



Vetenskapsrådet

Error margins for the field normalised citation rate

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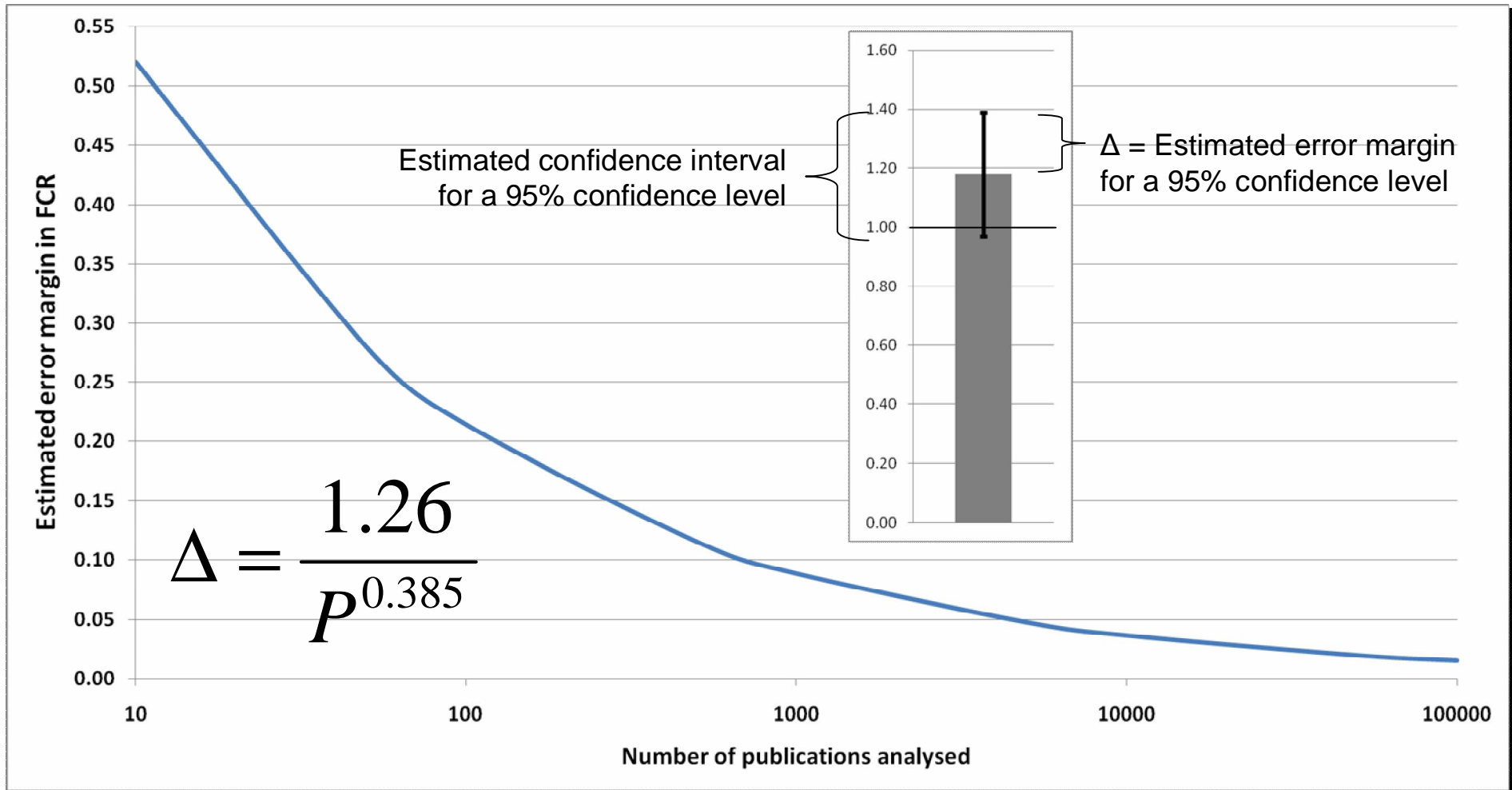
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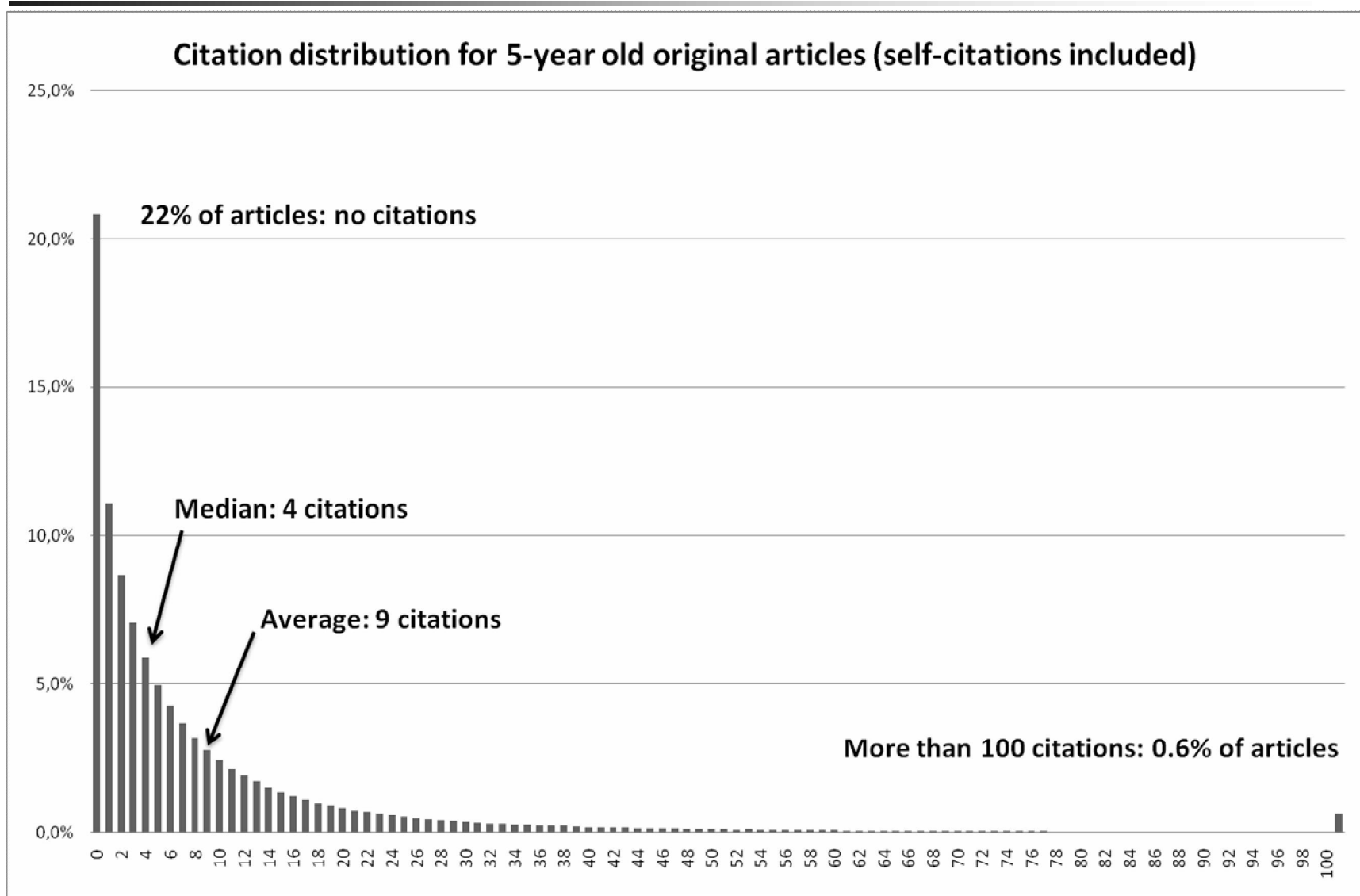
The bibliometric paradox

