Diverging Methods: Trends and Differences in Research Methodologies Between Economics and Psychology

Haley Lam[a*]

[a] *Department of Psychology & Neuroscience, Department of Economics, Baylor University, Waco, 76798, Texas, USA*

*Corresponding author.
Email address: haleylam0704@gmail.com
Phone: +254-400-5114

Abstract

This study examines the methodological trends and differences between economics and psychology, two disciplines in the social sciences that explore human behavior through distinct approaches. 1,430 articles published between 2008 and 2024 were categorized into experimental, causal inference, correlational, descriptive, theoretical, and methodological categories using large language model-assisted content analysis. Key findings reveal significant methodological differences: economics showed a higher prevalence of non-experimental causal inference and theoretical papers, while psychology had more experimental and correlational studies. Additionally, trend analyses reveal a steady increase in the use of causal inference methods and a decrease in theoretical papers in economics, while psychology's methodological approaches remained largely stable. These findings reveal opportunities for interdisciplinary collaboration. Economics can further benefit from psychology's experimental rigor, while psychology may use economics' causal inference techniques to address research questions that are impractical or unethical to study experimentally. Supplementary materials, including journal selection reasoning and categorization prompts, are available on the OSF project at https://osf.io/d2z5c/.

Keywords: methodological trends, interdisciplinary research, content analysis, methodological differences, economics and psychology, causal inference

Trends and Differences in Research Methodologies Between Economics and Psychology

The methodologies used in research fundamentally shape the questions asked, the tools employed, and the insights generated to advance knowledge. Economics and psychology are both social sciences involving research on human behavior, but they have developed distinct methodological norms rooted in differing philosophical foundations and research priorities. While psychology has traditionally emphasized experimental designs and internal validity, economics has embraced a broader methodological framework, including rigorous mathematical modeling and nonexperimental causal inference techniques.

These methodological differences have far-reaching implications, influencing the scope of research and the nature of the questions themselves. The integration of psychological insights into economic theory has been a large step toward bridging the methodological divide. Behavioral economics, for example, has used findings from psychology to refine neoclassical models of rationality and stable preferences (Lunt, 1996; Rabin, 1998). Despite these advances, significant differences persist. Economists often abstract real-world problems into controlled laboratory settings, while psychologists tend to adopt a more conservative methodological approach, focusing on eliminating threats to internal validity (Ariley & Norton, 2007; Ross, 2023). These differences have contributed to barriers in interdisciplinary collaboration, particularly between experimental psychology and behavioral economics.

Economics has demonstrated a historical openness to methodological pluralism, adapting tools from mathematics, statistics, and computational modeling to address research questions (Dow, 2009; Czerwinski, 2024). The heavy reliance of mathematics in economics traces back to Daniel Bernoulli's work on game theory and diminishing marginal utility in 1738 (Czerwinski, 2024). This foundation in mathematical education may have led to the more frequent use of advanced statistical methods in economics, whereas these methods are

underutilized and less commonly taught in psychology departments. The rise of empirical research, along with a decline in theoretical studies, reflects a broader shift toward data-driven approaches in economics (Angrist et al., 2017).

However, these trends have not been systematically compared by specific methodological categories across disciplines, leaving the exact methodological differences unclear. Additionally, there is little evidence regarding the prevalence of specific research methods within each field. This study aims to identify trends in research methods across the economics and psychology, highlighting key differences in how research is conducted. By examining these distinctions, this research seeks to uncover methodological divides and identify opportunities for integrating methodologies between the disciplines. Interdisciplinary collaboration is increasingly necessary to address complex problems, and bridging methodological divides between the social sciences can be a significant step toward achieving this goal.

Method

Data Collection

Journal Selection

Economics and psychology journals were identified using Clarivate Analytics and ranked based on their 5-year Journal Impact Factor (JIF) (Clarivate Analytics, 2023). Journals were selected according to specific inclusion criteria: prioritization of empirical studies over reviews or meta-analyses, a minimum of 5,000 total citations to exclude journals with extreme JIFs but low overall citation counts, exclusivity within their disciplines (e.g., excluding interdisciplinary journals, such as industrial-organizational psychology journals), and editorial boards predominantly comprised of researchers within the disciplines. These criteria were designed to focus on the differences of how economics and psychology-trained researchers conduct new research, while minimizing the influence of cross-departmental or external factors. The top 12 journals in each discipline from 2008 to 2024 were considered for inclusion, although top psychology journals were often review-focused and excluded based on the criteria. A detailed spreadsheet listing reasons for excluding journals is available in the supplementary materials on OSF. The final list of journals used in the analysis is detailed in Table 1.

