

**Scientists Who Cite
More Are Cited More:
Evidence from over
50,000 *Science* Articles**

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Overview

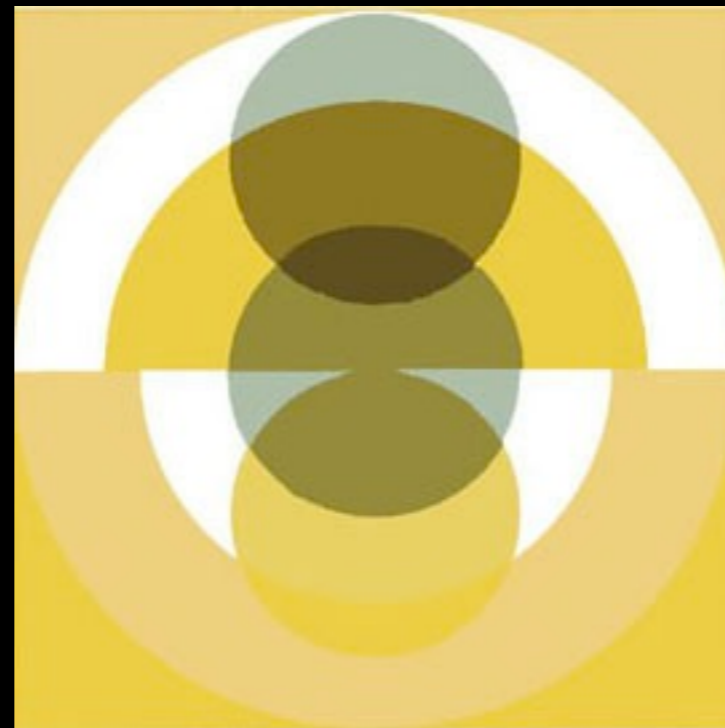
- Background: References and Citations
- *Evolution and Human Behavior*
- *Journal of Consulting and Clinical Psychology*
- *Science*
- Theory: Processes and Mechanisms

References and Citations

- Prior research has suggested or shown a relationship
 - Moed, 2005; Narin, 1976; Price, 1965; Uzun, 2006; Vinkler, 2002
- However, no prior research has
 - Examined this effect on a large scale
 - Looked at articles vs. review articles
 - Studied change over time in strength

