

## Austin Herrick

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Github : [github.com/AHerrick76](https://github.com/AHerrick76) | Personal Website: [aherrick76.github.io](http://aherrick76.github.io)

### EXPERIENCE

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#### **Penn Wharton Budget Model (PWB)**

Philadelphia, PA

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

*Senior Analyst*

January 2019 – Present

- Lead development of the Demographic Microsimulation, which entails building code infrastructure, maintaining dependencies, and reviewing and integrating all new models and additions submitted by other researchers
- Administrate all repositories handling data retrieval and processing, enforcing best practices and updating infrastructure as necessary
- Manage data pipelines to smoothly retrieve, clean, and store government microdata surveys and administrative data, including 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

- Built 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
- Processed government survey datasets, using imputation and estimation techniques such as iterative proportional fitting and residual estimation
- Reviewed economic literature and social policy to inform modelling approaches
- Wrote 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

- Generated a report detailing the capital malleability and committed emissions assumptions of over 20 complete general equilibrium climate models their sensitivity to capital transition concerns

*Sustainability Intern, Facilities Services: Campus Planning + Sustainability*

June 2015 – June 2016

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

## EDUCATION

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### The University of Pennsylvania

Philadelphia, PA

*Masters of Computer and Information Technology*

August 2021 – Present (Part Time)

- 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

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- *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* – 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

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### 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

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- *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 10<sup>th</sup> International Conference on Fun with Algorithms. Available at <https://arxiv.org/abs/1904.09828v2>