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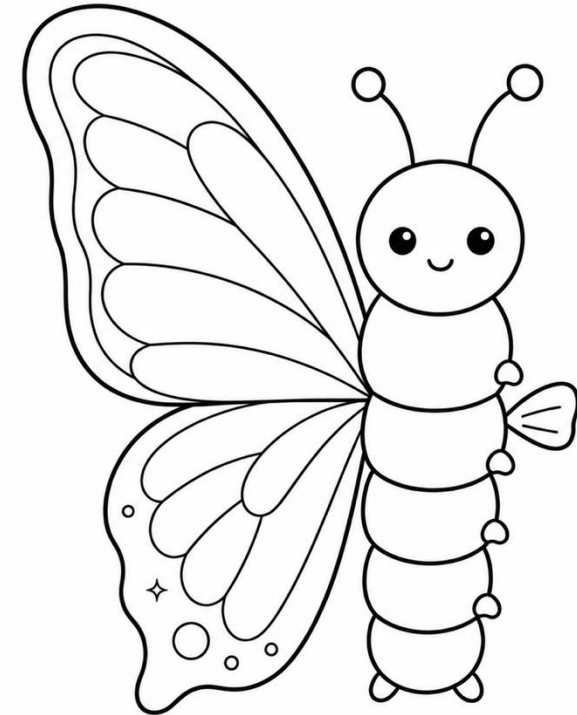
A Methodological Metamorphosis

The Rapid Rise of Bayesian Inference and Open Science Practices in Psychology

Julius M. Pfadt (et al.)

APS Annual Convention • Barcelona, May 29, 2026

Symposium: The Past, Present, and Future of Scientific Reform



Background

The idea:

- Empirical articles in a few psychology journals over a few years
- Track Bayesian inference
- Get published and cited a lot 🔥

A senior academic:

“It’s straightforward — it will basically write itself.”

Method

What followed:

- More journals: 6 leading journals publishing empirical research in psychology (2 general, 1 cognitive, 1 clinical, 1 developmental, 1 social)
- More years: 2004–2024
- More outcomes: **Bayesian inference, preregistration, open data**, analysis focus, analysis type, software

→ **15,634** articles

→ 44 collaborators

→ 1 LLM

Method

First review: “please add a large second sample with less prestigious journals”

Top-Tier:

- Psychological Science
- J.o. Experimental Psychology: General
- Psychonomic Bulletin & Review
- Behavior Research & Therapy
- Developmental Science
- J.o. Experimental Social Psychology

15,634 articles (½ human, ½ LLM)

Mid-Tier:

- Psychological Reports
- International J.o. Psychology
- Memory & Cognition
- J.o. Behavior Therapy & Experimental Psychiatry
- J.o. Experimental Child Psychology
- J.o. Applied Social Psychology

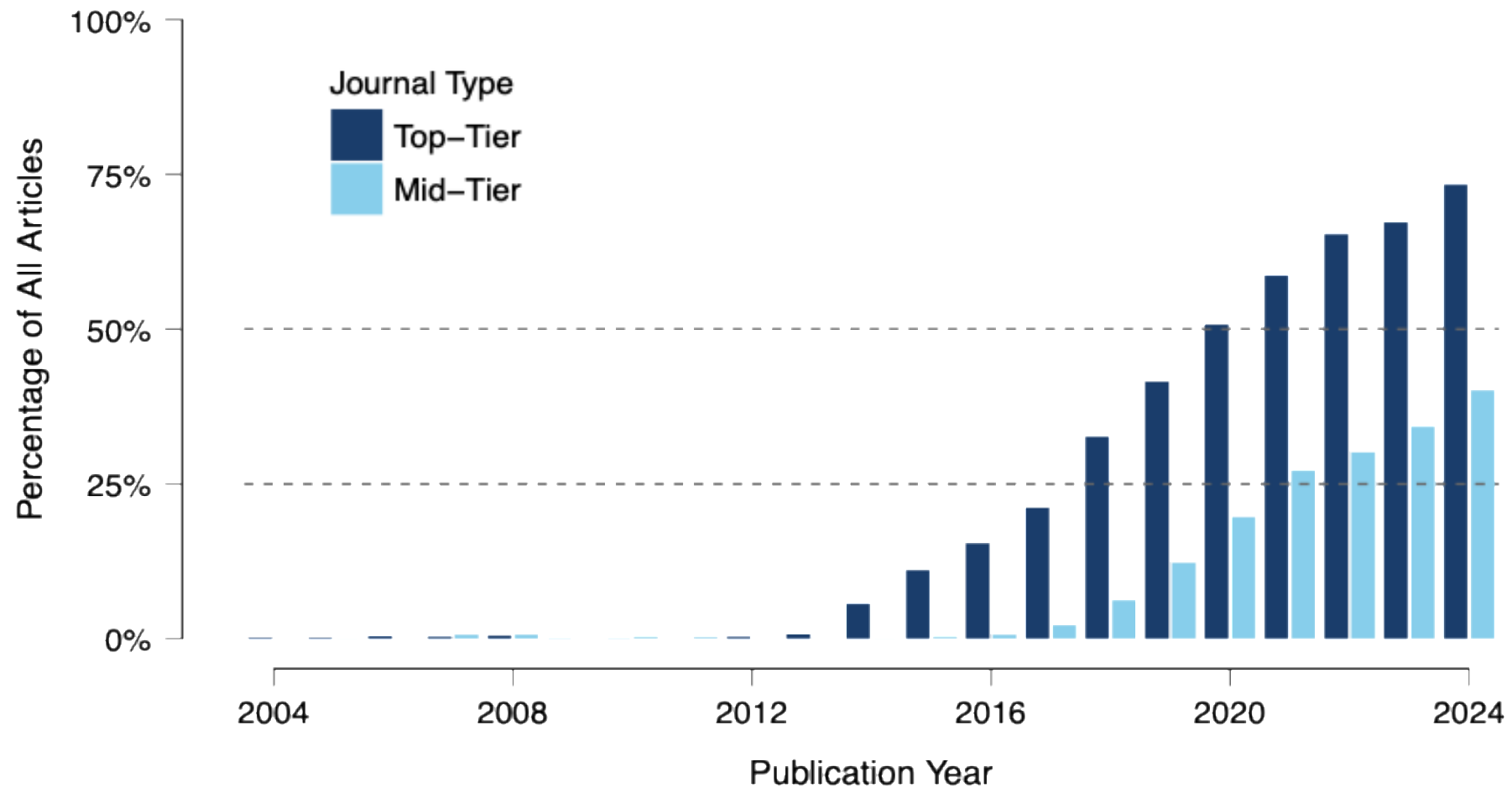
13,111 articles (LLM only)