- n “Do not analyse groups with less than 50 publications”
 - n Too large statistical error margin – too low significance
- n Field normalised citation rates are usually given without any error margins
 - n Example: 100 publications analysed: citation rate 1.18
 - n Implies error margin < 0.005 ($< 0.5\%$)
- n The paradox
 - n Less than 50 publications: Too big error margin
 - n More than 50 publications: No indication of error margin!
- n The goal
 - n Find a model for the relation between the analysed number of records and the error margin

Result: Conservative estimated error margin in citation rate



Citation distribution



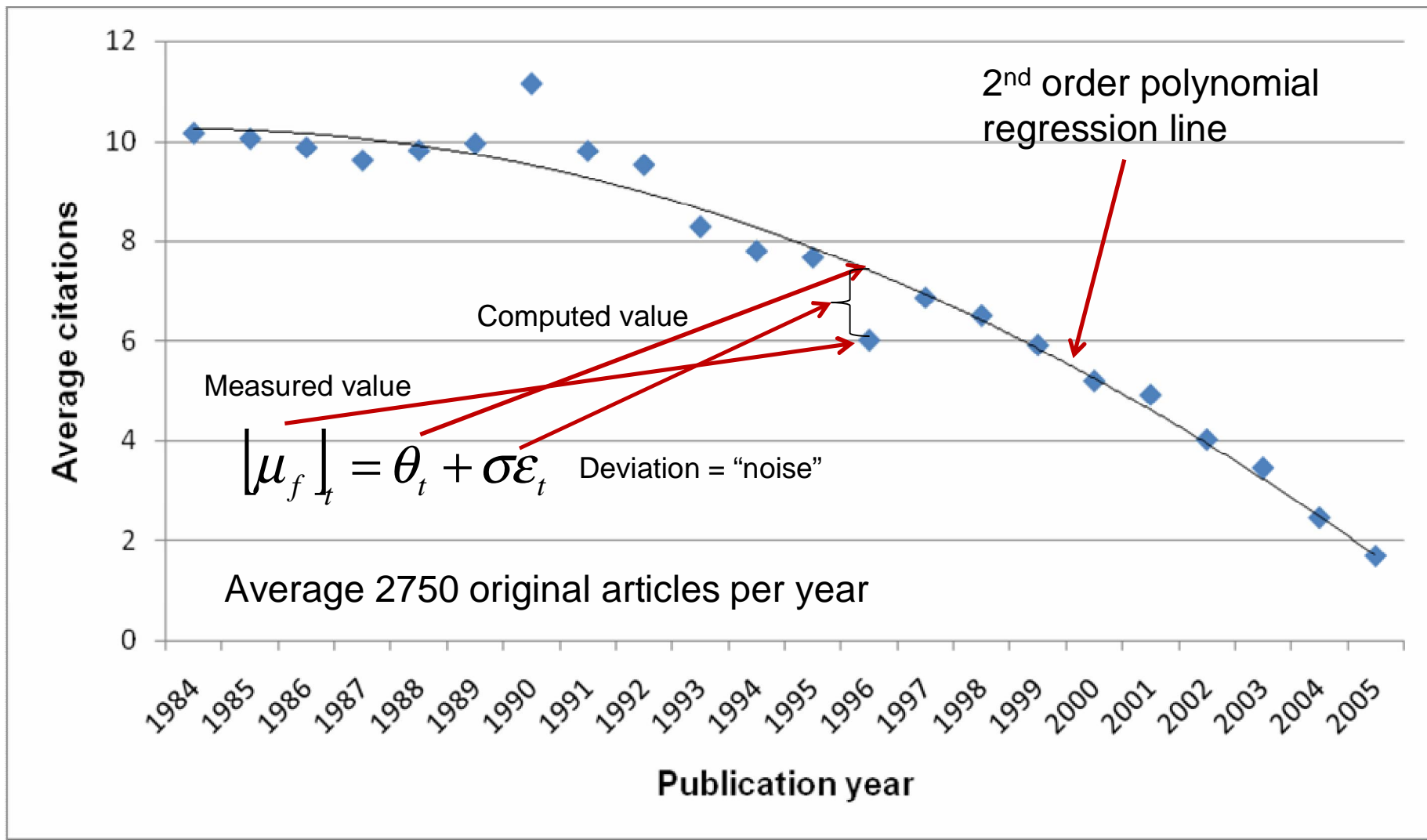
Assumption, precondition and hypothesis

- n A few highly cited articles generates variations in average citation rates
 - n Due to artefactual groupings in years and fields
- n These variations are not a part of what we want to interpret from bibliometric studies
 - n Can be considered as one source of “noise”
- n The size of the noise is dependent on the size of the analysed group of publications