Table 1

Journals Included in the Analysis

Journal Name	5-Year JIF	Discipline
Quarterly Journal of Economics	20.8	Economics
American Economic Review	15.3	Economics
Energy Economics	12.4	Economics
Journal of Political Economy	11.2	Economics
Review of Economics and Statistics	8.7	Economics
American Economic Journal – Applied Economics	8.5	Economics
Econometrica	8.2	Economics
Review of Economic Studies	7.7	Economics
Small Business Economics	7.6	Economics
American Economic Journal – Economic Policy	7.3	Economics
American Economic Journal – Macroeconomics	7	Economics
Economic Analysis and Policy	6.8	Economics
Psychotherapy and Psychosomatics	17.5	Psychology
Journal of Applied Psychology	11.2	Psychology
Psychological Science	7.4	Psychology
Journal of Personality and Social Psychology	7.3	Psychology
Journal of Anxiety Disorders	7	Psychology
Journal of Consulting and Clinical Psychology	6.3	Psychology
Applied Psychology: An International Review	6.3	Psychology
Autism	6	Psychology
Body Image	6.1	Psychology
Political Psychology	5.3	Psychology
Journal of Clinical Child and Adolescent Psychology	5	Psychology
Psychology of Women Quarterly	4.9	Psychology

Note. 5-Year JIFs are based on the 2023 Journal Citation Report (Clarivate Analytics, 2023).

Article Selection

Articles were selected using stratified random sampling. Five years were chosen for analysis: 2008, 2012, 2016, 2020, and 2024. For each year, four issues per journal were selected using a random number generator. Within each issue, three articles were randomly chosen. If an article was identified as a review or meta-analysis, it was replaced through additional randomization. Three journals, including *American Economic Journal: Applied Economics*, did not have issues available for 2008, as their first volumes began in 2009. These articles were categorized under 2008 with the assumption that minimal differences exist between papers published in 2008 and 2009. Additionally, some journals only had 11 out of the 12 issues available during the time of data collection in December 2024.

Article Categorization

Articles were categorized into methodological categories using large language model (LLM)-assisted content analysis with ChatGPT 4o. PDFs were uploaded in pairs for categorization into one of the following categories: experimental, experimental without random assignment, causal inference, correlational, descriptive, theoretical, or other. Later, a separate category for methodological articles was added after recognizing its distinctions from theoretical articles. Definitions for these categories are provided in Table 2. Justifications for each categorization were generated by ChatGPT, following best practices outlined by Chew et al. (2023). A specific prompt, available in the supplementary materials in OSF, was used to enhance replicability.

Table 2

Category Definitions

Category	Description
Experimental	Research where variables are systematically manipulated, and participants are randomly assigned to conditions. Includes both laboratory and field experiments.
Experimental without random assignment	Research conducted with experimental manipulation of variables, but without random assignment of participants to conditions.
Causal inference	Nonexperimental research that uses statistical techniques like instrumental variables, propensity score matching, or regression discontinuity to estimate causal relationships from observational data. Identifies conditions under which causal effects can be inferred (see Angrist & Pischke, 2008).
Correlational	Research that examines associations between two or more variables without inferring causality. These studies may also include predictive modeling.
Descriptive	Research focused on describing features, trends, or patterns within data. Includes studies employing qualitative or quantitative approaches to summarize findings of a dataset.
Theoretical	Conceptual research that focuses on refining ideas, frameworks, or mathematical models to explain or predict phenomena. This excludes studies focused specifically on methodological advancements.
Methodological	Research aimed at developing, improving, or evaluating methods, tools, or analytical techniques. This includes psychometric validation, measurement bias estimation, and novel statistical approaches for future research.
Other	Studies employing designs that do not align with the above categories (e.g., Evers et al., 2021).

Validation of Categorization Accuracy

The accuracy of ChatGPT's categorization was validated using two methods. First, 120 articles from the Quarterly Journal of Economics and Psychological Science were manually categorized and compared with the automated results. The agreement rates were 92% for economics articles and 97% for psychology articles. Second, two articles from the other 22 journals (i.e., 44 total articles) were assessed for consistency. Agreement rates were 86% overall for both disciplines, increasing to 95% when excluding partial disagreements where ChatGPT categorized articles into only one category instead of two. The use of ChatGPT increased efficiency, reducing categorization time by approximately eight times compared to manual methods. This allowed the inclusion of a larger sample size without a substantial loss of accuracy, shown by the agreement rates of 86% to 97% with this method for article categorization.