28,745 articles

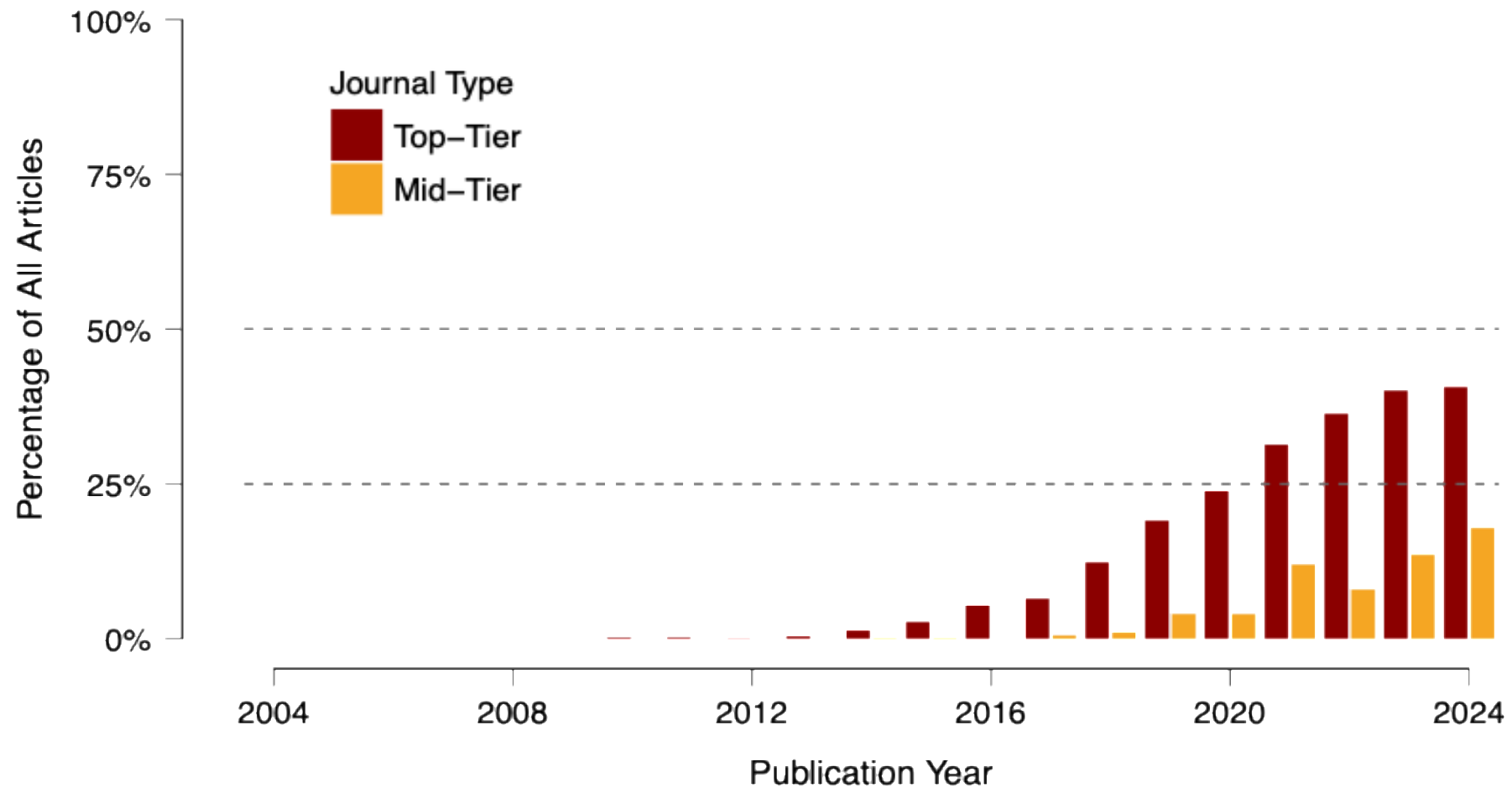
Results: What do you expect?

Open data?

