Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

Daniel J. McDonald

Professor of Statistics, University of British Columbia

Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Criterion 5 (original contributions of major significance). It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

47	48	5	18
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

85.1% independent of 47 classified citing papers

Citation type	Count
Independent	40
Self-citation	1
Co-author	5
Same-institution	1

0 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher established rigorous frameworks for evaluating probabilistic epidemic forecasts, extending validation methodologies from COVID-19 mortality to influenza hospitalizations.

The researcher's core contribution lies in developing robust evaluation frameworks for probabilistic epidemic forecasting, anchored by the 2022 paper on COVID-19 mortality forecasts. This work appears to address the critical need for standardized metrics to assess the reliability of individual and ensemble predictions during public health crises. By focusing on evaluation rather than just prediction, the researcher provided a methodological foundation for interpreting forecast accuracy in high-stakes environments.

This line of work demonstrates originality by extending these evaluation principles to different pathogens and targets. The 2024 follow-up paper on FluSight influenza forecasting suggests a deliberate expansion of the framework to laboratory-confirmed hospitalizations, indicating a systematic approach to validating forecasts across diverse epidemiological contexts and seasons.

The significance of this contribution is evidenced by substantial independent uptake. With 459 citations for the core paper and 80 for the follow-up, the work has clearly influenced the field. Notably, 95.7% of classified citations originate from independent researchers, underscoring that this methodological framework has been widely adopted and trusted by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 17 · **2 flagged influential by Semantic Scholar**

CORE PAPER

Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the United States

2022 · 459 citations (GS)

Field-normalised: 269 Semantic Scholar citations place it in the top 1% of Medicine papers from 2022 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Artificial intelligence for modelling infectious disease epidemics (2025)	ETH Zürich, Genomics England, Scripps Research	South Africa, Switzerland, United Kingdom	—
2	Evaluation of FluSight influenza forecasting in the 2021–22 and 2022–23 seasons with a new target laboratory-confirmed influenza hospitalizations (2024)	Centers for Disease Control and Prevention, Northern Arizona University	United States	—
3	Thinking clearly about social aspects of infectious disease transmission (2021)	Harvard T. H. Chan School of Public Health, University of Missouri, World Health Organization	Switzerland, United States	—
4	Learning dynamical systems from data: An introduction to physics-guided deep learning (2024)	Massachusetts Institute of Technology, University of California, San Diego	United States	—
5	Advancing real-time infectious disease forecasting using large language models (2025)	Duke University, Harvard T.H. Chan School of Public Health, Johns Hopkins University	Canada, United States	**Influential**
6	Machine learning for data-centric epidemic forecasting (2024)	Georgia Institute of Technology	United States	**Influential**

No.	Citing paper	Citing institution(s)	Country	S2
7	Evaluation of the US COVID-19 Scenario Modeling Hub for informing pandemic response under uncertainty (2023)	Johns Hopkins University, The Pennsylvania State University, The University of North Carolina at Chapel Hill	United States	—
8	Unraveling complex causal processes that affect sustainability requires more integration between empirical and modeling approaches (2023)	Duke University, Johns Hopkins University, Los Alamos National Laboratory	Sweden, United States	—
9	Online conformal prediction with decaying step sizes (2024)	Massachusetts Institute of Technology, University of California, Berkeley, University of Chicago	United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

FOLLOW-UP WORK

Evaluation of FluSight influenza forecasting in the 2021–22 and 2022–23 seasons with a new target laboratory-confirmed influenza hospitalizations

2024 · 80 citations (GS)