Analytic Plan

Final Sample

The "other" category was excluded from our analysis due to limited representation (n = 10). After this exclusion, our final analysis included 1,430 articles (717 economics, 713 psychology). In our analysis, the experimental and experimental without random assignment categories were combined into a single experimental category because the latter contained only a small number of articles (n = 49).

Proportion Analysis

In the proportion analysis, the data was grouped by discipline and proportions of articles employing each methodology were calculated. For each methodology category, we used a two-sample proportion test to compare proportions between the two disciplines. Additionally, effect sizes were calculated using Cohen's *h* (Cohen, 1988).

Trend Analysis

To examine trends in the proportion of articles employing various methodologies from 2008 to 2024, linear regressions were conducted separately for economics and psychology articles. Additionally, a line plot was created to visually analyze trends in the data.

Data Availability

Further details with supplementary materials about journal selection and data collection can be found at https://osf.io/d2z5c/.

Results

Proportion Analysis

Proportions and results of the statistical tests are summarized in Table 3, including differences in proportions, *z*-statistics, and effect sizes. Economics journals had a significantly higher proportion of articles employing causal inference methods (32.9%) compared to psychology journals (1.7%; $z = 241.09$, $p < .01$, Cohen's $h = .96$). Theoretical papers were also much more prevalent in economics (37.5%) than in psychology (4.6%; $z = 230.16$, $p < .01$, Cohen's $h = .89$). Conversely, psychology studies were more likely to employ experimental methods (44.5%) compared to economics (7.7%; $z = 249.49$, $p < .01$, Cohen's $h = -.90$). All differences in proportions between the six categories were statistically significant.

Despite statistical significance, several methodologies showed little practical differences. Methodological and descriptive methods showed small effect sizes ($h = -.19$ and $h = -.29$, respectively), with less than a 10% difference in prevalence between psychology and economics. Similarly, correlational studies did not have a large effect size ($h = -.47$).

Table 3

Proportions and Comparison Statistics Between Economics and Psychology

Methodology	Total	Econ	Psych	Diff	*z*-stat	*h*
Correlational	.290	.184	.396	-.211	76.66**	-.47
Experimental	.260	.077	.445	-.368	249.49**	-.90
Theoretical	.211	.375	.046	.329	230.16**	.89
Causal Inference	.173	.329	.017	.312	241.09**	.96
Descriptive	.122	.075	.170	-.094	28.78**	-.29
Methodological	.035	.018	.052	-.034	11.10**	-.19

Note. This table displays the proportions of papers employing different methodologies within the total sample (Total), economics articles (Econ), and psychology articles (Psych), along with difference in proportions between economics and psychology (Diff). Negative values in the Diff column indicate a higher proportion of articles in psychology compared to economics.

Cohen's *h* is a measure of the difference between two proportions, with 0.2, 0.5 and 0.8 indicating small, medium, and large effects, respectively (Cohen, 1988). Negative values represent a higher proportion in psychology.