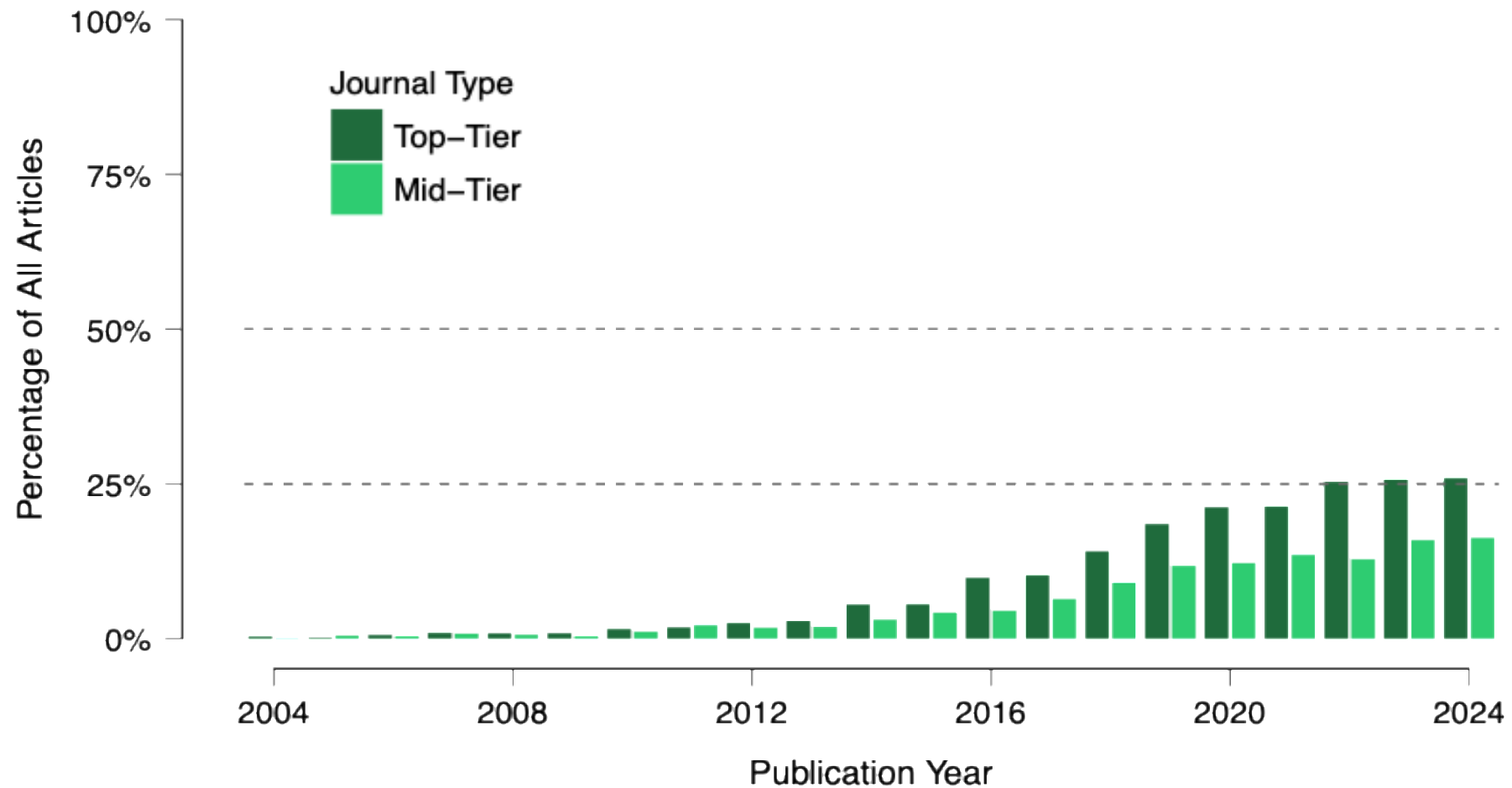
Results – Open data



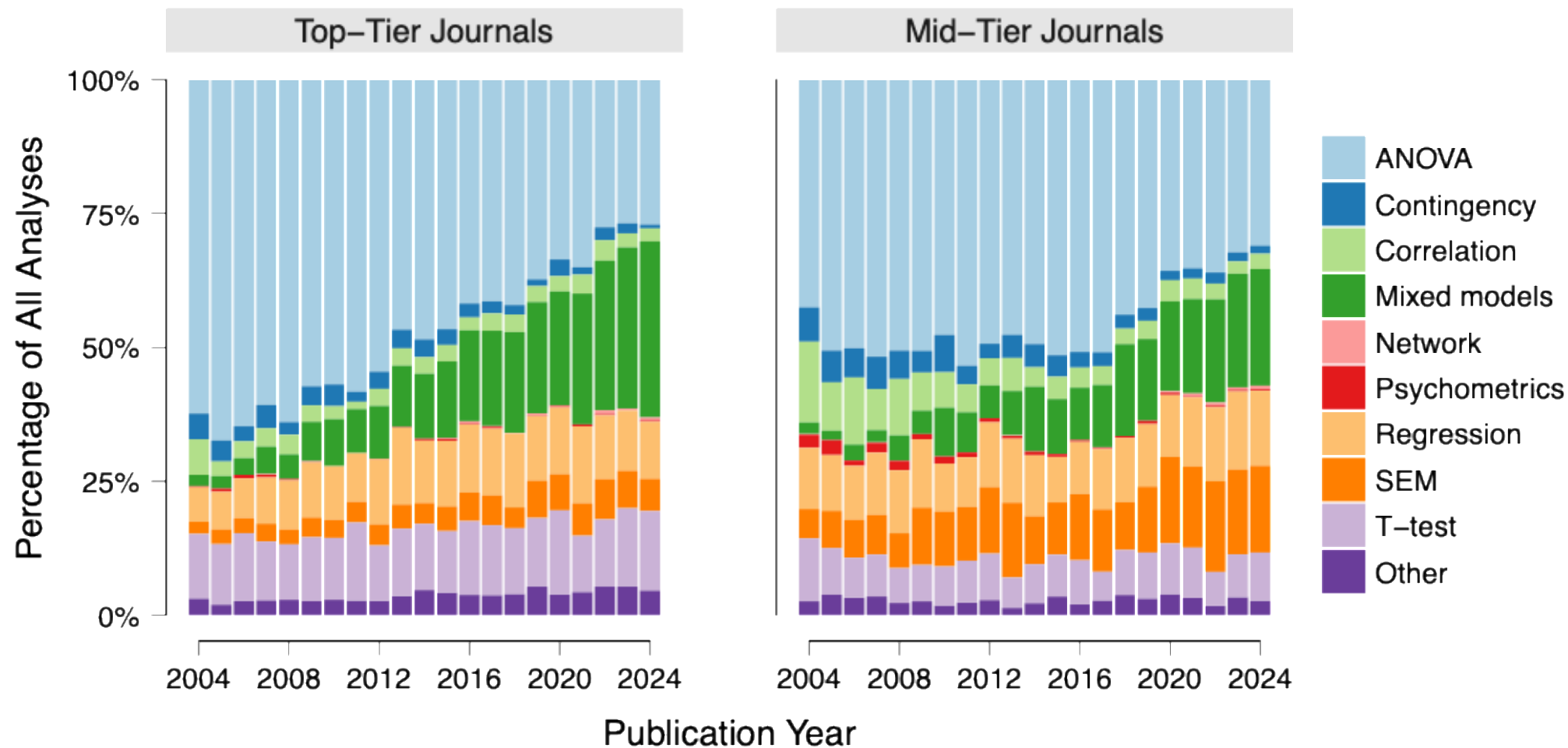
Results – Preregistration



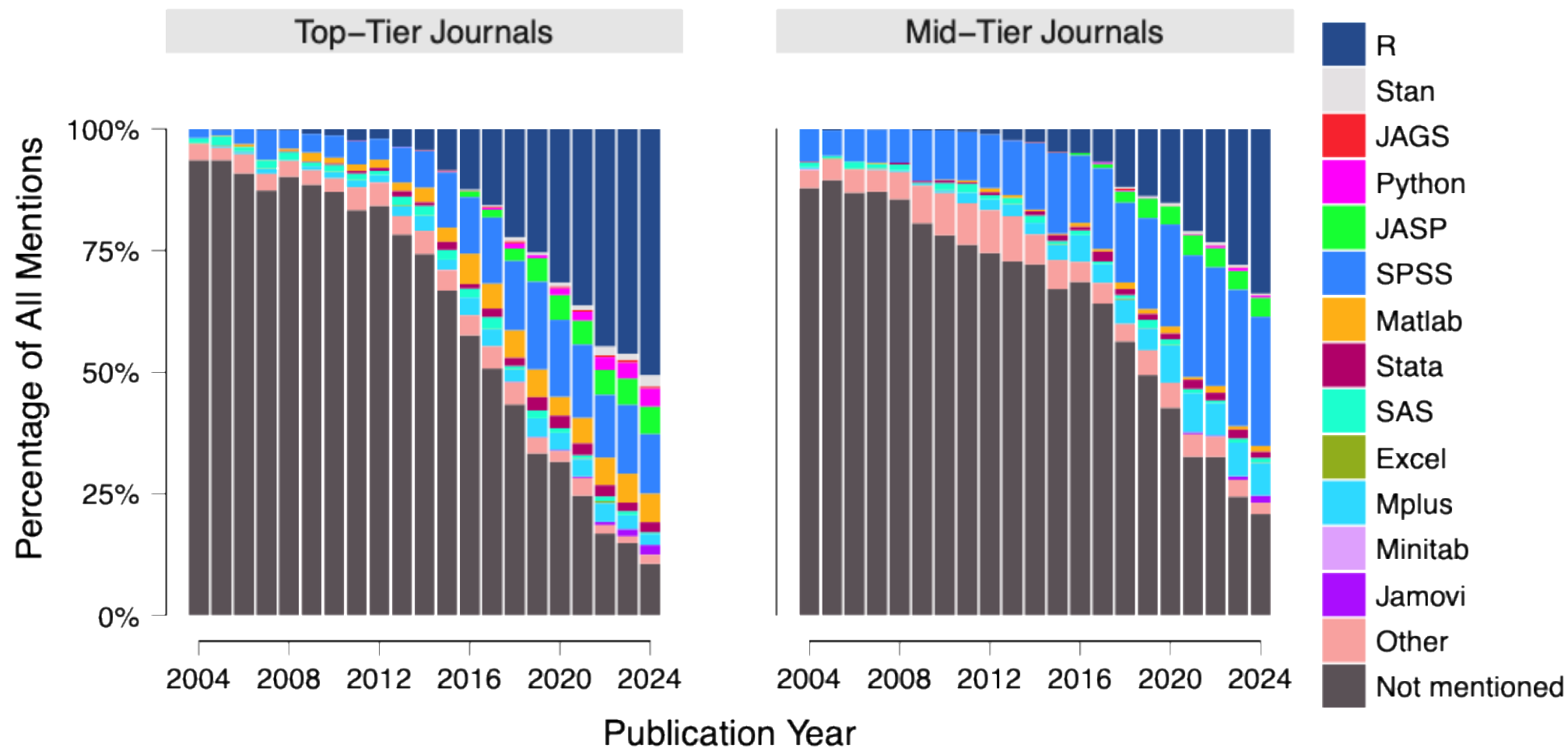
Results – Bayesian inference



Results – Analysis Types

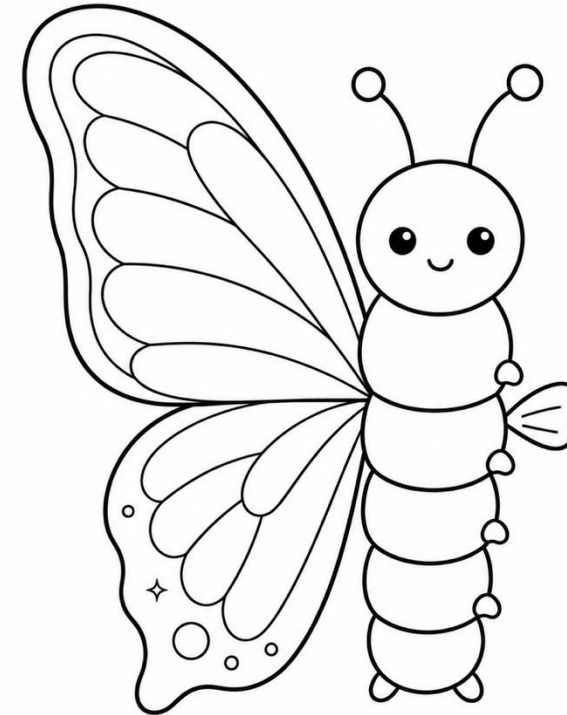


Results – Software



Summary

- Bayesian inference, preregistration and open data have been increasing
 - Large differences between top and mid-tier journals:
