

Scientometric Indicators

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- Impact Factor by Eugene Garfield (Advocator: Web of Science)
- CiteScore (Advocator: Scopus)
- H-Index by Georg Hirsch (Advocator: Scopus)
- 5h Index (Advocator: Google Scholar)

Journal Impact Factor

Definition:

$$IF = \frac{C}{P}$$

$$IF_i = \frac{\sum_{k=1}^n C_{k,i}}{P_i}$$

IF: IF of journal in 2006

P : number of substantive articles published in 2004-05

C : number of citations made in year 2006 to articles published in 2004-05

Garfield E. *JAMA* 2006;295; 90-3

CiteScore



$$\text{CiteScore 2016} = \frac{\text{Citations in 2016}}{\text{Number of documents published in 3 years}}$$

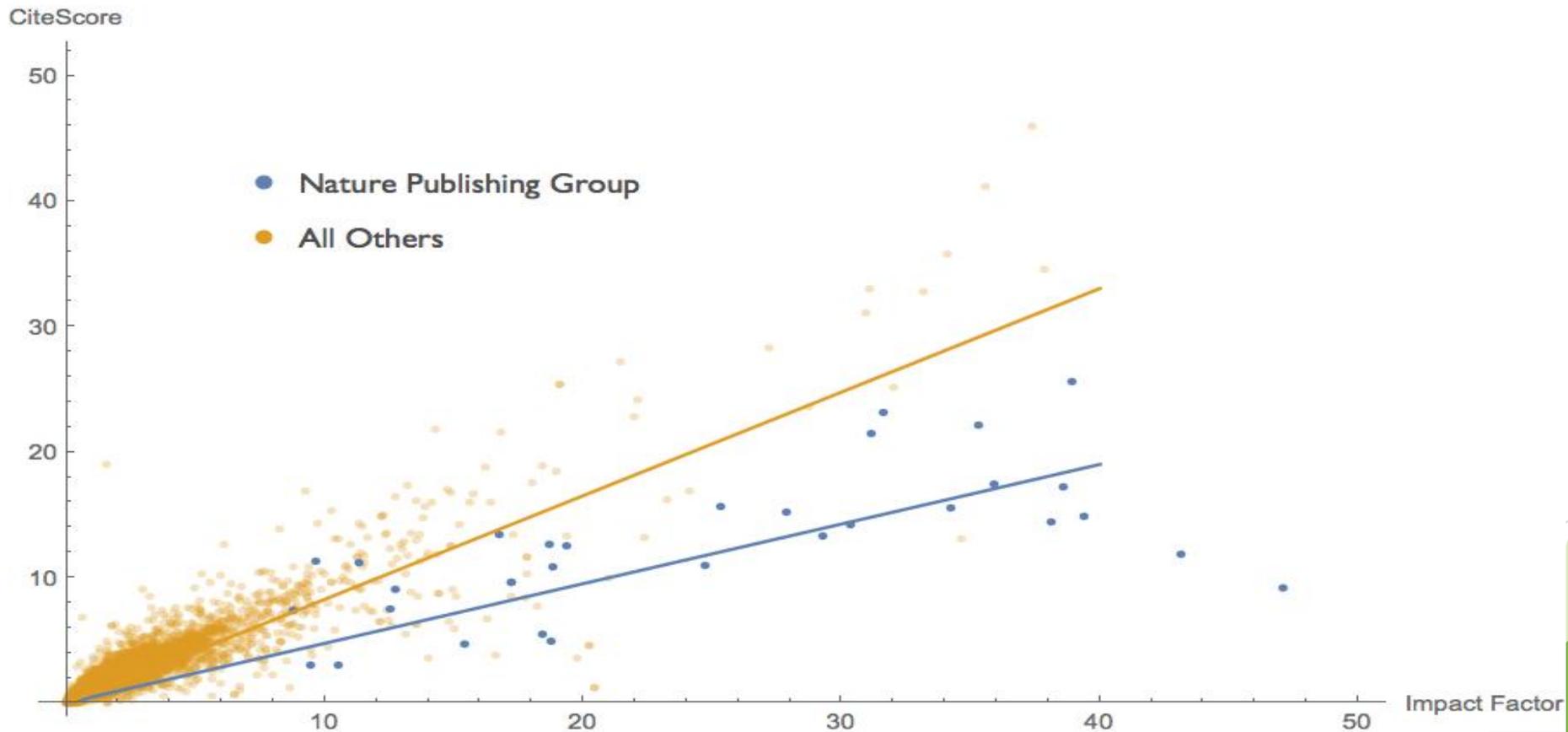
For example, the 2016 CiteScore counts the citations received in 2016 to documents published in 2013, 2014 or 2015, and divides this by the number of documents indexed in Scopus published in 2013, 2014 and 2015.

