AARON R. WILLIAMS

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Education

Georgetown University - Washington, DC   *May 2021*
M.S. Mathematics and Statistics

Virginia Commonwealth University - Richmond, VA   *Dec. 2014*
Honors B.S. Economics

Virginia Commonwealth University - Richmond, VA   *Dec. 2014*
Honors B.A. Music

Professional Experience

Urban Institute   *June 2016 - Present*
Lead Data Scientist for Statistical Computing   *Jan. 2024 - Present*
Senior Data Scientist   *Jan. 2021 - Dec. 2023*
Data Scientist   *Jan. 2019 - Dec. 2020*
Research Analyst   *Jan. 2018 - Dec. 2019*
Research Assistant   *Jun. 2016 - Dec. 2017*

Georgetown University McCourt School of Public Policy   *Jan 2020 - Present*
Adjunct Professor   *Aug. 2021 - Present*
Instructor of Record   *Jan. 2020 - Dec. 2020*

The Commonwealth Institute for Fiscal Analysis - Richmond, VA   *June 2015 - May 2016*
Research Assistant

Grants

Department of Labor   *Sept. 2022 - Sept. 2027*
Chief Evaluation Office — $1,524,088
Project: Disclosure Protection for the Department of Labor's Restricted-Use Data Access Program
Role: Co-Principal Investigator

Bill and Melinda Gates Foundation   *Nov. 2024 - June 2026*
Bill and Melinda Gates Foundation — Investment ID INV-071365 — $375,000
Project: Expand SLDS Data Access with Synthetic Data Generation & Validation
Role: Co-Principal Investigator

Urban Institute Racial Equity Analytics Lab   *Jan. 2023 - Aug. 2023*
From Ballmer Group — $50,000
Project: Reducing Racial Differences in Decennial Census Errors with Opt-Out Differential Privacy
Role: Principal Investigator

Seed Funding   *Sept. 2021 - Dec. 2021*
Urban Institute — $8,500
Project: Supporting a new generation of Urban Institute quantitative researchers
Role: Co-Principal Investigator

Honors & Awards

2024 VCU Alumni's 10 Under 10 award *October 2024*
Virginia Commonwealth University

2023 President's Award for Evidence *April 2024*
Urban Institute

2023 President's Award for Technology Innovation in Research & Data Science *April 2024*
Urban Institute

2022 President's Award for Technology Innovation in Research & Data Science *April 2023*
Urban Institute

2021 President's Award for Technology Innovation in Research & Data Science *April 2022*
Urban Institute

2020 President's Award for Entrepreneurship *April 2021*
Urban Institute

2020 Joint Statistical Meetings Student Travel Award *March 2020*
Washington Statistical Society of the American Statistical Association

2017 President's Award for Technology Innovation in Research & Data Science *April 2018*
Urban Institute

Student of the Year *May 2015*
Virginia Commonwealth University Economics Department

Dossier Award *December 2014*
Virginia Commonwealth University Honor's College

Provost Scholarship (All Tuition and Fees) *August 2010 - May 2014*
Virginia Commonwealth University

Publications

Refereed Publications

9. **Williams, A. R.**, Snoke, J., Bowen, CMK., and Barrientos, A. F. "Disclosing Economists' Privacy Perspectives: A Survey of American Economic Association Members on Differential Privacy and Data Fitness for Use Standards." *Harvard Data Science Review.* Accepted.

8. Snoke, J., Bowen, CMK., **Williams, A. R.**, and Barrientos, A. F. (2023) "Incompatibilities Between Current Practices in Statistical Data Analysis and Differential Privacy." *Journal of Privacy and Confidentiality.* Accepted.