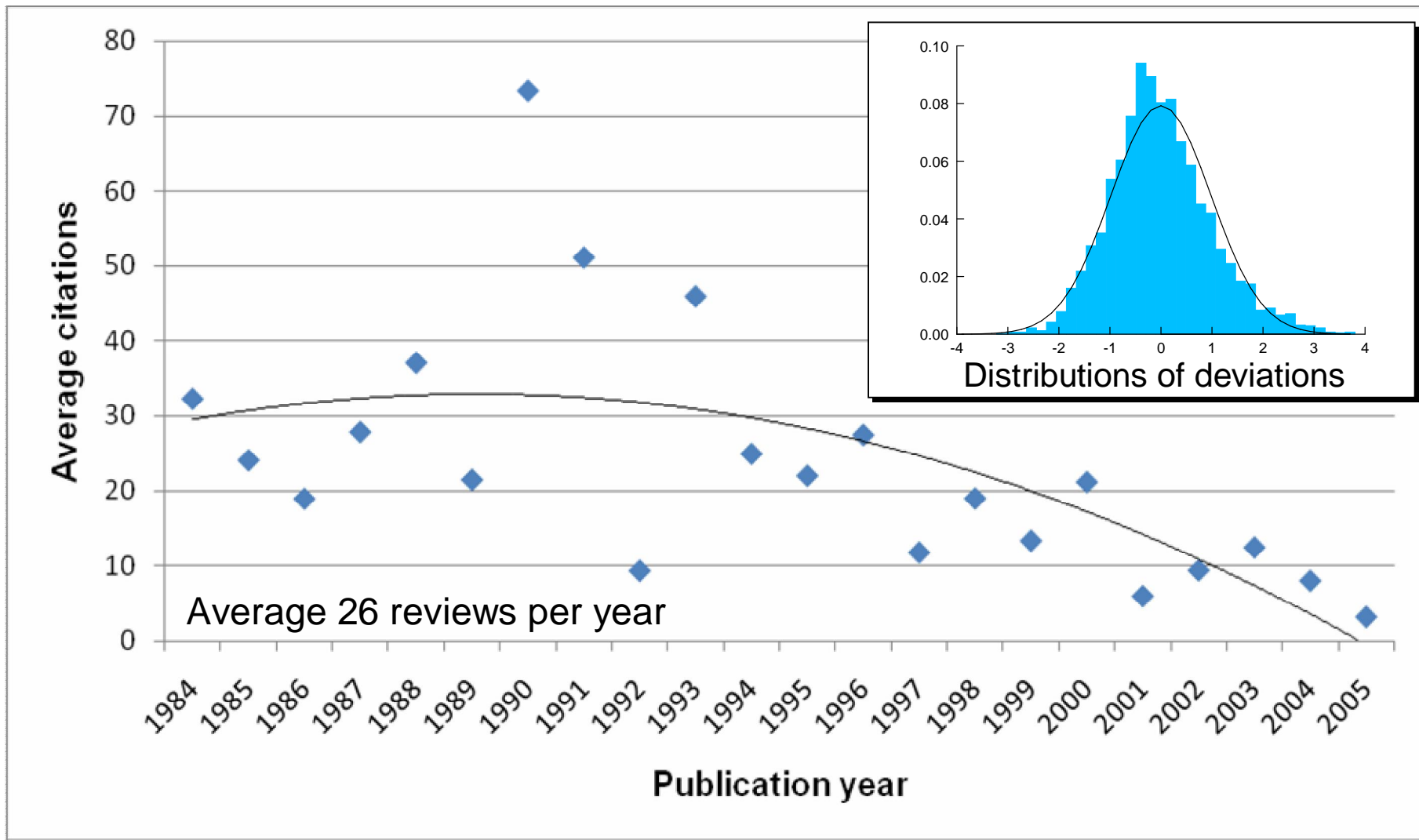
Method overview

1. Compute time-series of citation rates
2. Study yearly deviations from a trend line
3. Calculate error margins based on the deviations
4. Plot relation between publication counts and error margins

