



One more time

measuring national performance

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Aksnes & Sivertsen 2003

- The problem: How to measure overall citations rates for countries?
- Different methods were analysed
- They proposed a relative citation index based on NSI field categories (method B)

Method B

- Using The NSI-Standard (24 field categories).
- Basic principle: Weighting method
 - 1) Calculate the relative citation index for each field
 - 2) Calculate each field's share of the country's total article production.
 - 3) Calculate total

Method B -

Relative citation index Field 1 X Field 1's share of the country's articles

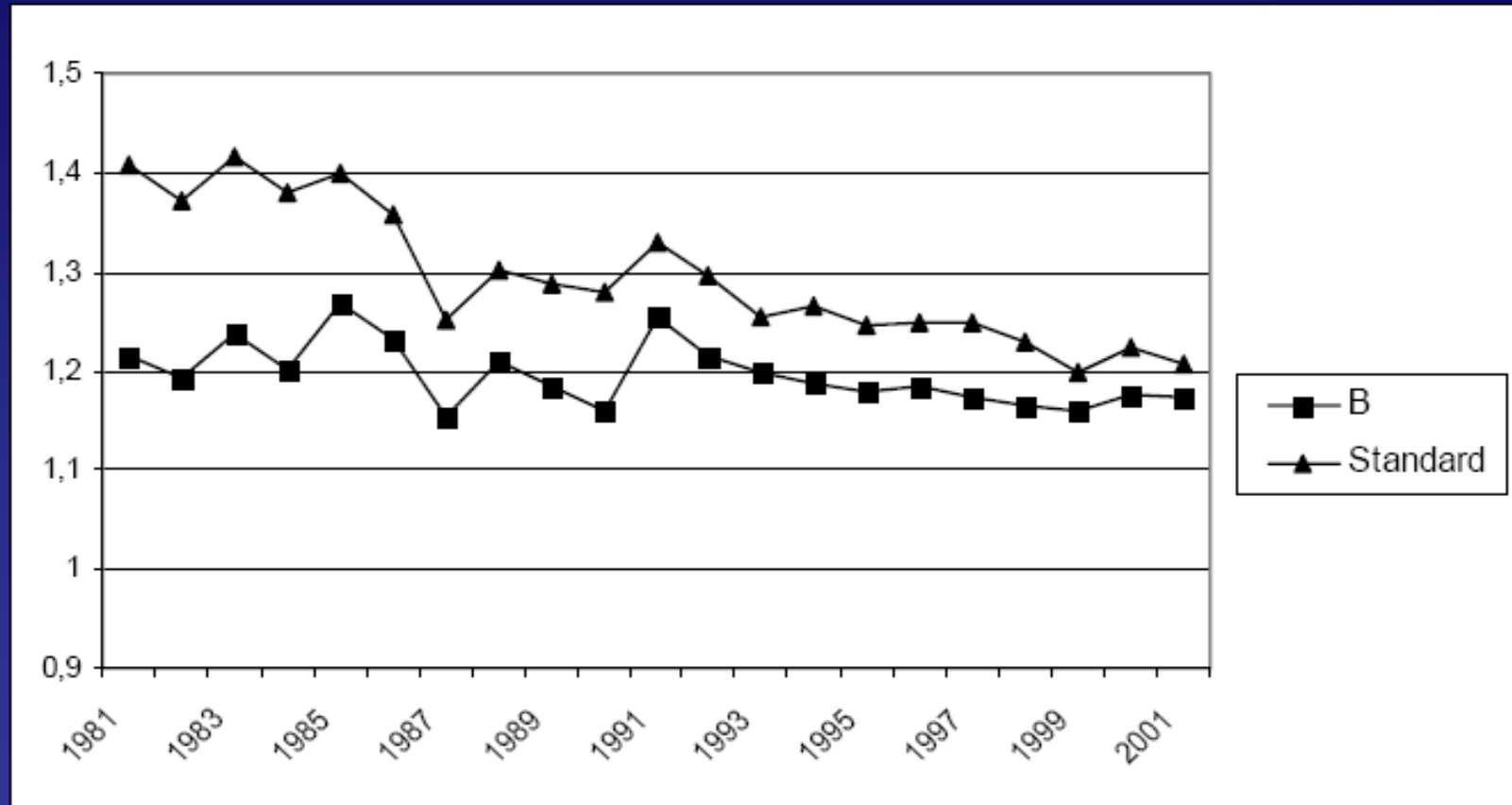
+ Relative citation index Field 2 X Field 2's share of the country's articles