7. Barrientos, Andres F., **Aaron R. Williams,** , Joshua Snoke, and Claire M. Bowen. (2023) "A Feasibility Study of Differentially Private Summary Statistics and Regression Analyses with Evaluations on Administrative and Survey Data" *Journal of the American Statistical Association*, 1-24.
   https://doi.org/10.1080/01621459.2023.2270795

6. **Williams, A. R.**, and Bowen, CMK. (2023) "The Promise and Limitations of Formal Privacy." *WIREs Computational Statistics*. e1615. doi.org/10.1002/wics.1615

5. Bowen, CMK., Bryant, V., Burman, L., Khitatrakun, S., McClelland, R., Mucciolo, L., Pickens, M., and **Williams, A. R.** (2022) "Synthetic Individual Income Tax Data: Promises and Challenges." *National Tax Journal*, 75(4), 767-790.

4. Bowen, CMK., Bryant, V., Burman, L., Czajka, J., Khitatrakun, S., MacDonald, G., McClelland, R., Mucciolo, L., Pickens, M., Ueyama, K., **Williams, A. R.**, Wissoker, D., and Zwiefel, N. (2022) "Synthetic Individual Income Tax Data: Methodology, Utility, and Privacy Implications." *Privacy in Statistical Databases: International Conference, PSD 2022, Paris, France, September 21–23, 2022, Proceedings* (pp. 191-204). Cham: Springer International Publishing.

3. Williams, Larry J., **Williams, Aaron R.**, and Ernest O'Boyle. (2023) "Assessment of Path Model Fit: Evidence of Effectiveness and Recommendations for Use of the RMSEA-P." *Organizational Research Methods.*.

2. **Williams, Aaron R.** (2021) "Data Visualization Case Studies for High-Dimensional Data Validation." *Stat.* Volume10, Issue1 December 2021. https://doi.org/10.1002/sta4.334

1. Bowen, CMK., Bryant, V., Burman, L., Khitatrakun, S., McClelland, R., Stallworth, P., Ueyama, K., **Williams, A. R.** (2020) "A Synthetic Supplemental Public Use File of Low-Income Information Return Data: Methodology, Utility, and Privacy Implications." *International Conference on Privacy in Statistical Databases*, pages 257-270. Springer, Cham.

Articles, Editorials, and Other Publications not peer reviewed

16. Tyagi, E., and Taylor, S., and MacDonald, G., and Tamaroff, D., and Miller, J., and Bowen, C.M., and **Williams, A. R.** (2024) "A Privacy-Preserving Validation Server Version 2.0." *Urban Institute*.

15. **Williams, A. R.**, and Barrientos, A. F. and Snoke, J. and Bowen, C (2024) "Benchmarking DP Linear Regression Methods for Statistical Inference." *Data Privacy Protection and the Conduct of Applied Research: Methods, Approaches and their Consequences, Spring 2024*.

14. **Williams, A. R.**, and Andre, J. (2023) "Opt-In Disclosure Protection." *Urban Institute*.

13. **Williams, A. R.**, Zhong, M., and Braga, B. (2023) "Using Machine Learning to Estimate Racially Disaggregated Wealth Data at the Local Level." *Urban Institute*.

12. Solari, Claudia, Lily Robin, Tina Chelidze, Keith Fudge, **Aaron R. Williams**, and Greg Acs. (2022) "Boosting Upward Mobility: Metrics to Inform Local Action" *Urban Institute*.

11. Bowen, CMK. **Williams, A. R.**, and Pickens, M. (2022) "Decennial Disclosure: An Explainer on Formal Privacy and the TopDown Algorithm." *Urban Institute*.

10. Barrientos, Andres F., **Aaron R. Williams**, Joshua Snoke, and Claire Bowen. (2022) "Differentially Private Methods for Validation Servers" *Urban Institute*.

9. Smith, Karen E., **Aaron R. Williams**, and Stipica Mudrazija. (2021) "Modeling Income in the Near Term 8: Final Report" *Urban Institute*.

8. Cosic, Damir, **Aaron R. Williams**, and Eugene C. Steuerle. (2020) "Do People Work Longer When They Live Longer?" *Working Paper, Retirement and Disability Research Consortium*.