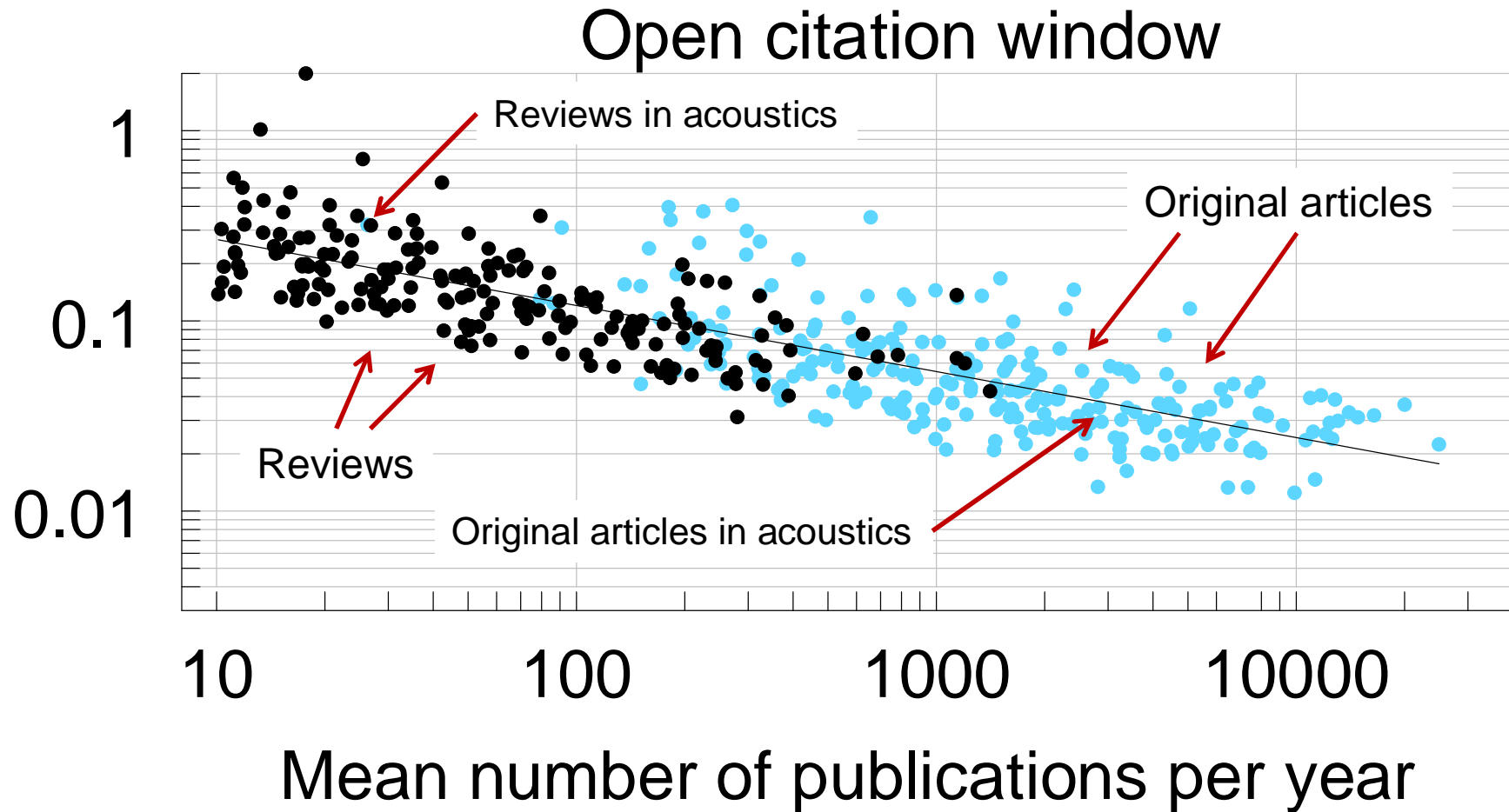
Yearly citation variations in acoustics