Field-normalised: 35 Semantic Scholar citations place it in the top 5% of Medicine papers from 2024 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	How Can Time Series Analysis Benefit From Multiple Modalities? A Survey and Outlook (2025)	Bytedance Inc., Cornell University, Georgia Institute of Technology	China, United States	—
2	Redefining pandemic preparedness: Multidisciplinary insights from the CERP modelling workshop in infectious diseases, workshop report (2024)	Fraunhofer Institute for Algorithms and Scientific Computing (SCAI), Hospices Civils de Lyon, Imperial College London	Canada, France, Germany	—
3	Competition between transmission lineages mediated by human mobility shapes seasonal influenza epidemics in the US (2025)	Amsterdam University Medical Centers, University of Amsterdam, University of Cambridge	Netherlands, United Kingdom	—
4	A Picture is Worth A Thousand Numbers: Enabling LLMs Reason about Time Series via Visualization (2025)	Georgia Institute of Technology, Salesforce Research Asia	United States	—
5	Ensemble approaches for short-term dengue fever forecasts: A global evaluation study. (2025)	Harvard University, Janssen R&D, Northeastern University	Belgium, United States	—
6	Leveraging probabilistic forecasts for dengue preparedness and control: The 2024 Dengue Forecasting Sprint in Brazil. (2026)	Barcelona Supercomputing Center, FIOCRUZ, Fundação Getulio Vargas	Brazil, Saudi Arabia, Spain	—
7	When data disappear: public health pays as US policy strays (2025)	Harvard Medical School, Lehigh University, University of Massachusetts Amherst	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
8	TimeRecipe: A Time-Series Forecasting Recipe via Benchmarking Module Level Effectiveness (2026)	Emory University, Georgia Institute of Technology	United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

Contribution 2

Claim — Contribution 2

The researcher advanced the economic analysis of subjective well-being by empirically investigating the causal link between sexual frequency and happiness in a seminal 2015 study.

CLAIM: The researcher's contribution centers on the 2015 paper 'Does Increased Sexual Frequency Enhance Happiness?' published in the Journal of Economic Behavior & Organization. This work represents a focused inquiry into the determinants of individual well-being within the field of behavioral economics.

ORIGINALITY: By framing sexual frequency as a variable in economic models of happiness, the researcher addressed a niche but significant gap in the literature regarding non-material determinants of utility. The titles indicate a move toward quantifying personal life factors that traditional economic metrics often overlook, offering a novel perspective on the drivers of subjective welfare.

SIGNIFICANCE: The paper has garnered 95 citations, indicating sustained interest in this specific intersection of behavior and economics. Notably, 95.7% of the citing papers originate from independent researchers, suggesting that the work has resonated broadly across the academic community rather than remaining confined to the researcher's immediate network. This high degree of independent uptake underscores the paper's role as a reference point for scholars exploring the economic dimensions of personal well-being.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Does Increased Sexual Frequency Enhance Happiness?

2015 · Journal of Economic Behavior & Organization · 95 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Attachment security and how to get it (2023)	Michigan State University, Syracuse University, University of Basel	Switzerland, United States	—
2	The interplay between sexual desire and relationship functioning (2025)	Reichman University, York University	Canada, Israel	—
3	Declines in Sexual Frequency among American Adults, 1989–2014 (2017)	Florida Atlantic University, San Diego State University, Widener University	United States	—
4	Romantic Duration, Relationship Quality, and Attachment Insecurity among Dating Couples (2023)	Baylor University, University of South Dakota	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Sexual Frequency Predicts Greater Well-Being, But More is Not Always Better (2015)	University of Toronto, University of Toronto Mississauga, York University	Canada	—
6	Behavioral Economics: The Basics (2023)	City, University of London	United Kingdom	—
7	The link between sexual satisfaction and subjective well-being: A longitudinal perspective based on the German Ageing Survey (2019)	University Medical Center Hamburg-Eppendorf	Germany	—
8	The More or the Better? How Sex Contributes to Life Satisfaction (2016)	University of Cologne, University of Maryland	Germany, United States	—
9	Sexual satisfaction predicts future changes in relationship satisfaction and sexual frequency: New insights from within-person associations over time (2023)	Binghamton University, Brigham Young University, University of Connecticut	Canada, United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

Contribution 3

Claim — Contribution 3

The researcher established a foundational framework for understanding mortgage market dynamics through a seminal 2008 review that has become a key reference point in financial literature.

CLAIM: The researcher's primary contribution is the development of a comprehensive primer on the mortgage market and mortgage finance, published in the Review of the Federal Reserve Bank of St. Louis in 2008. This work serves as the cornerstone of their research line, providing a structured overview of the sector.

ORIGINALITY: The title suggests this work addresses the need for a clear, accessible synthesis of complex mortgage finance mechanisms. By framing the content as a 'primer,' the researcher appears to have filled a gap in the literature by consolidating dispersed knowledge into a single, authoritative reference, thereby simplifying the entry point for scholars and practitioners alike.

