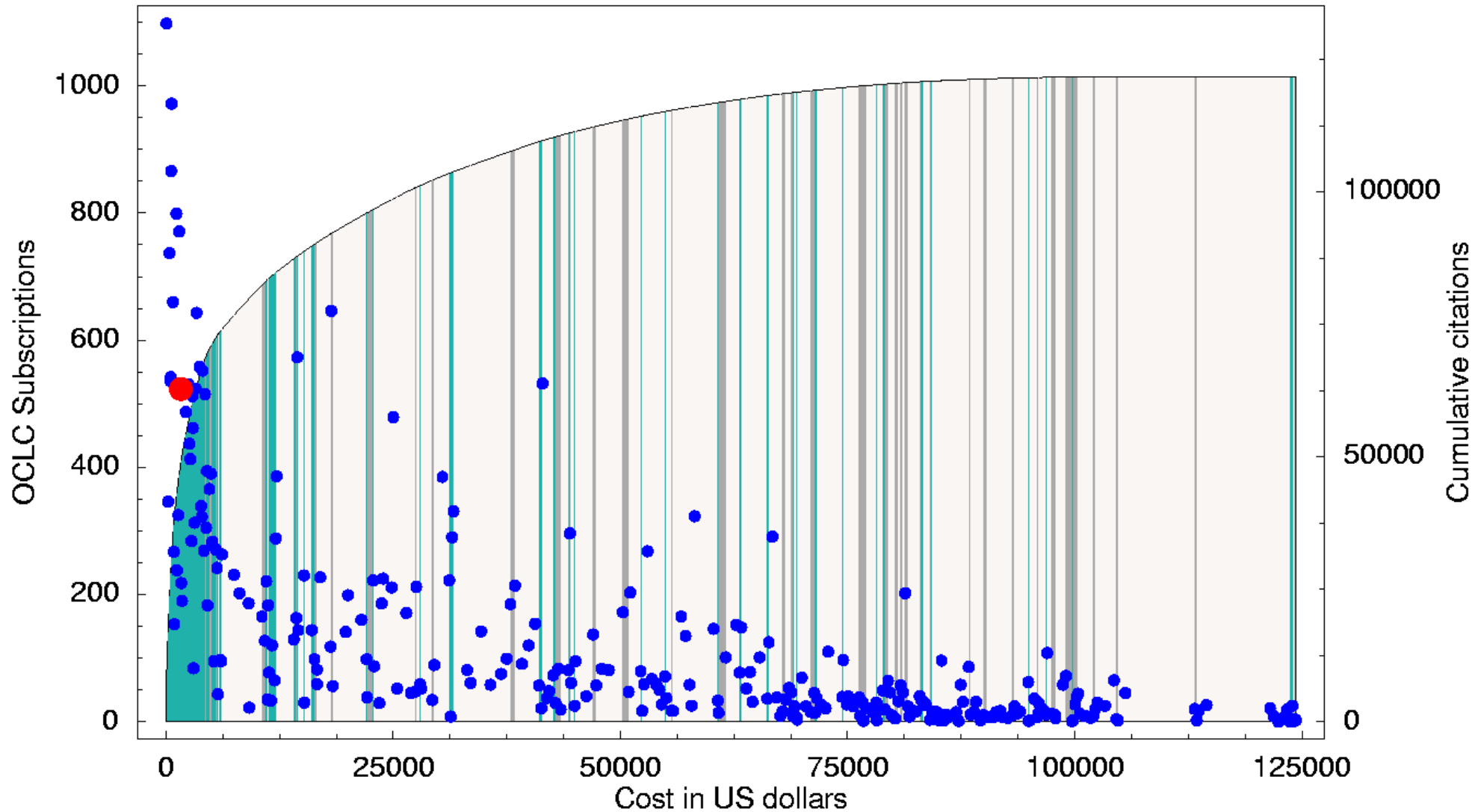
# Top 50 journals in science (by impact factor)