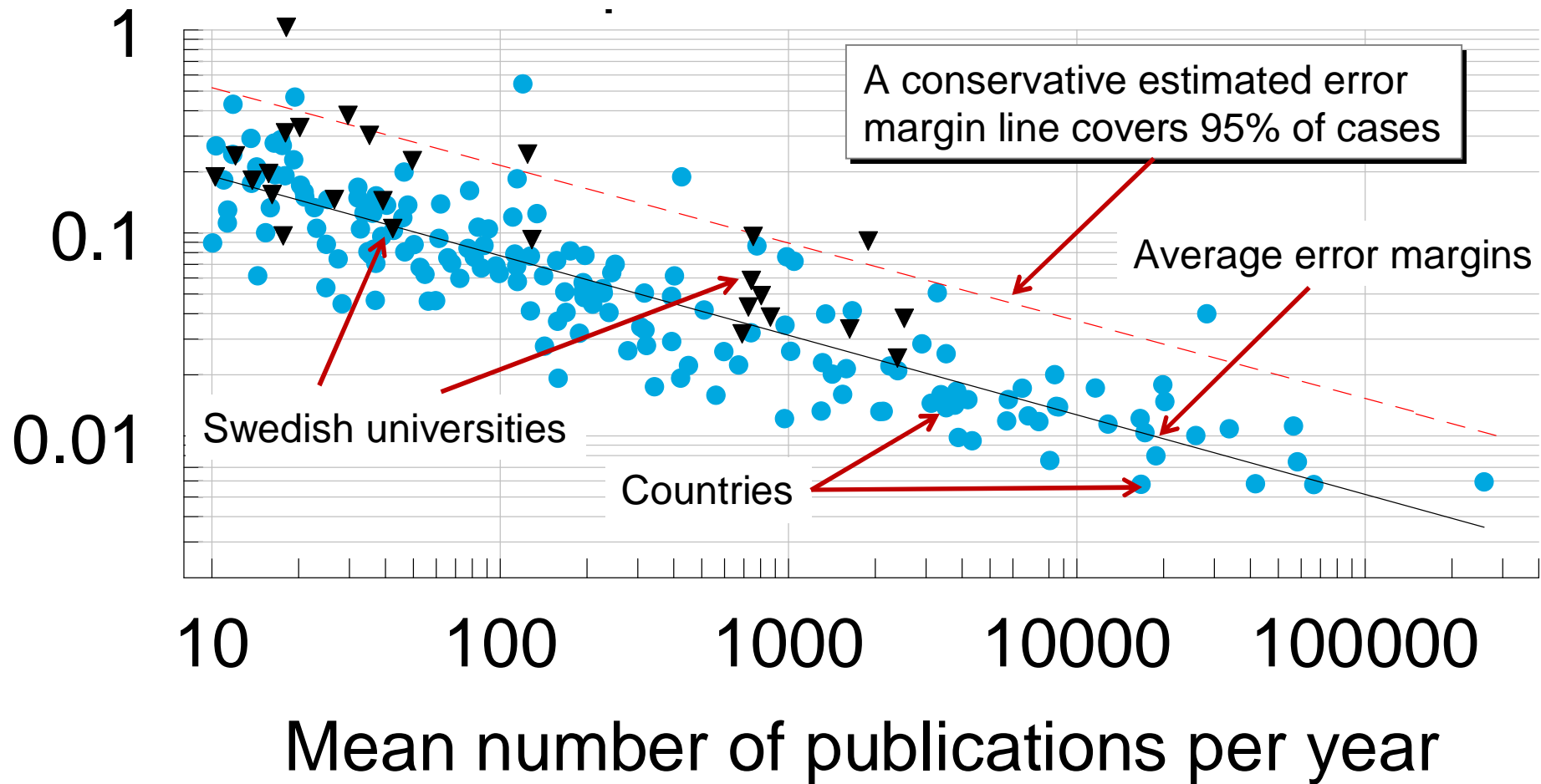
Citation time series for reviews in acoustics