+ Relative citation index Field 3 X Field 3's share of the country's articles

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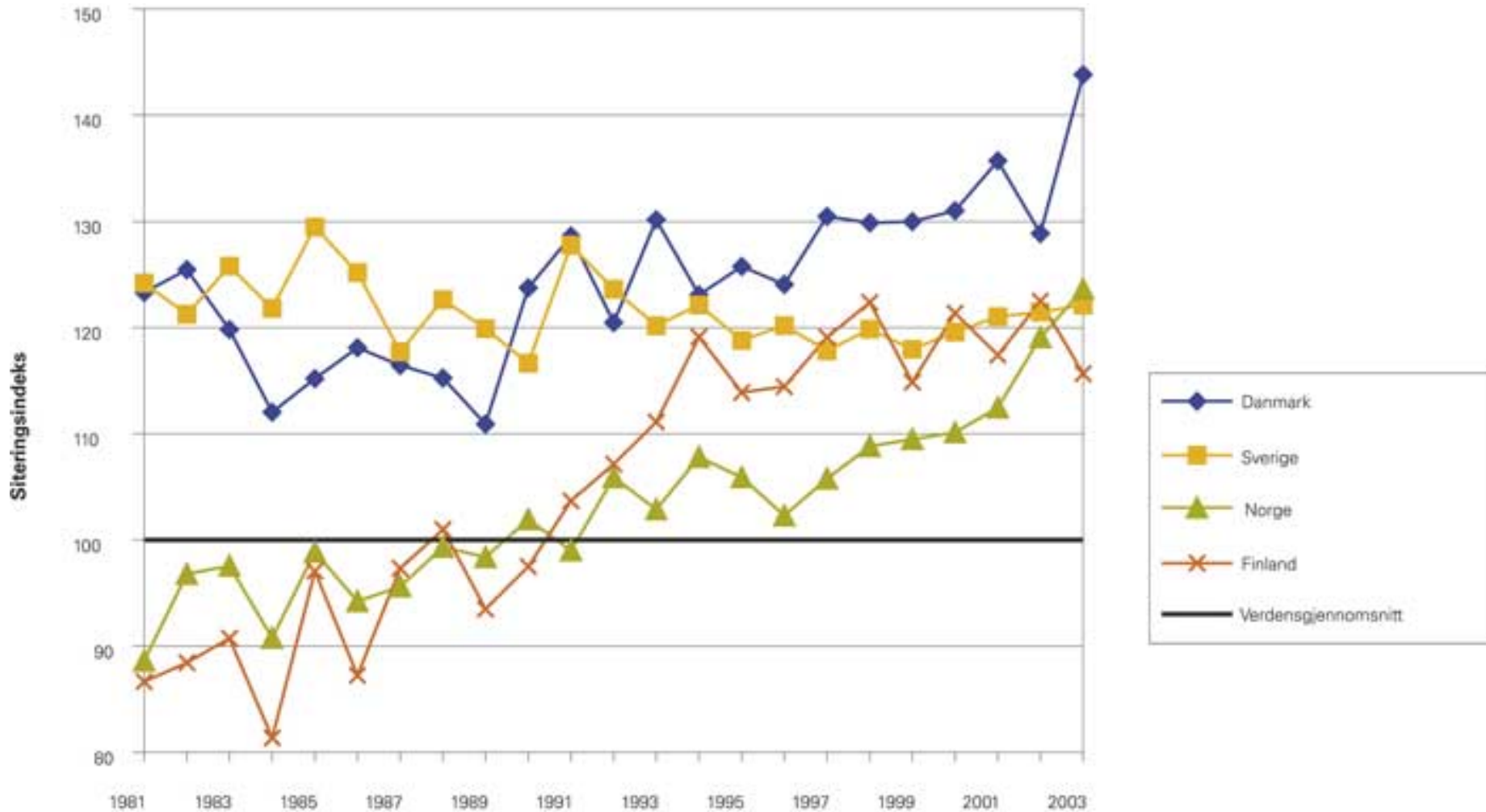
= Overall relative citation index for the country

SWEDEN: Relative citation index (1-year periods)



