

Macro Roundup Article

Headline: Dataset Artefacts are the Hidden Drivers of the Declining Disruptiveness in Science

Article Link: <https://arxiv.org/pdf/2402.14583.pdf>

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Tweet: Science is not getting less disruptive over time; an earlier finding that the pace of disruptiveness has slowed was the result of data errors.

Summary: Park reported a decline in the disruptiveness of scientific and technological knowledge over time. Their main finding is based on the computation of CD indices, a measure of disruption in citation networks, across almost 45 million papers and 3.9 million patents. Due to a factual plotting mistake, database entries with zero references were omitted in the CD index distributions, hiding a large number of outliers with a maximum CD index of one [most disruptive], while keeping them in the analysis. Our reanalysis shows that the reported decline in disruptiveness can be attributed to a relative decline of these database entries with zero references. Proper evaluation of the Monte-Carlo simulations reveals that, because of the preservation of the hidden outliers, even random citation behaviour replicates the observed decline in disruptiveness. Finally, while these papers and patents with supposedly zero references are the hidden drivers of the reported decline, their source documents predominantly do make references, exposing them as pure dataset artifacts.

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Primary Topic: Innovation/Research

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