What is included in CiteScore Calculations?

- ▶ CiteScore's numerator and denominator both include all document types. **This not only includes articles and reviews but also letters, notes, editorials, conference papers and other types indexed by Scopus.**
- ▶ **Articles-in-press are indexed in Scopus** for some publishers, but are not included in the CiteScore calculation.
- ▶ CiteScore is intended as an alternative to the popular Thomson-Reuters (now Clarivate Analytics) Impact Factor.

Comparing Impact Factor and Scopus CiteScore

- ▶ The scatterplot below shows the 60 highest-scoring journals (listed in both Scopus and the JCR) according to CiteScore ranking. On the horizontal axis is Impact Factor; on the vertical axis is CiteScore.

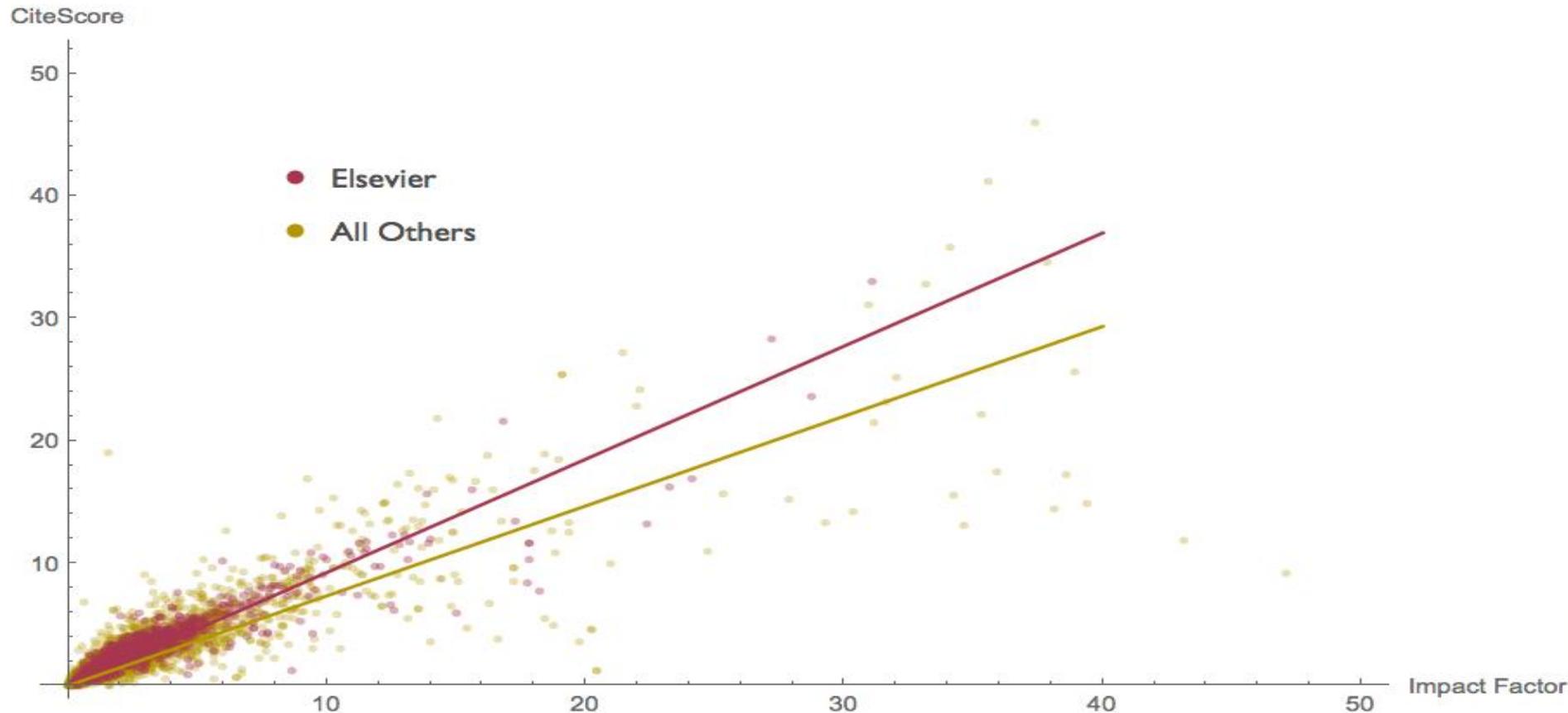


Why are the *Nature* journals faring so poorly according to CiteScore?

- ▶ The biggest contributing factor is the CiteScore counts all items, including news items, editorials, and other front matter, as "citable" and thus including in the denominator of the CiteScore calculation. In practice, this front material is seldom cited and so rarely