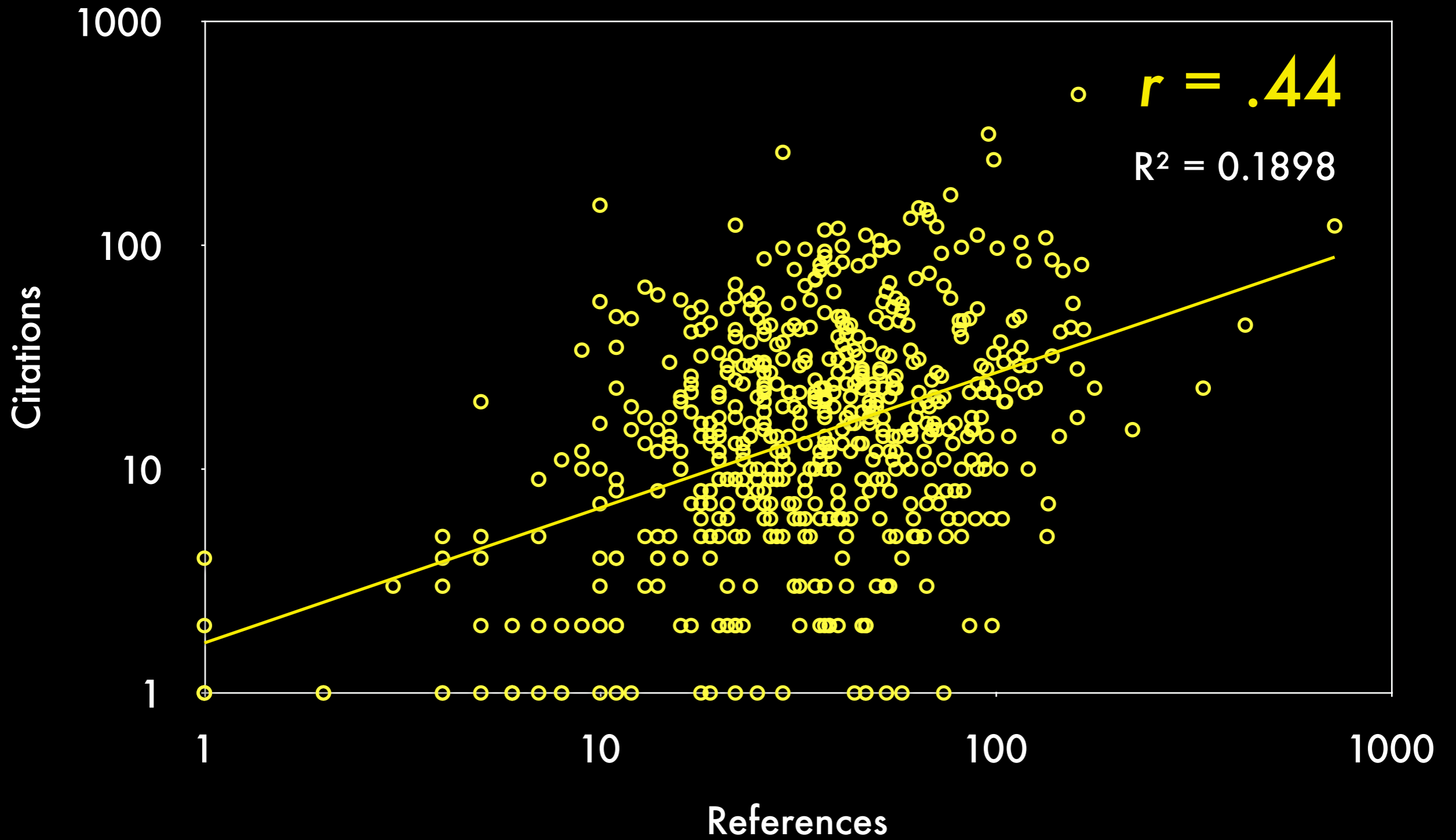
Method

- Web of Science (Thomson Reuters)
- Downloaded number of references and citations for all journal articles
- All publication years for each journal
- Citations and reference counts were normalized with log transformations



- *Evolution and Human Behavior*
- Top Evolutionary Psychology Journal
- 1979-2002; $N = 562$ Articles