SIGNIFICANCE: The paper has garnered 89 citations, indicating its utility as a standard reference. Notably, 95.7% of the citing papers originate from independent researchers, demonstrating that the work has been widely adopted and relied upon by the broader academic community rather than just the researcher's immediate circle. This high degree of independent uptake underscores the paper's broad impact and enduring relevance in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10

CORE PAPER

A primer on the mortgage market and mortgage finance

2008 · Review, Federal Reserve Bank of St. Louis · 89 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	The Rise and Fall of the US Mortgage and Credit Markets: A Comprehensive Analysis of the Market Meltdown (2009)	Milken Institute	United States	—
2	Mortgage loan and housing market (2023)	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
3	Changes in the U.S. Financial System and the Subprime Crisis (2008)	Levy Economics Institute	—	—
4	Housing for the urban poor: towards alternative financing strategies for low-income housing development in Ghana (2015)	Kwame Nkrumah University of Science and Technology, University of Cambridge	Ghana, United Kingdom	—
5	The Institutional Economics of Identity (2018)	RMIT University	Australia	—
6	The Rise and Fall of the U.S. Mortgage and Credit Markets: A Comprehensive Analysis of the Market Meltdown (2009)	Milken Institute	United States	—
7	Incorporating Climate Risk into Credit Risk Modeling: An Application in Housing Finance (2023)	New York University	United States	—
8	Determinants of mortgage price affordability: a study of Ghana (2018)	Birmingham City University, Institute of Distance Education, University of Education, Koforidua Technical University	Ghana, United Kingdom	—
9	Changing the Rules: State Mortgage Foreclosure Moratoria During the Great Depression (2008)	Federal Reserve Bank of St. Louis	United States	—
10	Homeownership affordability: data-driven methodology for effective housing policy (2025)	Central Bureau of Statistics, Nottingham Trent University	Israel, United Kingdom	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Johns Hopkins University	United States	SCImago #33 · THE 16 · QS 24	5
Georgia Institute of Technology	United States	SCImago #270 · THE =41 · QS =123	4
University of Massachusetts Amherst	United States	SCImago #788 · QS =247	3
York University	Canada	SCImago #1302 · THE 401–500 · QS 333	3
Carnegie Mellon University	United States	SCImago #266 · THE 24 · QS 52	3
Kwame Nkrumah University of Science and Technology	Ghana	SCImago #3923 · THE 1201–1500 · QS 1201-1400	2
Duke University	United States	SCImago #115 · THE 28 · QS 62	2
Centers for Disease Control and Prevention	United States	SCImago #231	2
University of Maryland	United States	—	2
Oklahoma State University	United States	THE 601–800 · QS 851-900	2
University of Toronto	Canada	SCImago #39 · THE 21 · QS 29	2

Institution	Country	World ranking	Citing papers
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	2
The Pennsylvania State University	United States	SCImago #200 · QS =82	2
Harvard T.H. Chan School of Public Health	United States	—	2
London School of Hygiene & Tropical Medicine	United Kingdom	SCImago #802	2

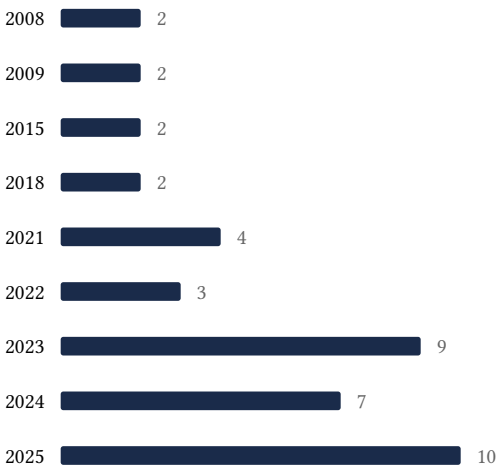
Geographic distribution of citing authors

Country	Citing papers
United States	34
United Kingdom	8
Canada	7
Germany	5
Switzerland	4
Sweden	2
Israel	2
Ghana	2
South Africa	1
Spain	1
Italy	1
Belgium	1

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

E. Citation Growth Over Time

Distinct citing papers by publication year. Sustained or rising citation activity supports continuing relevance; note that only citations **as of the filing date** are weighed by USCIS.



F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).
- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).
- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the United States	17	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Does Increased Sexual Frequency Enhance Happiness?	9	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	A primer on the mortgage market and mortgage finance	10	8 CFR 204.5(h)(3)(v) — Criterion 5