contributes substantively to the numerator. Because the *Nature* journals produce much more of this front material than the other journals in the top 60, their scores are highly diluted.

Effect on Elsevier journals

- ▶ Below we have another scatterplot of our 9527 journals, this time showing Elsevier journals compared to all other journals.



Is the CiteScore metric fair?

- ▶ A metric cannot really be said to be *fair* or *unfair*; it is either well-suited or not well-suited to a particular purpose. So what one really means with a question like this is something like "Is the CiteScore metric well-suited for evaluating journal quality and prestige?"

The Gap

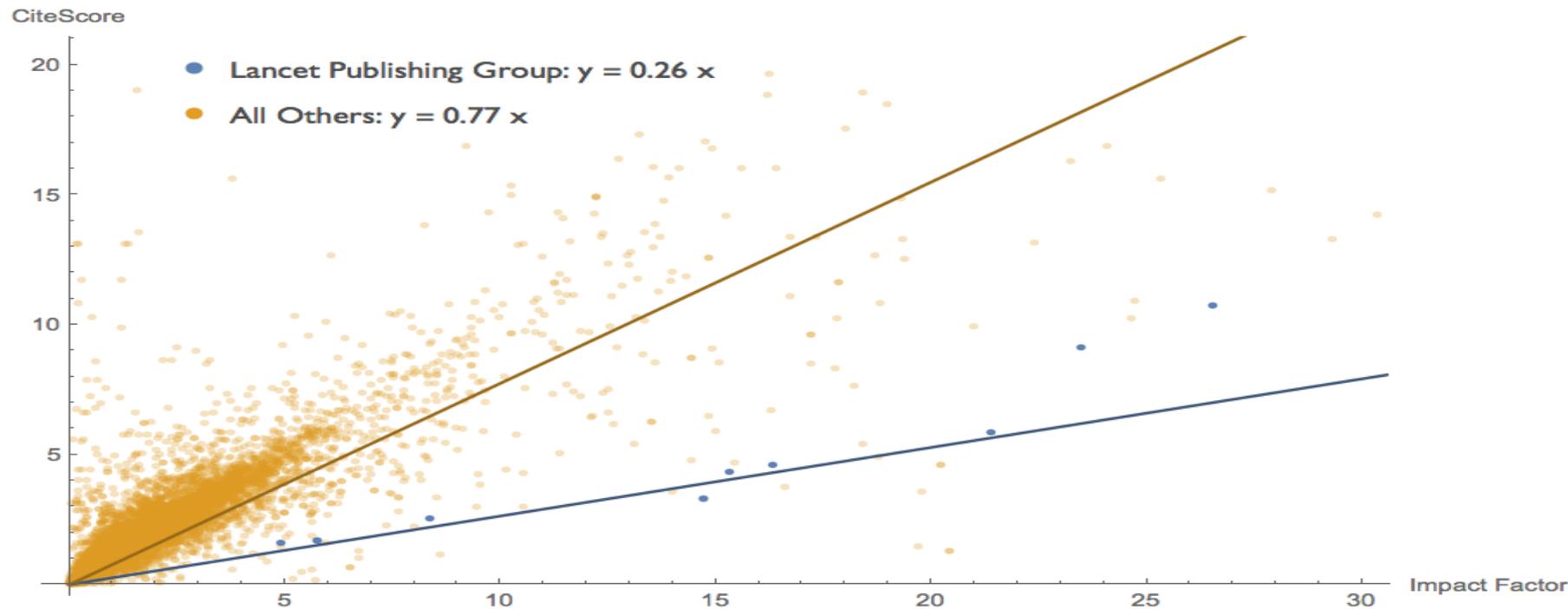
- ▶ Is it reasonable to say that a journal with 120 news stories and 24 articles a year is the same size as a journal with 144 articles a year?
- ▶ One publishes two articles a month, one twelve. Rather than equating front matter and regular articles, Garfield chose to normalize by the part of the journal that receives most citations and takes up most of the pages in a volume. For his original purpose, this choice seems sensible.