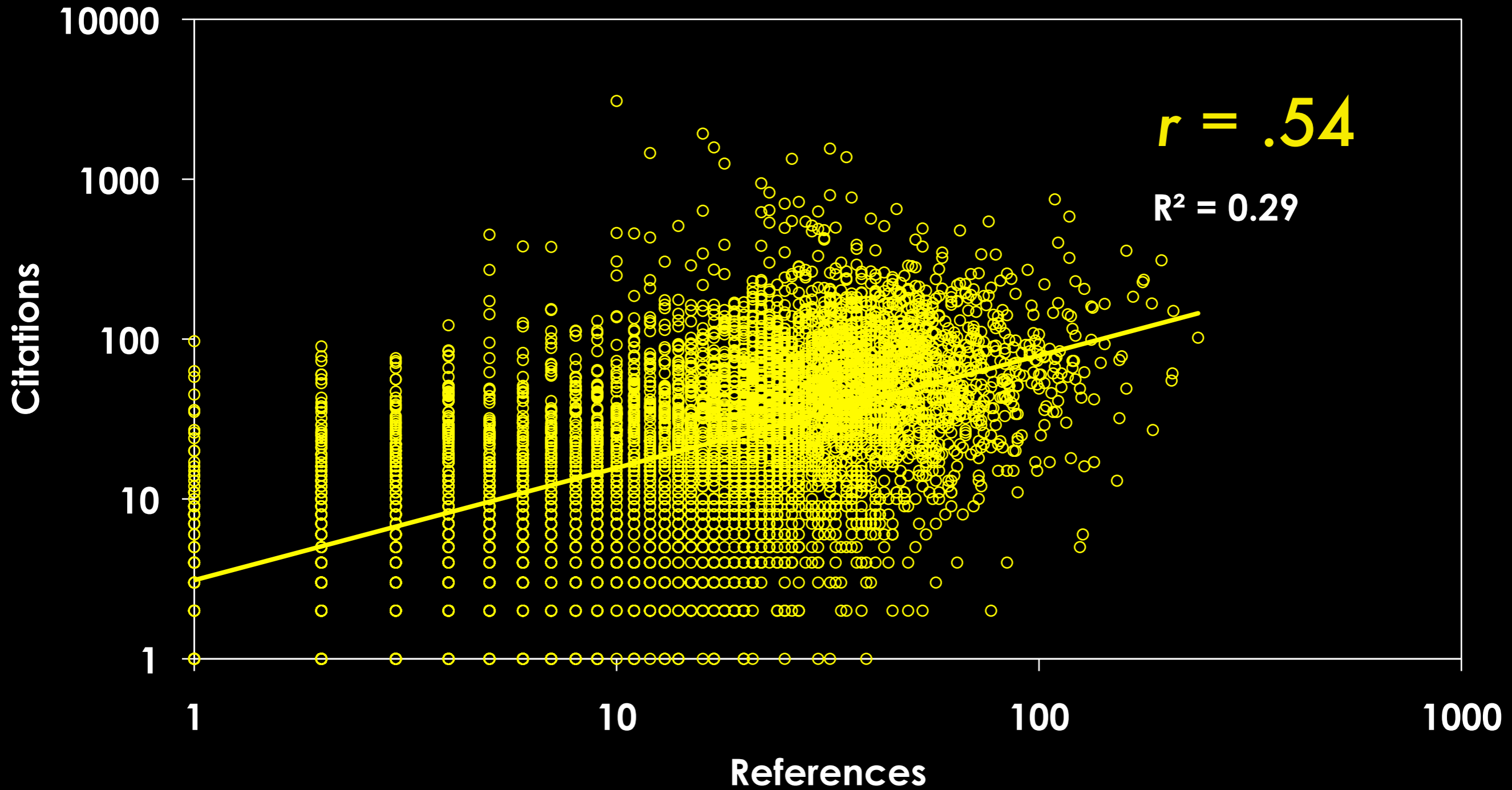
Evolution and Human Behavior, 1979-2002





- *Journal of Consulting and Clinical Psychology*
- American Psychological Association
- 1968-2000; $N = 5,125$ Articles