 - Top-tier journals contain more Bayes, preregistration, open data
 - Mid-tier journals have fewer mixed models, and less R
 - Potential predictors:
 - Scientific reform
 - Journal policy
 - Methodological rigor
 - Infrastructure
- ➔ Psychology (12 journals) on a promising path towards butterfly status



Thank you

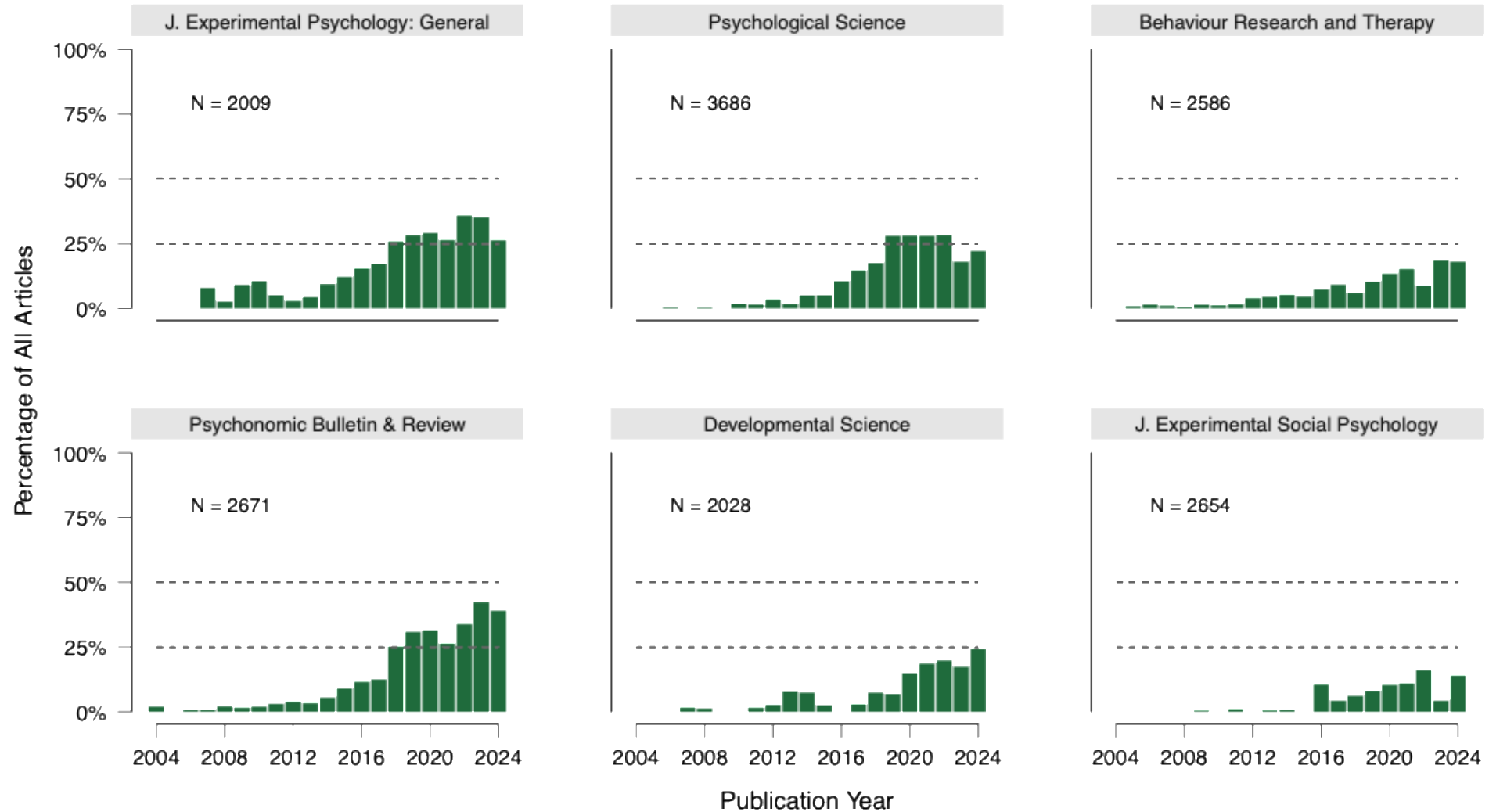
Preprint: https://doi.org/10.31234/osf.io/ck3js_v1