How do journal *rankings* change as one moves from Impact Factor to CiteScore?

- ▶ We have found that Elsevier journals receive a boost from the CiteScore metric relative to the Impact Factor. This does not imply that Elsevier has cheated, fudged the data, acted dishonorably, or anything of the sort. As we mentioned above, we have no reason to think that Elsevier is doing anything other than accurately calculating the metric that they have selected. Moreover, while Elsevier journals fare well under the CiteScore metric, the journals of some other publishers — most notably Annual Reviews, IEEE, and Emerald — fare better still.

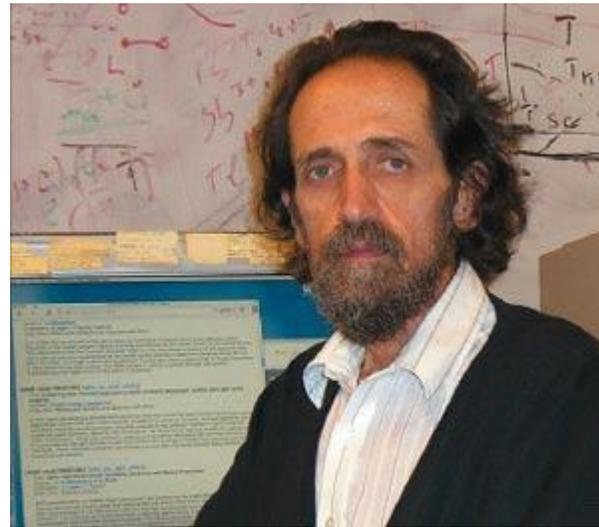
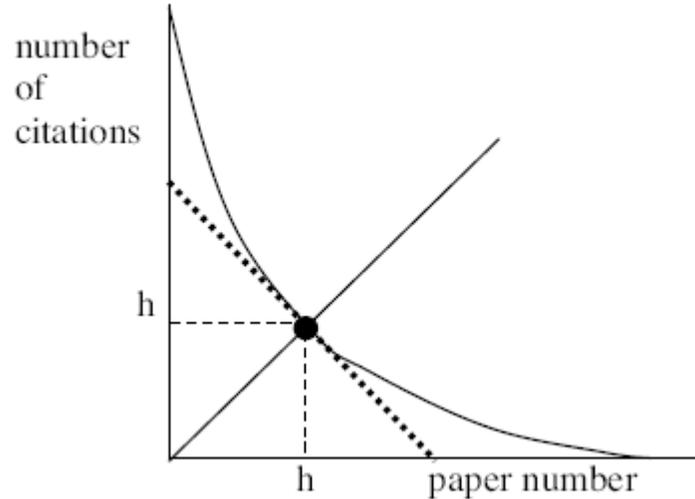
Lancet Publishing Group

- ▶ We want to stress that *Elsevier's new CiteScore metric substantially undervalues their own Lancet family of journals relative to Impact Factor*. Once the *Lancet* family of journals are assigned to Elsevier, our linear regression model reveals that Elsevier receives "only" a 12% boost relative to all other journals in the dataset from the use of CiteScore instead of Impact Factor.