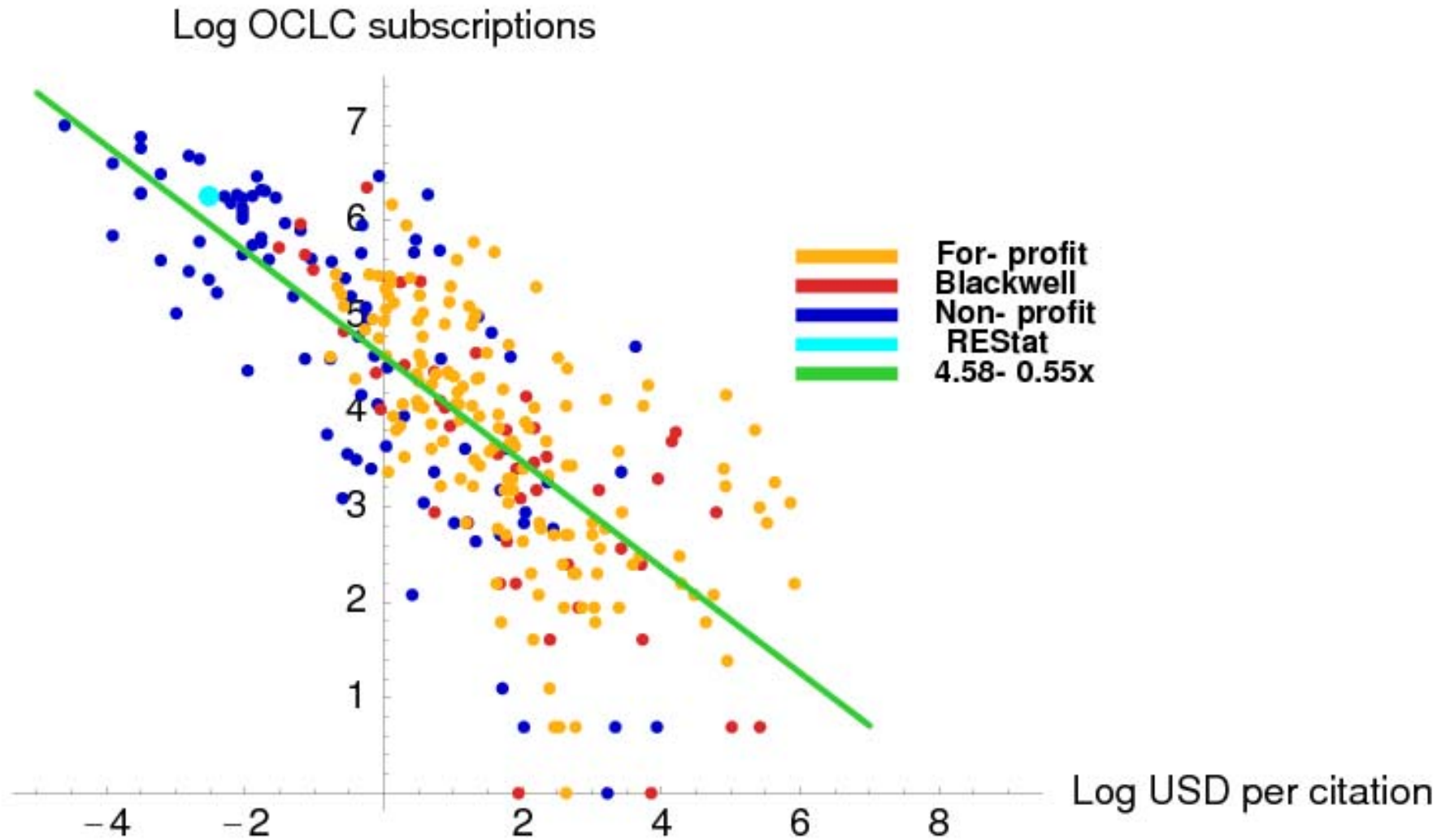
Pages

Citations

# Institutional subscriptions closely reflect price-per-citation



# Price elasticity of demand



# A seemingly backwards market

Many of the higher quality journals set prices near average cost.

Many of the lower quality journals set prices far above average cost.



Mercedes-Benz  
\$20,000

Ford Escort  
\$80,000

Why would anyone want a Ford Escort?

# Substitutes and complements

- From an author's perspective, journals are substitutes.
- But from a reader's perspective, academic journals are substitutes.

Spring 2005  
www.nature.com/nature

# nurture

the magazine for Nature authors

AUTHOR PROFILES • NATURE UNCOVERED • HOT PAPERS OF 2004 • LETTERS







**PLuS**

the journal for PLoS authors

# The economics of open access



# The flow of resources and money



# Pricing models

Reader-pays subscriptions



**Complements**

Author-pays open access



**Substitutes**

# A heterogeneous market

- Authors can choose author-pays or reader pays. They may shop around for lower page fees or switch to reader-pay journals.
- Exchange rate:

Dollars  Readers

# In a heterogeneous market we predict:

1. For-profit publishers are unlikely to embrace open access, because of the increased substitutability in this market. Societies that generate profits from journals may also hold back.
  2. Authors will only pay top-dollar to journals that are already established as coordination equilibria.
- **Entry** into the open-access market will be difficult.
  - **Conversion** to open-access is unlikely except for top non-profit journals.

More information:

<http://octavia.zoology.washington.edu/publishing/>