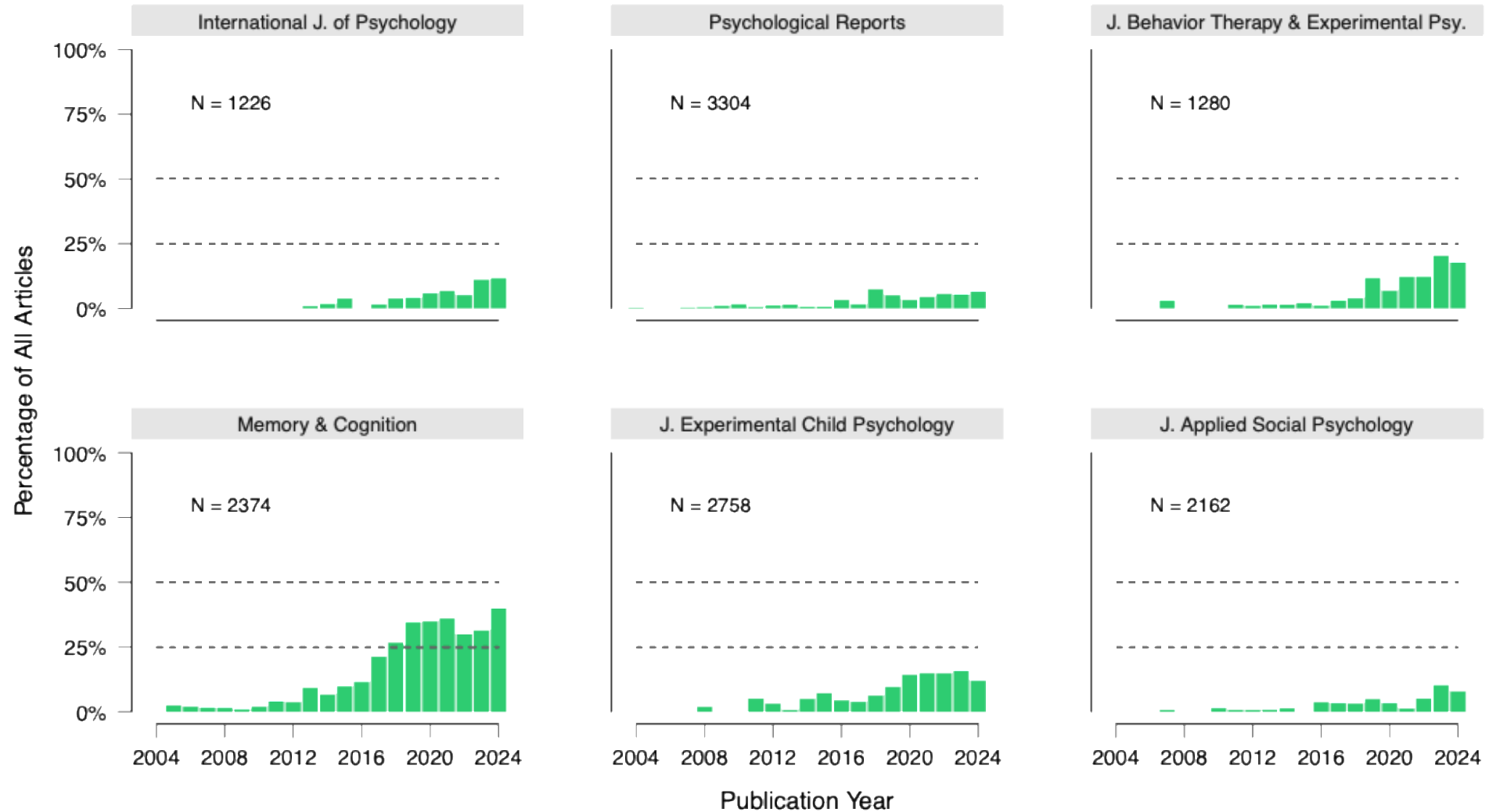
Collaborators:

František Bartoš, Henrik R. Godmann, Meike Waaijers, Laura Groot, Ihnwhi Heo, Lotte Mensink, Jason Nak, Jan P. de Ruiter, Alexandra Sarafoglou, Björn Siepe, Giuseppe Arena, Emma Akrong, Frederik Aust, Don van den Bergh, Wilhelmine Brenner, Roos Doekemeijer, Michelle C. Donzallaz, Johnny van Doorn, Nicolás Ormeño Echevarria, Adam Finneman, Gali Geller, Tuba Hato, Emily Koskinen, Bruny Krijgsman, Lars Kulbe, Malte Lüken, Maarten Marsman, Vincent L. Ott, Samuel Pawel, Olga Piestrak, Jill de Ron, Nikola Sekulovski, Marlene Serry, Alan Stefanów, Niek Stevenson, Bartek Sadowski, Míra Sopuch, Antreas Vasileiou, Ingmar Visser, Marcell Völler, Sera Wiechert, Kay de Wit, Julian Wuth, Eric-Jan Wagenmakers