H-Index

The definition of the index is that a scholar with an index of h has published h papers each of which has been cited in other papers at least h times, and the other $(N_p - h)$ papers have no more than h citations each.



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Analyze documents published between: 2010 to 2018

Exclude self citations Exclude citations from books

Update Graph

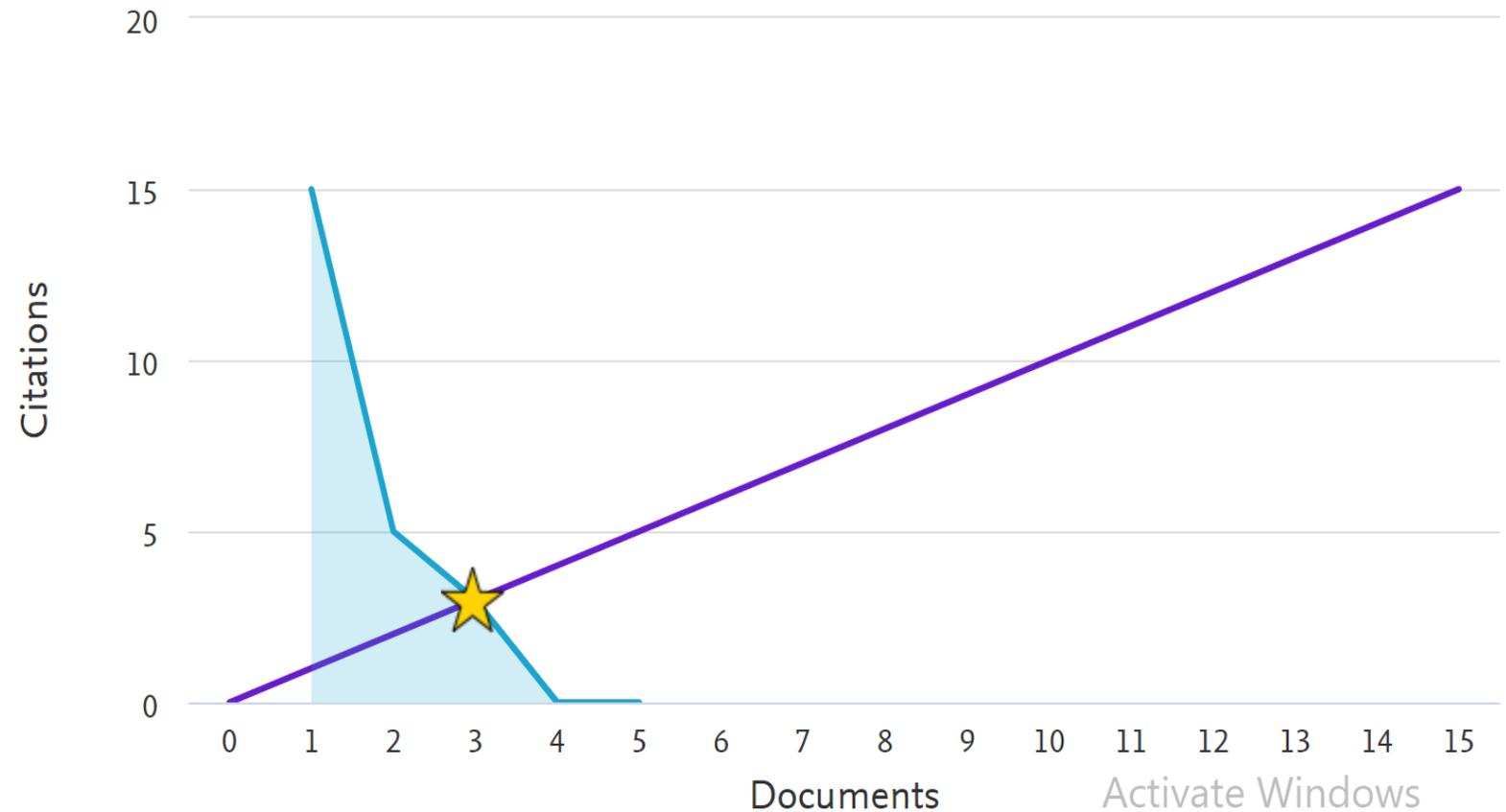
Documents ↓ Citations ↓ Title ↓

1	15	Students' readine...
2	5	Lived Experiences...
3	3	The impact of self...
5	0	Compassionate C...
4	0	Compassionate c...