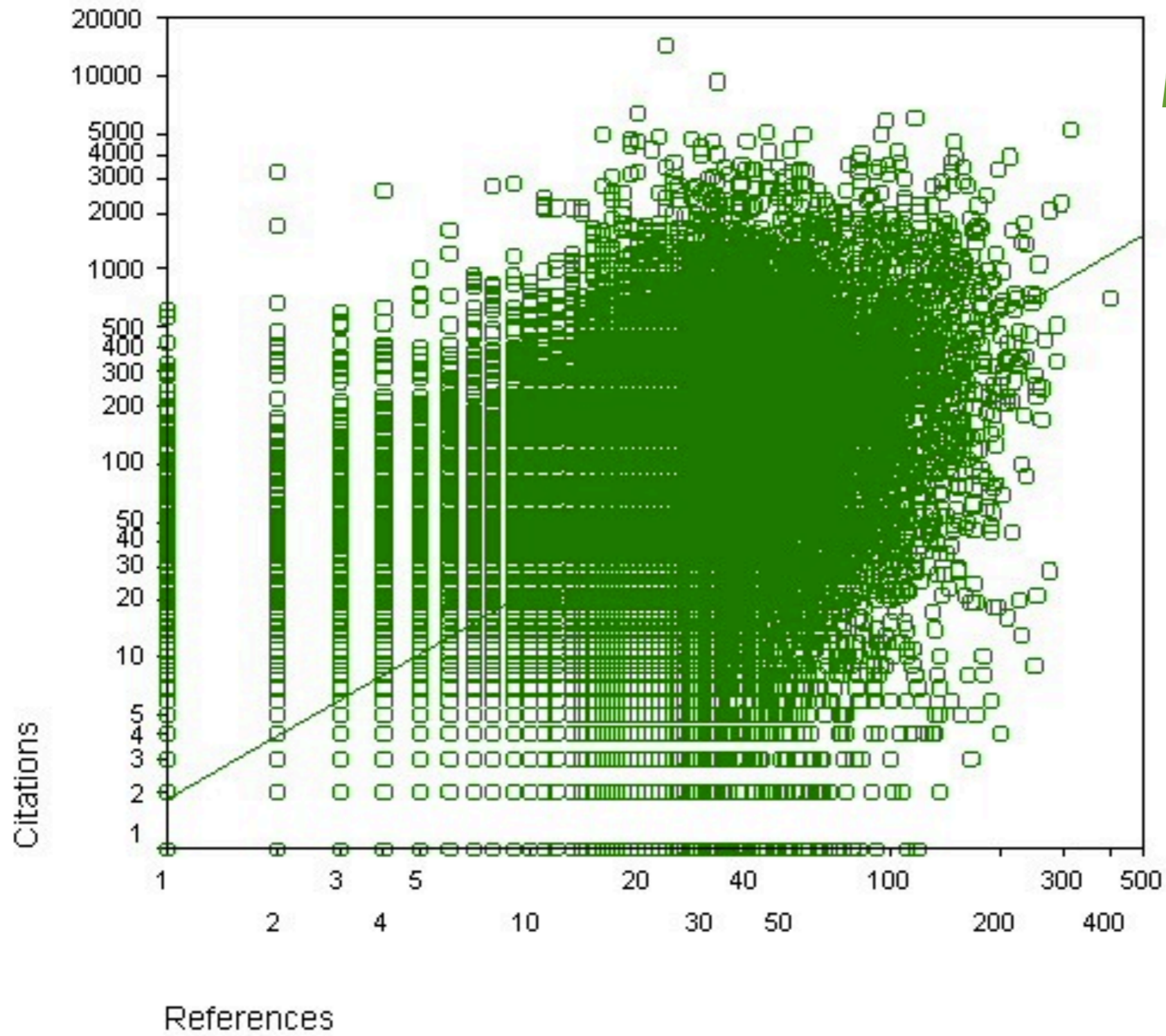
Journal of Counseling and Clinical Psychology, 1968-2000





- *Science*
- Broad, high-impact scientific journal
- 1901-2000; $N = 53,894$ Articles and Review Articles

Science, 1901-2000



Review Articles?

