

Understanding acceptance delays in scientific publishing: Insights from 3.3 million articles

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Science is **plagued by a glacial pace** of publishing. However, a lack of transparency has made it difficult to target efforts aimed at improving efficiency. I use data science to leave publication delays nowhere to hide. My goal is to help researchers avoid excessive delays while replacing anecdote with evidence in the contemporary discussion of scientific publishing.

The period between submission and acceptance, termed the *acceptance delay* or *review time*, makes up the bulk of the time it takes to publish.

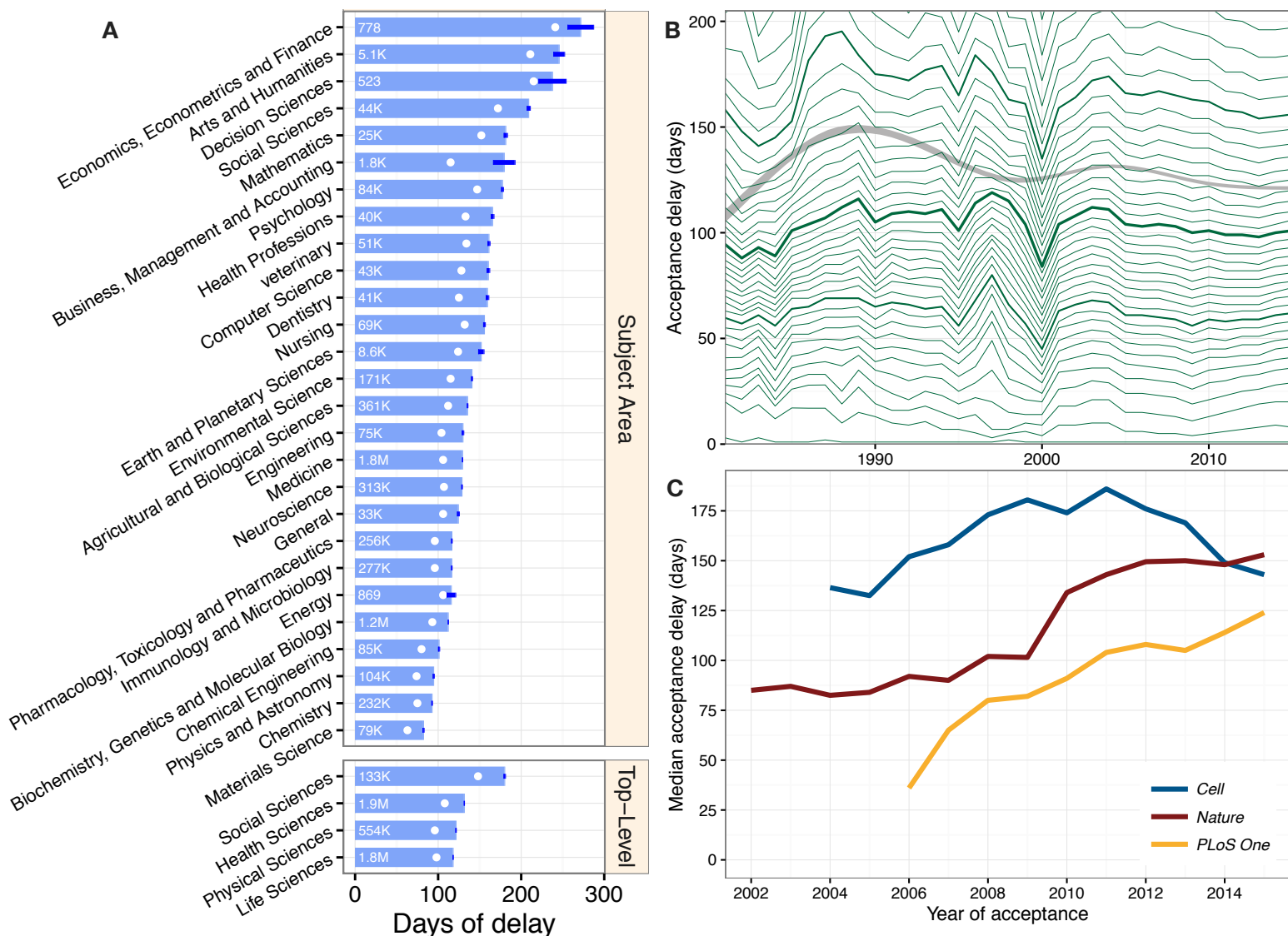
I compiled acceptance delays (days from submission to acceptance) for 3,330,333 articles in 4,722 journals over 51 years. Delays were extracted from PubMed where publishers deposit article history timestamps. My dataset is the largest to date: previous analyses looked at **428,500 articles in 3,301 journals over 1 year** and **2,700 articles in 135 journals over 7 years**.

In contrast to **common belief** that acceptance delays are increasing, the median has hovered around 100 days for the past 35 years (Figure B). However at the journal

level, delays often do change over time (Figure C). Average delays decreased at 21% and increased at 26% of journals by 5 or more days per year. I released two interactive features to explore journal specific delays: a **table of median delays** for recent articles at 3,482 journals and **delay plots** for 3,086 journals.

Delays vary considerably by field (Figure A). The average paper in an economics journal takes thrice the time to accept compared to chemistry. And life science enjoys ~50% faster acceptance than social science. The publisher also matters with average acceptance delays by publisher **ranging from 50–350 days**. Interestingly, average delays varied little by journal prestige.

The **code** and **data** for this project are publicly available and openly licensed. The dataset contains many untapped discoveries that will emerge from its intersection with other databases of article and journal attributes. I'm hoping ICSS 2016 will connect me other researchers to pave the way for further discovery and contribute to greater scientific efficiency for all.



A) Acceptance delays by Scopus journal category. For each category, the chart reports the per-article mean delay (bar) with a 99% confidence interval (error bar), median delay (dot), and number of articles (text). **B) 35 years of acceptance delays.** Green lines indicate delay percentiles, spaced every 2.5 points with quartiles bolded. The gray band estimates the mean delay over time. **C) Increasing delays at three popular journals in the last decade.**