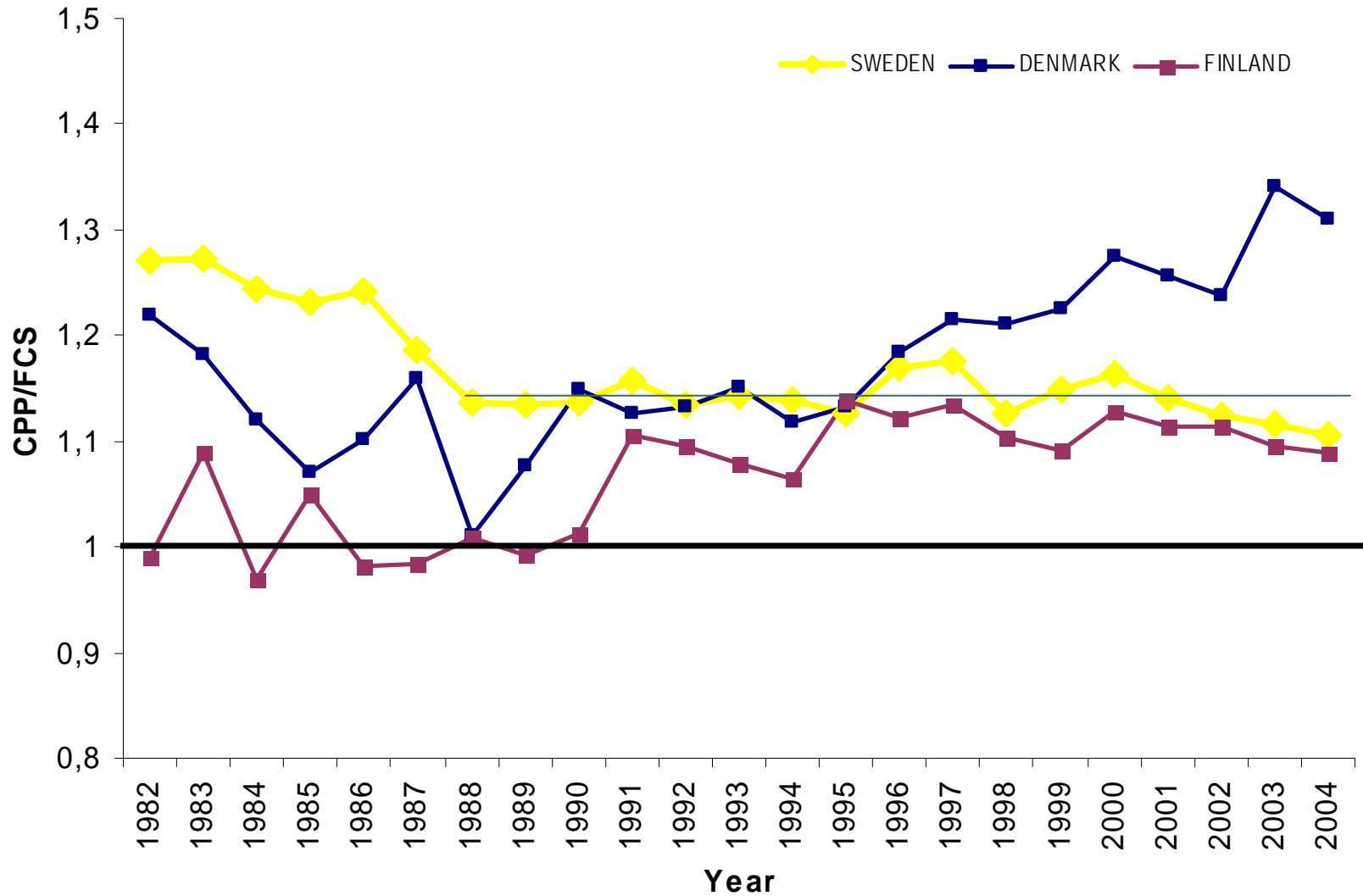
NIFU/STEP version 2005

Source: NIFU STEP / ISI, National Science Indicators



What happens if we apply strict normalization - e.g. the Leiden method?

[FRAC_CPP/FCS₂ Source: Web of Science VR database]



Differences in no. of articles

NIS

	NIS DEN	NIS FIN	NIS NOR	NIS SWE
2000	7615	7210	4739	14550
2001	7806	7500	5019	15448
2002	7555	7277	4956	14977
2003	8392	7827	5413	15781

WOS full

	DENMARK	FINLAND	NORWAY	SWEDEN
2000	8161	7659	5057	15650
2001	8232	7879	5350	16060
2002	8172	7849	5304	16189
2003	8511	7988	5467	16013

Web of Science – minus - AHCI



Methodological differences

- We have the full Web of Science (SClexpanded etc.)
- We use the Leiden method with 2-3 yr citation window vs. RCI
- Articles, notes, letters, reviews vs. What is included in NIS?
- Full counts vs. fractional counts



Some basics on the Leiden method

...in our interpretation



How we measure...

