Discussion of

E. Han Kim, Adair Morse, and Luigi Zingales’

ARE ELITE UNIVERSITIES LOOSING THEIR COMPETITIVE EDGE?

by

Antonio Ciccone
ICREA-Universitat Pompeu Fabra
Co-authoring across differently-ranked universities on the rise

Among all articles published in the top 41 journals written by scholars residing at a top 25 school, the percentage of co-authored papers with colleagues in a non-elite school nearly doubled, from about 32\% in the beginning of the 1970s to 61\% by 2004, …

The study assigns \( \frac{1}{\text{coauthors}} \) of an articles’ impact to each co-author.
How could this be affecting the findings?

Two (ex-ante identical) Professors:
- Prof A
- Prof B

Two Universities:
- U of H
- U of L

Two decades:
- 1970s/before (no co-authoring; high cost?)
- 1990s/after (there is co-authoring; due to better ICT or more specialization because of fishing-out effects)
The effect of more co-authorship

**NO CO-AUTHORING (BEFORE/1970s)**

- Prof A @ U of H
  - 2 articles with impact H
- Prof B @ U of L
  - 2 articles with impact L

**DIFFERENCE IN IMPACT**

\[ 2H - 2L = (H-L)^2 \]
The effect of more co-authorship

WITH SOME CO-AUTHORING (AFTER/1990s)

Prof A at U of H

• 1 article with impact $H$
• co-authored projects with total impact $X$

Prof B at U of L

• 1 article with impact $L$
• co-authored projects with total impact $X$

**MEASURED DIFFERENCE IN IMPACT**

$$(H + X/2) - (L + X/2) = H - L$$
They will co-author if

\[ \text{CreditA} = aX > H \]
\[ \text{CreditB} = (1-a)X > L \]

If \( a = \frac{H}{L+H} \), equivalent to \( X > H + L \)
“True” difference in impact if

CreditA=ContributionA
CreditB=ContributionB

“TRUE” IMPACT DIFFERENCE =

\[(H+aX) - (L+(1-a)X) = (H-L) + (2a-1)X = (H-L) + \frac{(H-L)[X/(H+L)]}{H-L} > (H-L)^2\]
Hence, co-authoring between U of H & U of L

- reduces measured difference in impact between U of H & U of L
- increases true difference in impact
Sauer’s 1988 JPE (1/coauthors) finding using 9-month salaries

- \[
  \log(\text{salary})_i = \alpha \ast (\text{impact single-authored papers})_i + \alpha \Gamma \ast (\text{impact co-authored papers})_i + \ldots
\]

- question is whether the total salary increase is the same whether one or two authors:
  \[\Gamma = \frac{1}{\text{coauthors}} \quad ?\]
Sauer’s 1988 JPE (1/coauthor) finding using 9-month salaries

• YES, approximately $\Gamma = 1/$coauthors

• his estimating equation assumes that all co-authors get the same salary increase

• hence: his results do not tell us whether higher-impact single authors (should) get more credit for coauthored papers $[\Gamma_i = \gamma \ast (\text{impact single-authored papers})_i]$
Check robustness to these issues by

• focusing on single-authored papers?

• use adjusted co-author weights?
  i) according to authors’ single-author performance
  ii) according to authors’ overall performance

• (upper bound) assigning 100% of co-authored paper impact to author at highest ranked university

• ...