This author's h -index

3

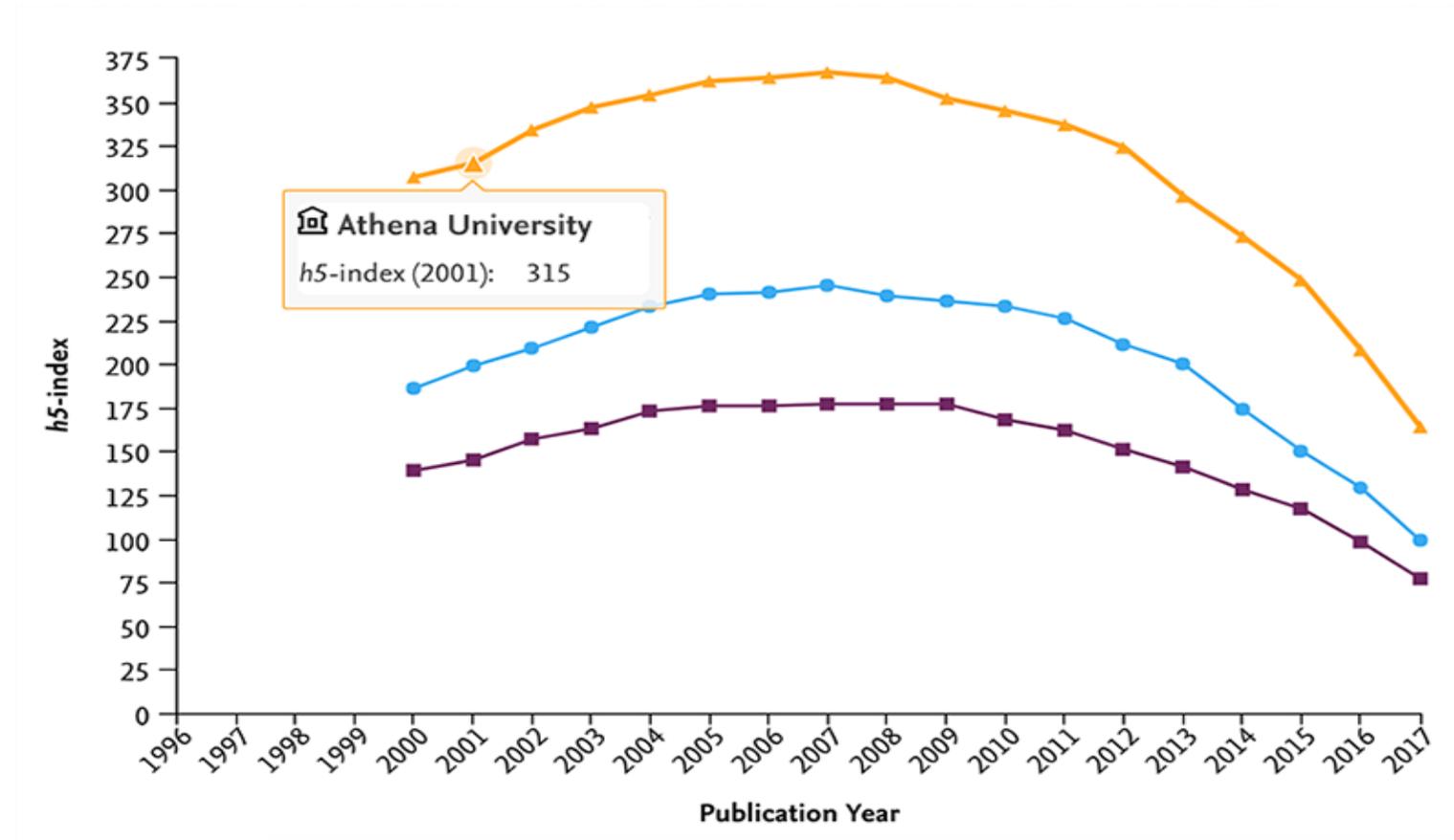
The h -index is based upon the number of documents and number of citations.



