

# AARON R. WILLIAMS

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## Education

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**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

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**Urban Institute** June 2016 - Present  
*Senior Data Scientist* Jan. 2021 - Present  
*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

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**Department of Labor** Sept. 2022 - Sept. 2025  
*Chief Evaluation Office* — \$524,164  
Project: Disclosure Protection for the Department of Labor's Restricted-Use Data Access Program  
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

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

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

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

<b>2020 Joint Statistical Meetings Student Travel Award</b> <i>Washington Statistical Society</i>	<i>March 2020</i>
<b>2018 President's Award for Technology Innovation in Research &amp; Data Science</b> <i>Urban Institute</i>	<i>April 2018</i>
<b>Student of the Year</b> <i>VCU Economics Department</i>	<i>May 2015</i>
<b>Dossier Award</b> <i>VCU Honor's College</i>	<i>December 2014</i>
<b>Provost Scholarship (All Tuition and Fees)</b> <i>Virginia Commonwealth University</i>	<i>August 2010 - May 2014</i>

## **Publications**

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### **Refereed Publications**

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.

### **Under Review/Preprint**

3. Snoke, J., Bowen, CMK., **Williams, A. R.**, and Barrientos, A. F. "Incompatibilities Between Current Practices in Statistical Data Analysis and Differential Privacy"
2. **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."
1. Barrientos, A. F., **Williams, A. R.**, Snoke, J., and Bowen, CMK. "A Feasibility Study of Differentially Private Summary Statistics and Regression Analyses for Administrative Tax Data."

### **Articles, Editorials, and Other Publications not peer reviewed**

13. **Williams, A. R.**, Zhong, M., and Pickens, M. (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**

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

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6. 2023. *Data Visualization in R*. American Statistical Association Traveling Course Series. Central Arkansas, North Carolina, Western Michigan, Nevada, New York, and Princeton.
5. April 13, 2023. *tidysynthesis*. UCLA Synthetic Data Conference, Los Angeles, CA.
4. 2022. *Data Visualization in R*. American Statistical Association Traveling Course Series. Nebraska, Louisville, Columbus, Alaska, and Philadelphia.
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

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13. March 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

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### National Professional Memberships:

- American Statistical Association

Mar. 2020 - Present

### **Symposium on Data Science and Statistics**

- Co-organizer of the Data Visualization Track

2022