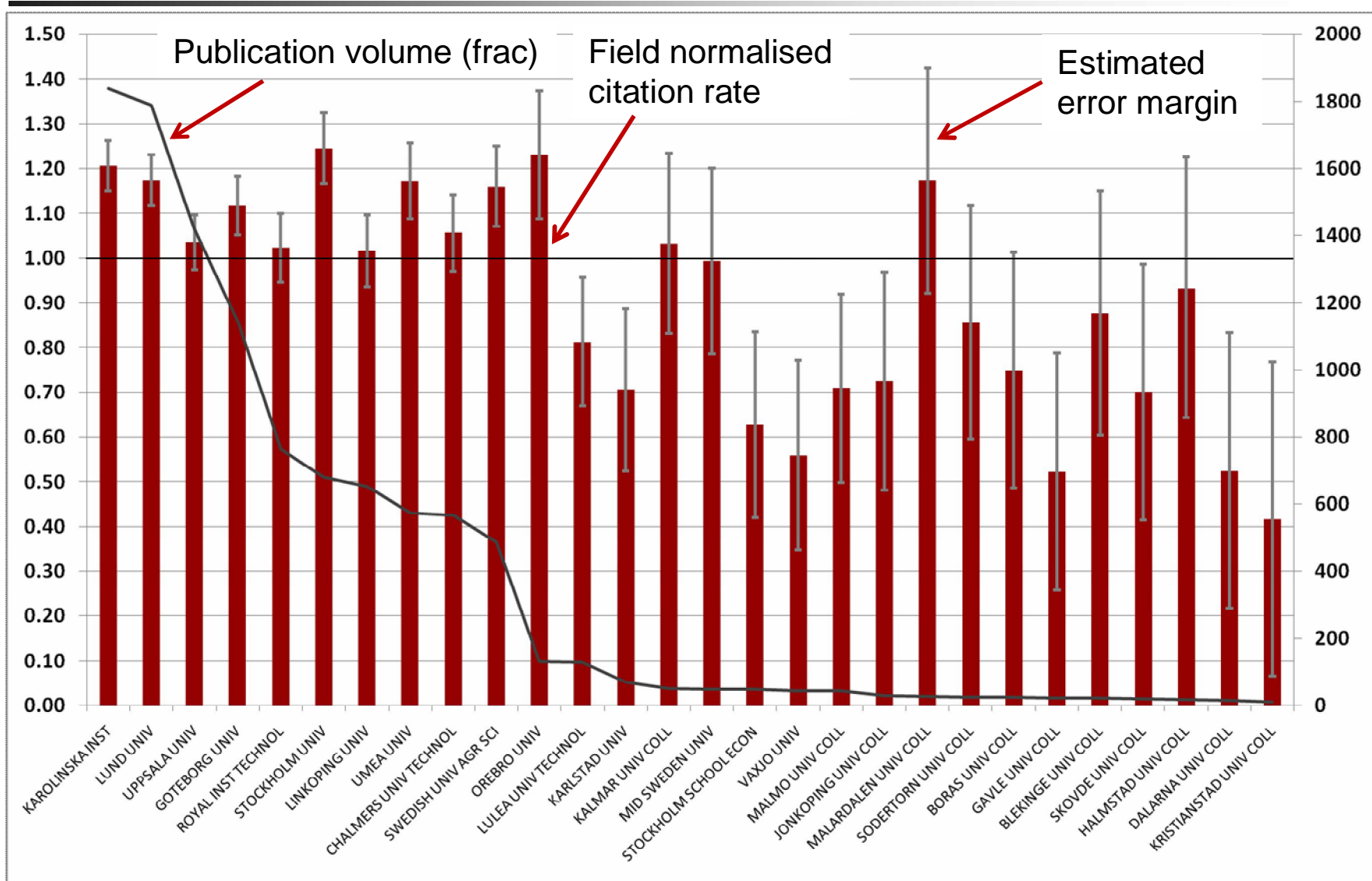
Error margins for time series of all fields