Google Scholar Metrics

- ▶ The **h-index** of a publication is the largest number h such that at least h articles in that publication were cited at least h times each. For example, a publication with five articles cited by, respectively, 17, 9, 6, 3, and 2, has the h-index of 3.
- ▶ The **h5-index** of a publication is the h-index of only those of its articles that were published in the last five complete calendar years. It is the largest number h such that h articles published in 2007-2011 have at least h citations each.

When selecting 2016, the h5-index will be for 2012-2016. It is an established index which will be available for Institutions and Researchers, and can be filtered by subject areas.



The h5-index for Athena University in 2001 is 315, which is based upon the publications data (1997-2001)

Calculating journal h-index using Google Scholar Metrics

The Google Scholar h5-index is based on a five year publication window, 2013-2017. To calculate h-index based on a different range of years use Harzing's Publish or Perish.

If your journal title does not appear:

- Try alternate spellings.
- Journal may not be indexed by Google Scholar.
- Records for the journal may be present in Google Scholar, but the h-index may not have been automatically calculated (e.g. where there are fewer than a hundred articles in the five-year period). In this case [Publish or Perish](#) can be used to calculate the h-index.

تفاوت در شاخص های H محاسبه شده در پایگاه های مختلف

▶ **تفاوت در بازه زمانی انتشار مقالات برای محاسبه شاخص H:** از آن جایی که پایگاه اسکوپوس برای محاسبه شاخص H، مقالات فهرست شده از سال های ۱۹۹۵ به بعد این پایگاه را مد نظر قرار می دهد، عملاً مقالاتی که قبل از این سال منتشر شده اند، نادیده گرفته می شوند. حال آنکه ممکن است همان مقالات به دفعات مورد استناد قرار گرفته باشند. بنابراین اثر این تفاوت بیشتر در پایگاه اسکوپوس خود را نشان می دهد.

▶ **تفاوت در پوشش مقالات:** گاهی ممکن است یک مقاله به دلایل مختلفی در یک پایگاه ثبت نشده باشد. البته اثر این تفاوت معمولاً زیاد نیست. به علاوه شما می توانید با امکاناتی که در Scopus و WOS وجود دارد، تقاضای تغییرات در مقاله های خود را بدهید. بدین ترتیب این پایگاه ها پس از بررسی، مقالات و یا تعداد استناد های مد نظر شما را کم و یا زیاد خواهند کرد.

▶ **تفاوت در تعداد مقالات و مشابهت های اسمی:** در پایگاه های Scopus و WOS هر نویسنده برای خود یک صفحه دارد و کلیه اطلاعات مربوط به وی در آن ثبت می شود به طوری که احتمال جابجایی تحقیقات پژوهشگران به صفر تمایل می کند. از طرفی هر مقاله منتشر شده تنها یک بار در این پایگاه ها ثبت می شوند. حال آنکه در گوگل اسکولار اینگونه نیست. در صورت وجود مشابهت اسمی، امکان تداخل وجود دارد و این گاهی باعث ایجاد تفاوت در نتایج می شود. همچنین ممکن است یک مقاله دو یا چند بار در اسکولار فهرست شده باشد. این امر در شرایط خاص می تواند باعث افزایش و یا کاهش کاذب شاخص H شود.

References

- ▶ <https://scholar.google.com/intl/en/scholar/metrics.html#metrics>
- ▶ https://www.researchgate.net/post/What_is_h5-index_for_a_scientific_Journal
- ▶ <https://guides.library.unisa.edu.au/c.php?g=169983&p=1119055>
- ▶ <https://www.sku.ac.ir/Office/RM/Page/44/H-Index-%DA%86%DB%8C%D8%B3%D8%AA%D8%9F>