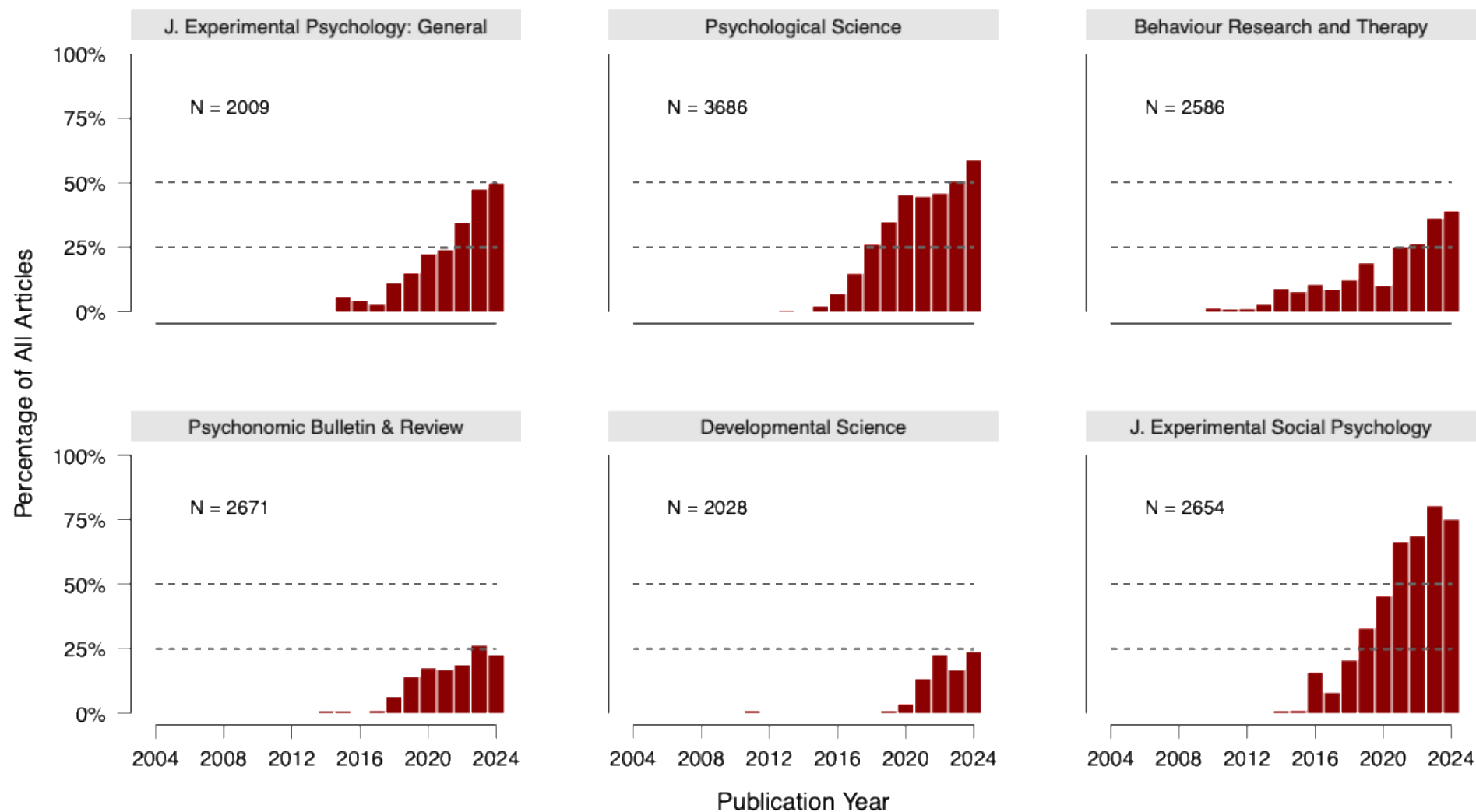
Supplement – Bayesian inference per journal (top-tier)



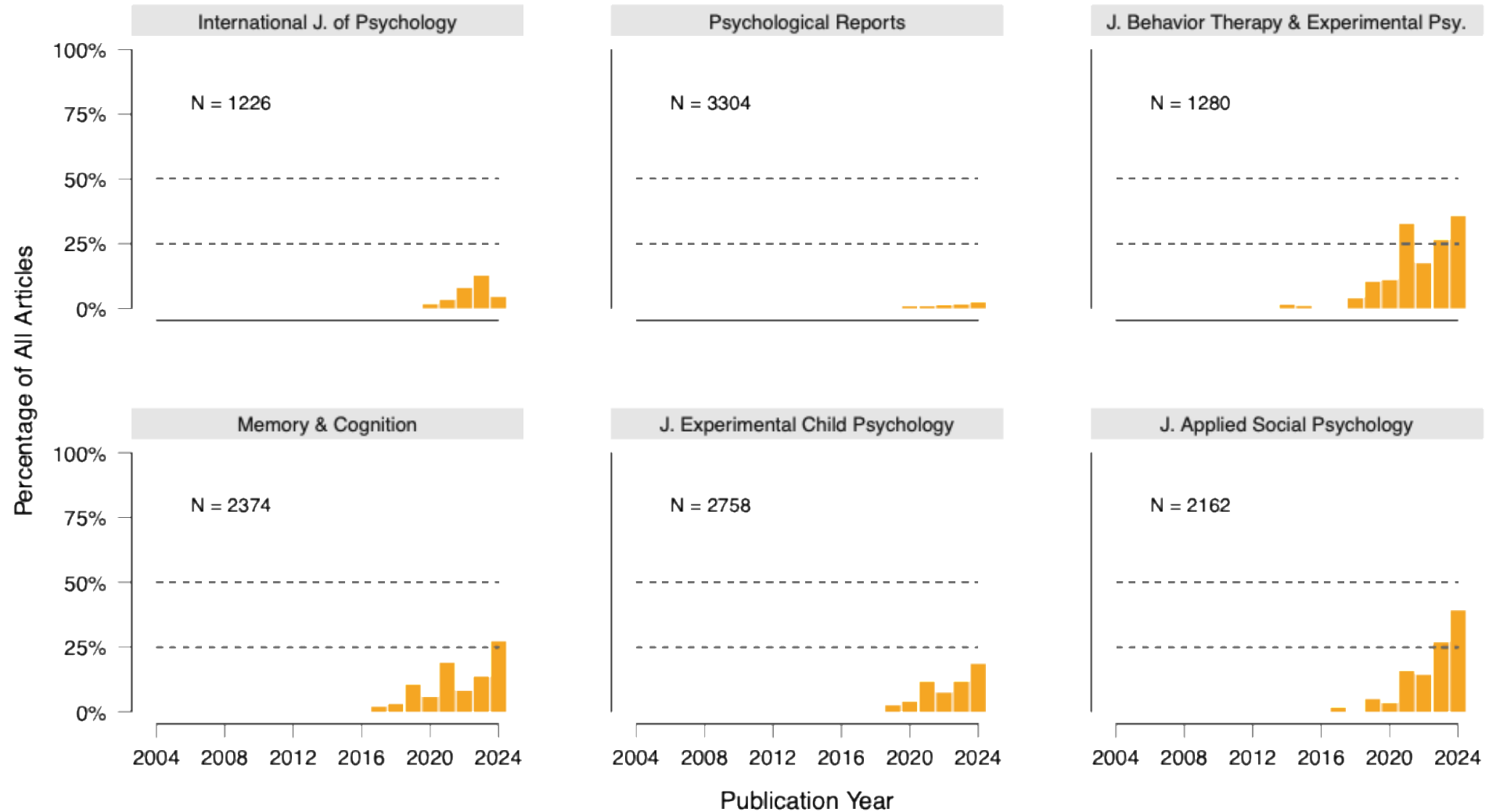
Supplement – Bayesian inference per journal (mid-tier)