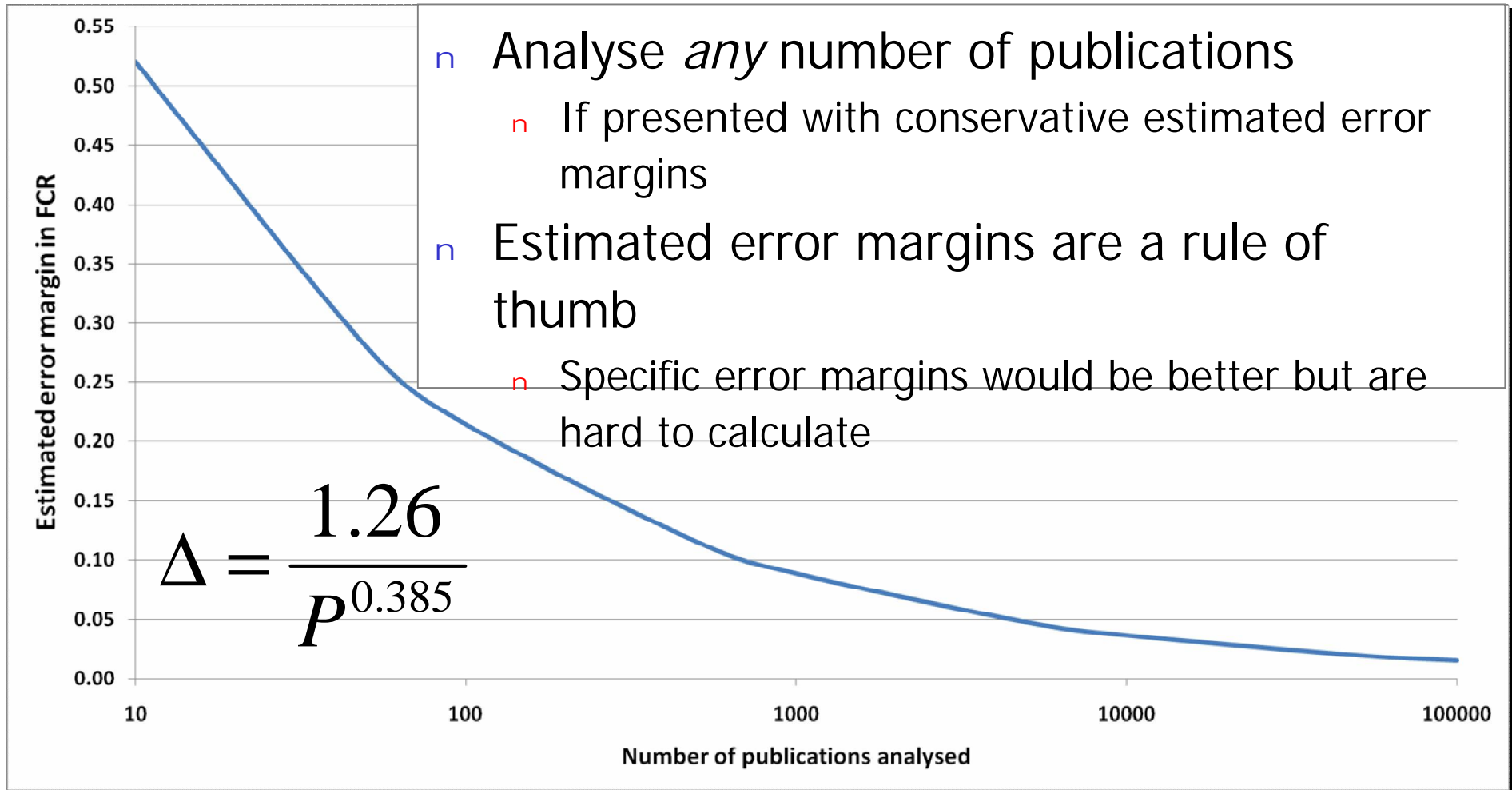
Estimated error margin in normalised citation rate



Results applied to a citation analysis



Conclusion: Conservative estimated error margin in citation rate





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Questions? Discussion!

Thank you for your attention!

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