7. Bowen, CMK., Burman, L., Khitatrakun, S., MacDonald, G., McClelland, R., Stallworth, P., Ueyama, K., **Williams, A. R.**, Zwiefel, N. (2020) "A Synthetic Supplemental Public-Use File of Low-Income Information Return Data: Methodology, Utility, and Privacy Implications." *Urban Institute*

6. Cosic, Damir and **Aaron R. Williams**. (2019) "Lifetime Income & Costs of the LI50+" *Research

Report for the AARP Foundation.

5. Smith, Karen E. and **Aaron R. Williams**. (2019) "Modeling Income in the Near Term 8: Dataset Documentation" *Urban Institute*.

4. Smalligan, Jack, **Aaron R. Williams**, Chantel Boyens. (2019) "Social Security's Earliest Eligibility Age" *Urban Institute*.

3. **Williams, Aaron R.**, Michael Cassidy. (2016) "Coal Tax Credits Aren't Working" *The Commonwealth Institute for Fiscal Analysis*.

2. **Williams, Aaron R.**, Michael Cassidy. (2016) "Undocumented, But Not Untaxed" *The Commonwealth Institute for Fiscal Analysis*.

1. Whorley, Massey, **Aaron R. Williams**, Michael Cassidy. (2016) "From Coal Town to Coast Line." *The Commonwealth Institute for Fiscal Analysis*.

Blogs and Professional Service Publications

13. **Aaron R. Williams**. (2023) "Improving Official Statistics with Opt-In Disclosure Protection." *Urban Wire*.

12. Zhong, Mingli and **Aaron R. Williams**. (2022) "In Chicago, Neighborhoods Have Stark Differences in Economic Opportunity." *Urban Wire*.

11. Schwabish, Jon and **Aaron R. Williams**. (2021) "Creating Better, More Informative Map Legends in R." *Urban Wire*.

10. Schwabish, Jon, **Aaron R. Williams.** (2021) "Why Disability Insurance Participation Might Be Higher in Some Parts of the Country" *Urban Wire*.

9. Bowen, CMK., **Williams, A. R.**, and Narayanan, A. (2021) "To Advance Racial Equity, Releasing Disaggregated Data while Protecting Privacy Will Be Key." *Urban Wire*.

8. **Williams, Aaron R.** (2019) "Expanding the Earned Income Tax Credit Can Support Older Working Americans." *Urban Wire*.

7. Smalligan, Jack, **Aaron R. Williams**, and Chantel Boyens. (2019) "If the Early Retirement Age Changes, At-Risk Older Workers Will Need More Support." *Urban Wire*.

6. Chartoff, Ben, Jessica Kelly, Graham MacDonald, Jon Schwabish, **Aaron R. Williams.** (2019) "Scripting versus Point-and-Click, a Slack Debate" *Urban Wire*.

5. Schwabish, Jon and **Aaron R. Williams**. (2019) "Learning R: A Conversation." *Urban Wire*.

4. **Williams, Aaron R.** (2019) "Building an R Community at the Urban Institute." *Urban Wire*.

3. **Williams, Aaron R.** (2018) "Iterated PDFs with R Markdown." *Urban Wire*.

2. **Williams, Aaron R.** (2018) "Iterated fact sheets with R Markdown." *Urban Wire*.

1. **Williams, Aaron R.** (2018) "Why the Urban Institute Visualizes Data with ggplot2." *Urban Wire*.

Invited Presentations

5. July, 12 2023. *Using Machine Learning to Estimate Wealth at the Local Level.* US Census Bureau ML/AI Affinity Group, Washington, DC.

4. April 13, 2023. *tidysynthesis.* UCLA Synthetic Data Conference, Los Angeles, CA.

3. August 9, 2022. *Working with Stakeholders to Protect Data Confidentiality*. Joint Statistical Meetings, Washington, DC.

2. January 28, 2022. *Fully synthetic microdata for public policy analysis*. International Privacy Day: New Developments in Synthetic Data Generation. American Statistical Association Privacy and Confidentiality Committee.