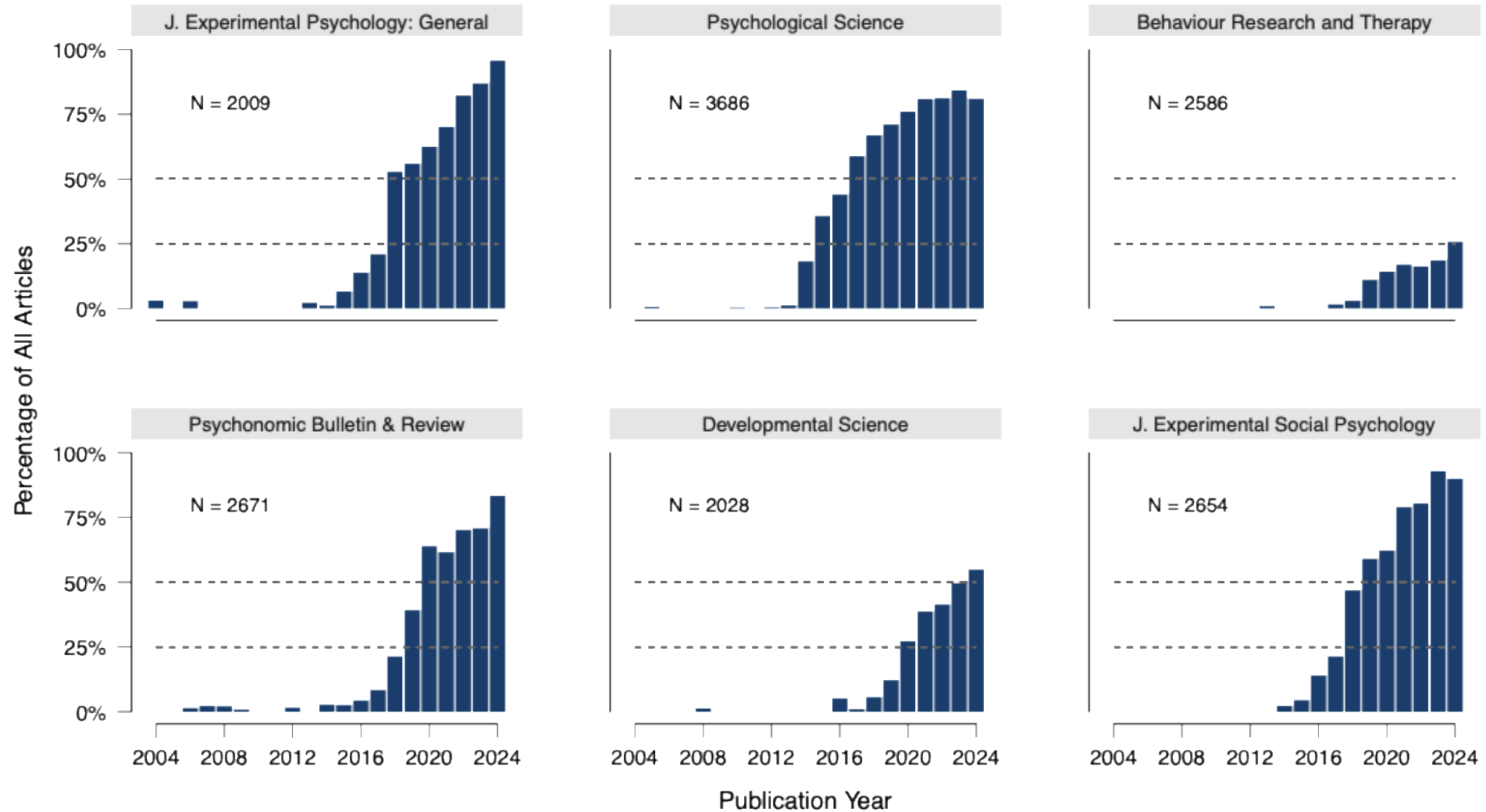
Supplement – Preregistration per journal (top-tier)