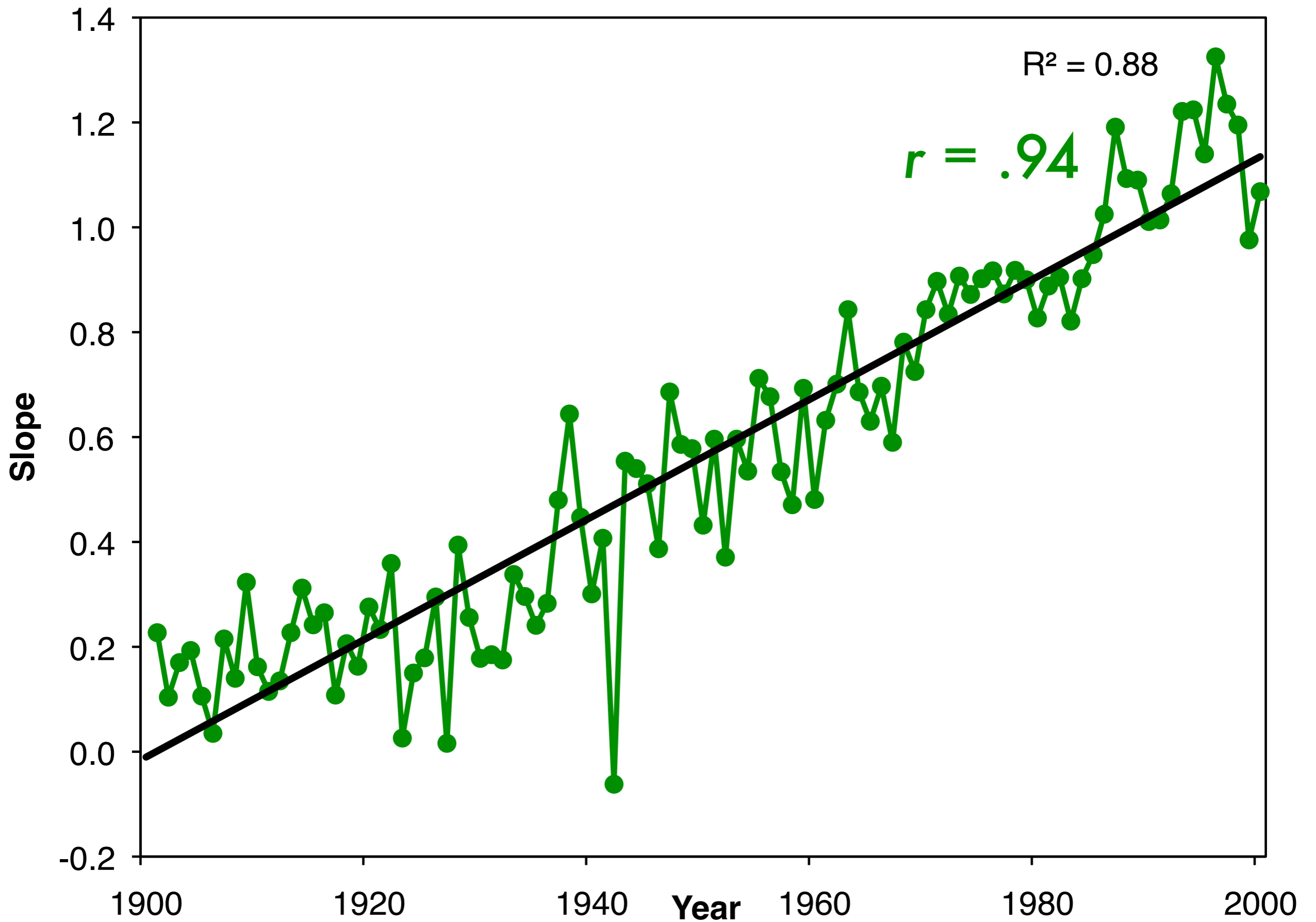
- Review articles:
 - Many References
 - Many Citations
- References-citation relationship a statistical artifact of review articles?

Review Articles?

- There was a small difference in the wrong direction: $b = .12$, $pr = .012$.
 - 53,363 Articles: $r = .70$
 - 531 Review articles: $r = .65$
- The references-citations relationship is *not* driven by a review-article effect.

Change over Time?

- References-citations relationship grew!
- $b = .0082$, $pr = .19$; 348% in 100 yrs.
- Simple effects tests:
 - 1901: $b = 0.23$, $pr = .07$
 - 1950: $b = 0.63$, $pr = .37$
 - 2000: $b = 1.03$, $pr = .46$



Process? Mechanism?

- *Articles* that cite more are cited more.
- A causal relationship?
 - Correlation? Yes
 - Temporal precedence? Yes
 - “Third variable” problem? Maybe

Process? Mechanism?

- *Are scientists who cite more cited more?*
- Social network analysis of
 - Coauthored papers in *Science*
 - Citation networks (who cites whom)

Process? Mechanism?

- *Intrapersonal* processes
- Individual differences in personality
 - Extraversion (network size?)
 - Narcissism (excessive self-citation?)
 - Ambition (work ethic?)

Process? Mechanism?

- *Interpersonal processes*
 - Reciprocal altruism (Trivers, 1971)
 - Social exchange theory
 - Matthew effect and bandwagon effect
 - “Invisible colleges” of researchers
 - Rise of team-based research (Wuchty, Jones, & Uzzi, 2007)

Thank You!
Questions?