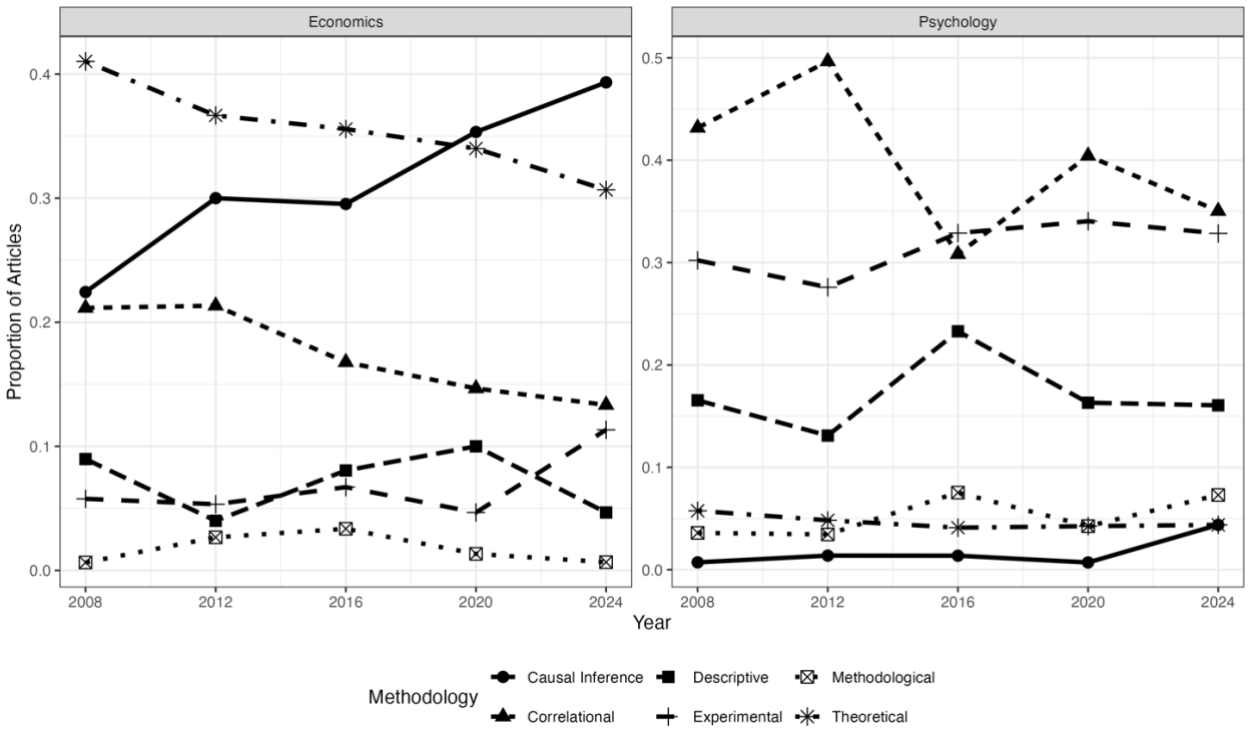
**p < .01.

Trend Analysis

Figure 1 illustrates the trends in the proportion of articles from 2008 to 2024. In economics journals, there was a noticeable increase in the use of causal inference methods (Beta = 0.01, p = .007, adjusted R^2 = .92), steadily rising from 24.3% of economics articles in 2008 to 41.3% in 2024. The proportion of theoretical articles in economics journals has shown a slight but consistent decline (Beta = -0.007, p = .012, adjusted R^2 = .88), from 44.4% of in 2008 to 32.2% in 2024. Correlational methods also showed a significant decline (Beta = -0.006, p = .005, adjusted R^2 = .93), while other methodologies had no significant trends over time.

Figure 1

Methodological Trends by Discipline



In contrast, no statistically significant trends were observed in psychology articles. The proportions of articles using different methodologies remained relatively stable, with fluctuations that do not indicate definitive directional change. Correlational and experimental

methods in psychology remained dominant and show no substantial upward or downward movement during this 16-year period.

Discussion

This study found that psychology relies heavily on experimental methods and correlational studies, while economics predominantly employs non-experimental causal inference and theoretical methods. Psychology's reliance on experimental methods aligns with its historical emphasis on internal validity and controlled environments to establish causal relationships. In contrast, economists often prioritize external validity, using advanced statistical and econometric tools to draw conclusions from nonexperimental data. This divergence may stem from differences in training: economists typically receive more extensive education in mathematics, equipping them to address policy-relevant questions with sophisticated methods. The use of theoretical approaches in economics further displays its tradition of abstracting and modeling, which contrasts with psychology's preference for empirical studies.

The steady rise of causal inference methods in economics from 2008 to 2024, along with a decrease in theoretical approaches, reflect the field's adaptability. This observed rise in empirical research is consistent with previous findings (Angrist et al., 2017), which may be due to advancements in data availability and computational tools (Lazer et al., 2009). In contrast, psychology's methodological choices have remained largely unchanged over this period. This stability may indicate a preference for established methodologies, possibly limiting the discipline's ability to address research questions that require novel approaches.

The methodological differences identified in this study have important implications for interdisciplinary collaboration. Combining the methodological focuses of each discipline

offers potential to advance the study of human behavior. For example, integrating causal inference methods into psychology could allow researchers to address causal questions when experimental designs may be unethical or unfeasible. On the other hand, economics could benefit from adopting psychology's experimental techniques to enhance internal validity in studies that can be done in a laboratory.

There are several limitations in this current study. The reliance on LLM-assisted content analysis, while efficient, may have minor inaccuracies. Although agreement rates with manual categorization were high, future studies could refine these methods by using hybrid models that combine machine learning with manual oversight. Additionally, while we attempted to representatively sample a broad range of research by selecting 12 journals from each discipline, methodologies are often influenced by the specific subfield or journal, which could introduce biases. For example, Vanwoerden et al. (2023) reported that approximately 96% of personality pathology research in their sample used a correlational design. This shows the possibility that our findings may be influenced by the particular journals included in the analysis. Despite this, our results aligned closely with a previous study that categorized papers across all major subfields within psychology (Blanca et al., 2018). They found 48% of papers were experimental (compared to our 44.5%), 39% were correlational (matching our 39.6%), and 6% were psychometric (compared to our 5.2%).