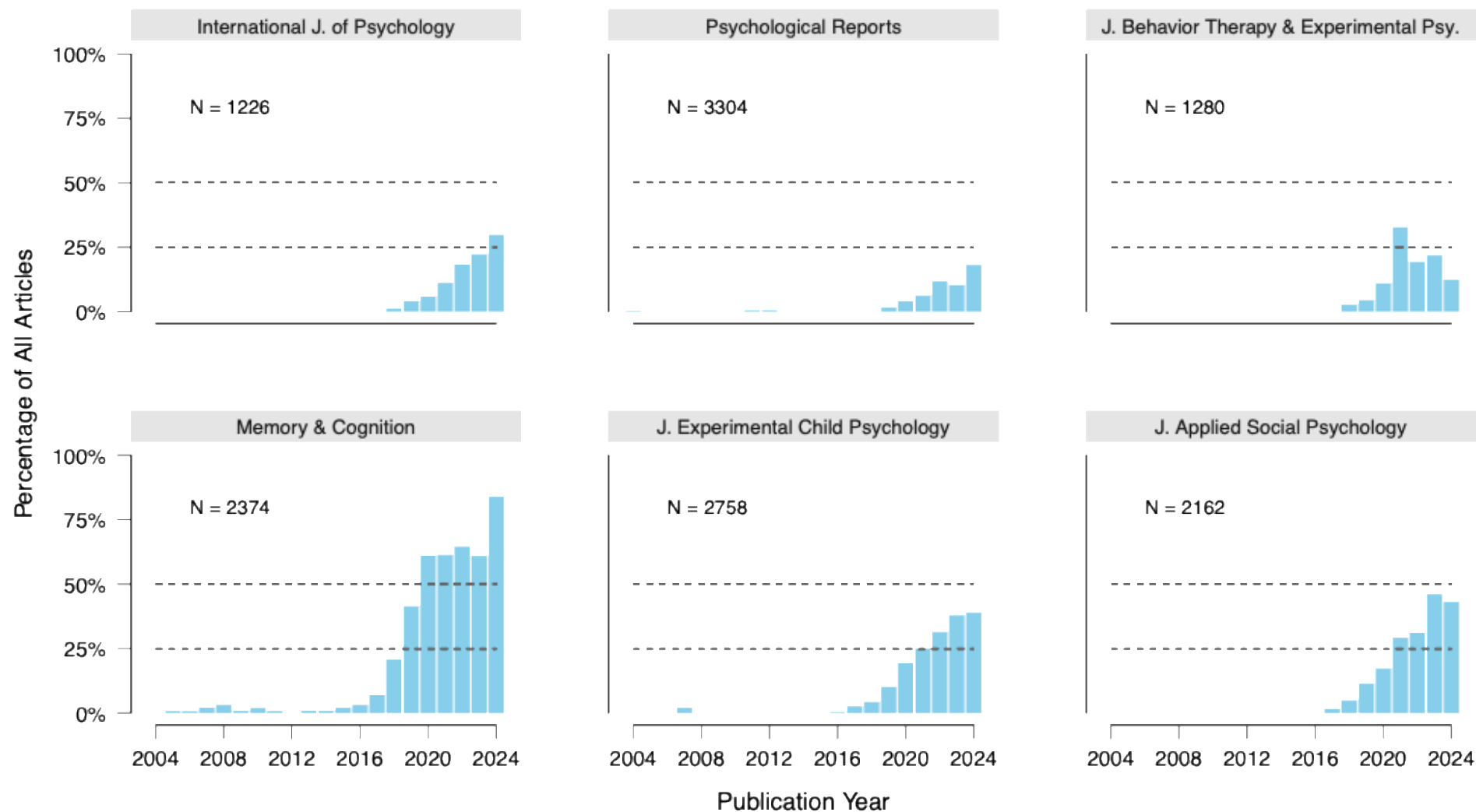
Supplement – Preregistration per journal (mid-tier)



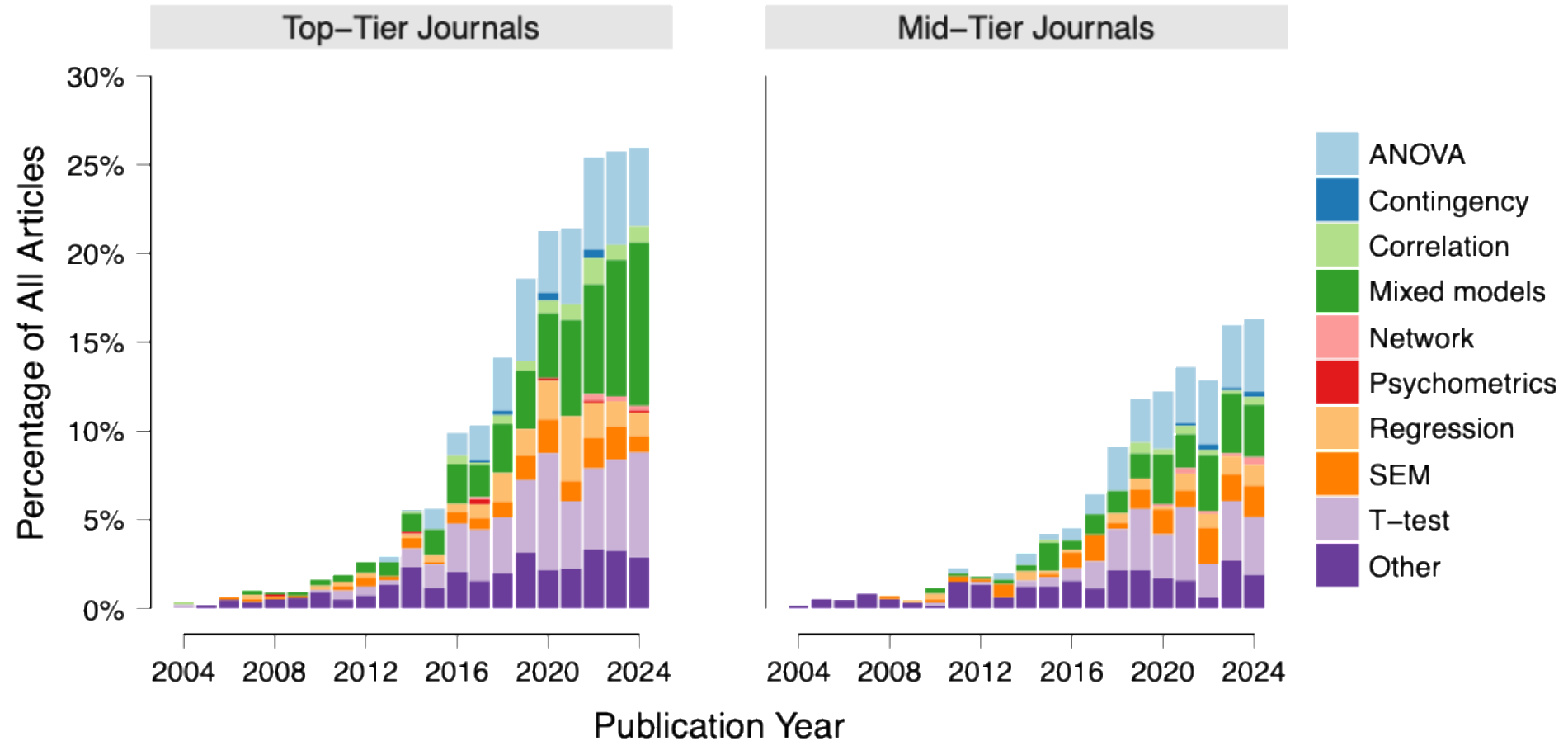
Supplement – Open data per journal (top-tier)



Supplement – Open data per journal (mid-tier)



Supplement – Bayesian analysis types



Supplement – Non-Bayesian analysis types