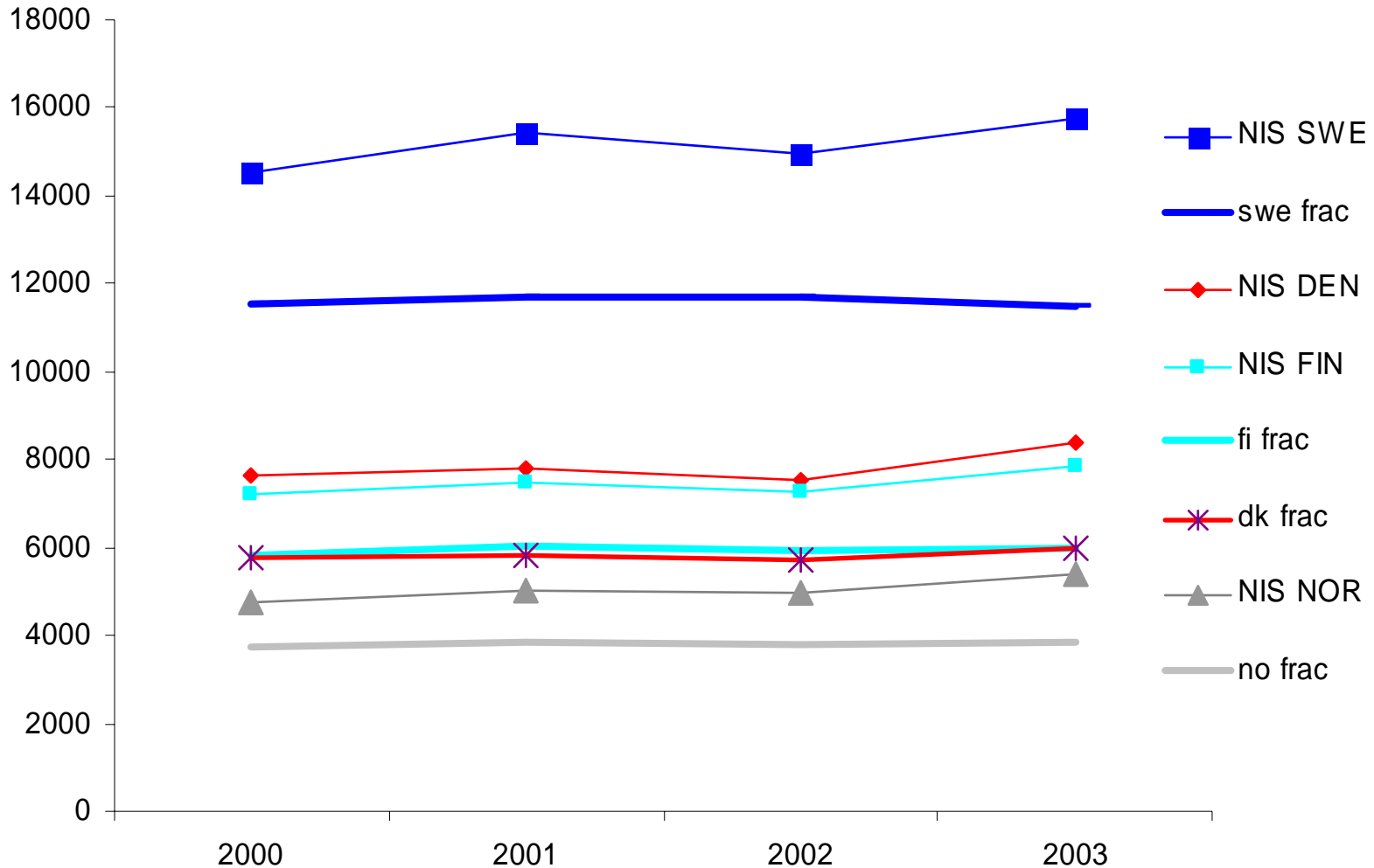
- Articles, letters, notes and reviews
- Calculate a specific JCS_m and FCS_m each year and for each type of publication
- Actual citations (CPP) in relation to JCS and FCS
- Fractional counts ...



Fractional counts

- International collaboration is a central characteristic of science today
- Without fractional counts articles will be double counted when more than one country is involved
- The effect is approx. 10 percentage units when we calculate CPP/FCS

Effect of fractionalisation





Conclusion

- There are flaws in the Norwegian method and data have some small limitations
- The Leiden method offers an interesting alternative
- Sweden is stable and better than bibliometricians have thought for quite some time!
- But, how to explain Danish excellence?



How to explain Denmark in relation to Sweden

- Some preliminary points for discussion
- Three factors of importance:
 - 1. Transformation factor
 - 2. Concentration factor
 - 3. External financing factor