Future research could explore factors underlying methodological differences, such as differences in educational curricula or publication norms. Examining the prevalence of causal inference training in psychology departments compared to economics departments could reveal roots of these differences. Editorial policies and peer review standards across disciplines could also provide insights into how methodological preferences are shaped and reinforced.

References

Angeli, E. (2014). A importância da história do pensamento econômico e do pluralismo metodológico em economia a partir da perspectiva da escola austríaca [The importance of economic thought and methodological pluralism]. *Nova Economia*, *24*(1), 33–50. Retrieved from https://ideas.repec.org/a/nov/artigo/v24y2014i1p33-50.html

Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press.

Angrist, J. D., Azoulay, P., Ellison, G. D., Feng, S., & Lu, S. F. (2017). Economic research evolves: Fields and styles. *American Economic Review, 107*(5), 293–297. https://doi.org/10.1257/aer.p20171117

Ariely, D., & Norton, M. I. (2007). Psychology and experimental economics: A gap in abstraction. *Current Directions in Psychological Science, 16*(6), 336–339. https://doi.org/10.1111/j.1467-8721.2007.00531.x

Blanca, M. J., Alarcón, R., & Bono, R. (2018). Current practices in data analysis procedures in psychology: What has changed? *Frontiers in Psychology, 9*, Article 2558. https://doi.org/10.3389/fpsyg.2018.02558

Chew, R., Bollenbacher, J., Wenger, M., Speer, J., & Kim, A. (2023). LLM-assisted content analysis: Using large language models to support deductive coding. *arXiv*. https://doi.org/10.48550/arXiv.2306.14924

Clarivate Analytics. (2023). *Journal Citation Reports.* Retrieved from https://jcr.clarivate.com

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates

Czerwinski, A. (2024). Mathematics Serving Economics: A Historical Review of Mathematical Methods in Economics. *Symmetry*, *16*(10), 1271. https://doi.org/10.3390/sym16101271

Dow, S. (2009). History of thought and methodology in pluralist economics education. *International Review of Economics Education*, *8*(2), 41–57. https://doi.org/10.1016/S1477-3880(15)30069-4

Evers, A. W. M., Colloca, L., Blease, C., Gaab, J., Jensen, K. B., Atlas, L. Y., Beedie, C. J., Benedetti, F., Bingel, U., Büchel, C., Bussemaker, J., Colagiuri, B., Crum, A. J., Finniss, D. G., Geers, A. L., Howick, J., Klinger, R., Meeuwis, S. H., Meissner, K., Napadow, V., … Consortium of Placebo Experts. (2021). What should clinicians tell patients about placebo and nocebo effects? Practical considerations based on expert consensus. *Psychotherapy and Psychosomatics, 90*(1), 49–56. https://doi.org/10.1159/000510738

Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabási, A. L., Brewer, D., ... & Van Alstyne, M. (2009). Computational social science. *Science, 323*(5915), 721-723. https://doi.org/10.1126/science.1167742

Rabin, M. (1998). Psychology and economics. *Journal of Economic Literature, 36*(1), 11–46. Retrieved from https://www.jstor.org/stable/2564950

Ross, D. (2022). Economics is converging with sociology but not with psychology. *Journal of Economic Methodology*, *30*(2), 135–156. https://doi.org/10.1080/1350178X.2022.2049854

Vanwoerden, S., Chandler, J., Cano, K., Mehta, P., Pilkonis, P. A., & Sharp, C. (2023). Sampling methods in personality pathology research: Some data and recommendations. *Personality Disorders, 14*(1), 19–28. https://doi.org/10.1037/per0000593

Author Contributions

H.L. conceptualized the study, collected data, drafted, revised, and submitted the final version for publication.

Acknowledgements

I thank Dr. Scott Cunningham (Department of Economics) for help with LLM-content analysis and Dr. Wade Rowatt (Department of Psychology) for guidance with journal submission and general feedback.

Ethics Statement

This study did not involve testing of human participants.

Competing Interests

The author declares that there are no conflict of interests.

Data Accessibility

The dataset, supplementary material, and analysis codes are available on the OSF page: https://osf.io/d2z5c/.