1. April 22, 2021. *Data Visualization for High-Dimensional Data Validation*. 14th annual Innovations in Design, Analysis and Dissemination (IDAD): Frontiers in Biostatistical and Data Science conference, Kansas City, MO.

Contributed Presentations

16. May 17, 2024. *Benchmarking DP Linear Regression Methods for Statistical Inference*. NBER Data Privacy Protection and the Conduct of Applied Research: Methods, Approaches, and the Consequences. Washington, DC.

15. November, 14 2023. *Using Machine Learning to Estimate Wealth at the Local Level*. US Census Bureau's Workshop on Advancing Research on Race, Ethnicity and Inequality, Washington, DC.

14. August 7, 2023. *Professional Development Course: Introduction to Data Privacy and Data Synthesis Techniques*. 2023 Joint Statistical Meetings. Toronte, ON.

13. May 4, 2023. *Disclosing Economists' Privacy Perspectives: A Survey of American Economic Association Members on Differential Privacy and Data Fitness for Use Standards*. NBER Data Privacy Protection and the Conduct of Applied Research: Methods, Approaches, and the Consequences. Cambridge, MA.

12. April 20, 2023. *Boosting Upward Mobility from Poverty*. VCU Berglund Seminar, Richmond, Virginia.

11. February 8, 2023. *Using Machine Learning to Understand Wealth at the Local Level*. Census Virtual SIPP Conference.

10. July 28, 2022. *Introducing library(tidysynthesis)*. rstudio::conf(2022), National Harbor, MD.

9. June 3, 2021. *Synthetic Data Generation with tidysynthesis*. American Statistical Association's Symposium on Data Science and Statistics. St. Louis, MO.

8. November 18, 2020. *Future Plans for Secure Research Access to Administrative Tax Data*. National Tax Association annual meeting. Denver, Colorado. With Graham MacDonald.

7. August 5, 2020. *A Synthetic Supplemental Public Use File of Low-Income Information Return Data: Methodology, Utility, and Privacy Implications*. American Statistical Association 2020 Joint Statistical Meeting, Philadelphia, PA.

6. July 27, 2020. *Lessons Learned from Synthesizing IRS Tax Data*. Association for Public Data Users (APDU) Annual Conference, Arlington, VA. With Kyle Ueyama.

5. July 22, 2020. *Lifetime Income & Costs of the LI50+*. Bureau of Labor Statistics Consumer Expenditure Surveys (CE) Survey Methods Symposium and Microdata Users' Workshop, Washington, DC.

4. June 3, 2020. *Data Visualization for High-Dimensional Data Validation: Case Studies on Evaluating Microsimulation Modeling and Synthetic Data Generation*. American Statistical Association's Symposium on Data Science and Statistics, Pittsburgh, PA.

3. May 20, 2020. *Iterating Branded Fact Sheets and Web Pages with R Markdown*. Good Tech Fest, Chicago, IL.

2. March 28, 2020. *Iterating Branded Fact Sheets and Web Pages with R Markdown*. SatRday DC, Washington, DC.

1. February 7, 2020. *Generation X, Millennials, and the Future of Retirement*. VCU Berglund Seminar, Richmond, VA.

Professional Activities and Affiliations

<u>Service:</u>

Bureau of Labor Statistics

o Technical Advisory Committee   2024–2027

Journal Referee

o Harvard Data Science Review

o Journal of Survey Statistics and Methodology

Symposium on Data Science and Statistics

o Co-organizer of the Data Visualization Track   2022

National Professional Memberships:

American Statistical Association

o Traveling Course Instructor   2022, 2023, 2024

  - Data Visualization in R
  - Offered full-day workshops to 15 chapters: Nebraska, Louisville, Columbus, Alaska, Philadelphia, Central Arkansas, North Carolina, Western Michigan, Nevada, New York, Princeton, Oklahoma, Houston, Cleveland, and North Texas.

o Member   Mar. 2020 - Present