

Austin Herrick

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EXPERIENCE

Penn Wharton Budget Model (PWBM)

Philadelphia, PA

PWBM is a nonpartisan research institution that produces fiscal and demographic projections of proposed policies, which are used by members of Congress and federal decisionmakers. Our [Demographic Microsimulation](#), a microfounded projection of the US population built from more than 30 interconnected economic models, is a core part of these analyses.

Senior Analyst

January 2019 – Present

- Lead development of the Demographic Microsimulation, which entails building code infrastructure, maintaining dependency networks, and reviewing all new models and additions submitted by other researchers
- Serve as administrator for all repositories that handle data retrieval and processing, ensuring developers follow best practices and updating infrastructure as necessary
- Manage data pipelines to smoothly retrieve, clean, and store government microdata surveys and administrative data, such as the American Community Survey, Current Population Survey, and Survey of Income and Program Participation, each composed of millions of interviews over decades
- Co-lead hiring team for all incoming Research Associates in the organization, and lead training for new hires, including with a self-written Python course
- Supervise Research Associate projects, including creating timelines, assigning responsibilities, and providing guidance on model implementation
- Co-author working paper on immigration modelling and contribute to economic briefs presented to members of Congress
- Write and maintain 16,000-word internal technical documentation of the Demographic Microsimulation, and created a public use file and associated documentation
- Train developers and senior economists on use of our Github Flow system

Research Associate

July 2017 – December 2018

- Build statistical and machine learning models to project demographic factors including immigration, marriage markets, and fertility, using techniques such as weighted multinomial logistic regression and Markov chain Monte Carlo
- Process government survey datasets, using imputation and estimation techniques such as iterative proportional fitting and residual estimation
- Review economic literature and social policy to inform modelling approaches
- Write blog posts to disseminate policy analysis and demographic trends to the public

University of Chicago

Chicago, IL

Research Assistant, Center for Robust Decisionmaking on Climate and Energy Policy

June 2016 – September 2016

- Conducted literature review on capital malleability and committed emissions assumptions and synthesized documentation for over 20 complete general equilibrium climate models to create a report detailing their sensitivity to capital transition concerns

Sustainability Intern, Facilities Services: Campus Planning + Sustainability

June 2015 – June 2016

- Built a calculator tool to preform cost-benefit analysis and compare savings across buildings for energy efficiency upgrades to campus properties, identifying savings of up to \$2,000,000 over a 5 year period

EDUCATION

The University of Pennsylvania

Philadelphia, PA

Masters of Computer and Information Technology

August 2021 – Present

- GPA: 4.0

Additional Coursework: Computer Science through Program Design (OCaml and Java)

Jan – May 2021

The University of Chicago

Chicago, IL

Bachelor of Arts in Economics

June 2017

- GPA: 3.64
- Relevant Coursework: Econometrics, Statistical Analysis, Computer Science, Micro and Macroeconomic Analysis (Honors), Accounting, Monetary Policy, Industrial Organization

PROGRAMMING

- *Python (including Pandas, Numpy, Luigi, and Statsmodels)* – 5 years of professional experience in managing codebases, cleaning and analyzing microdata, constructing demographic models, visualizing and validating data, and building code infrastructure for a large-scale microsimulation
- *Java* – Primary language used during graduate coursework
- *SQL* – Minor professional use for efficient dataset access and moderate use in coursework
- *OCaml, R, Stata, Matlab* – Moderate use for coursework in computer science and economics

LEADERSHIP

Phoenix Sustainability Initiative

Chicago, IL

President

May 2016 – May 2017

Vice President

May 2015 – May 2016

- Managed, trained, and directed 7 Project Leaders overseeing teams of 5-6 members, responsible for a range of projects such as hosting discussion panels, promoting sustainable food, organizing career treks, and networking with the community

WRITING / PUBLICATIONS

- *Berkovich, Costa, Herrick*, (2022) “Immigration and the Macroeconomy”. PWBM Working Paper Series. Available at <https://budgetmodel.wharton.upenn.edu/issues/2022/1/5/w2022-1>
- Briefs for PWBM *Economic Matters* blog. E.g, *Estimates of TCJA Repatriation of Foreign Earnings on Investment and GDP*: (<https://budgetmodel.wharton.upenn.edu/issues/2018/8/29/estimates-of-tcja-repatriation-of-foreign-earnings-on-investment-and-gdp>)
- *Churchill, Biderman, Herrick*, (2020) “Magic: The Gathering is Turing Complete”. The Proceedings of the 10th International Conference on Fun with Algorithms. Available at <https://arxiv.org/abs/1904.09828v2>