

Zach Flynn's Curriculum Vitae

Basic Info

Website – <http://www.zflynn.com>

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LinkedIn – <https://www.linkedin.com/in/zlflynn>

Github – <https://github.com/flynnzac>

Skills – Economics (Industrial Organization, Econometrics), Machine Learning, Data Science

Current and Prior Employers – Compass Lexecon (an Economic Consulting company), Afiniti (an AI company), Amazon (an internet company)

Education

PhD in Economics

- The University of Wisconsin - Madison (2012-2017)
- Fields: Industrial Organization and Econometrics.
- Dissertation title: Measuring productivity and market power.
- Committee: Ken Hendricks, Alan Sorensen, Amit Gandhi, Jack Porter

BS in Economics and Mathematics

- Tulane University (2008-2012)

Employment

Compass Lexecon

- Senior Economist, Chicago, IL
- February 2020 to present

Afiniti

- Research Scientist, Research and Development, Washington, DC.
- July 1, 2018 to January 2020.
- This role is a hybrid between applying and developing models and actually building the tools to operationalize those models. A hybrid research scientist/engineer role.
- The company builds models to decide how best to pair callers and call center agents. It bills based on how much it increases, say, the sales rate or reduces the cancellation rate.
- I developed
 - an internal R package and strategy to predict the performance of models in production before they are deployed.
 - models that determined which call center agents and callers should be paired to maximize our client's objectives.
 - a main component of the application we use to decide how to route calls between callers and agents (a production application in C++).
 - metrics to monitor how well different strategies for pairing callers and agents do in production once they are deployed.
 - research on new, next-generation matching algorithms.

Amazon

- Economist, Amazon (Prime), Seattle, WA.
- May 1, 2017 to June 30, 2018
- Designed, developed, and used a discrete choice demand model to help make pricing and product design decisions that was used in a wide variety of applications at the company. For example, it was used

- to inform major Prime pricing decisions;
- to separately value the various benefits of being a Prime member (free shipping, streaming video and music, etc)
- to estimate the effect of modifying Prime benefits on Prime membership;
- to estimate the effect of *potential* video content investment decisions on Prime membership.
- Developed a censored quantile regression approach to model what factors make customers buy a product or sign up for Prime sooner.
- Worked on many smaller projects, including analysis of which cities had the greatest opportunity size for advertising Prime during NFL games and which lower-income markets had the greatest opportunity size for advertising a lower-priced Prime for lower-income customers.
- Promoted to Economist II in April 2018.

University of Wisconsin - Madison, Economics Department

- Research Assistant to [Jesse Gregory](#)
- Fall 2014 to August 2016
- Implemented dynamic discrete choice models to understand housing decision problems for two projects: one on post-Katrina New Orleans and the other on the national housing market.
- Used Condor at the CHTC at the University of Wisconsin Madison to estimate the large scale dynamic discrete choice models.
- Teaching Assistant
- Introduction to Macroeconomics (Spring 2013, Spring 2014), Economic Statistics (Fall 2013), Introduction to Microeconomics (Fall 2012)

Research

The latest versions of all papers are also linked at my website: <http://zflynn.com>. I have other works in progress, but I only show the papers with public or nearly-public drafts available below. I (mainly) study how to measure productivity and how productivity affects market structure and economic growth.

Working Papers

- [Identifying productivity when it is a factor of production](#) (accepted at RAND Journal of Economics!)
- [Measuring markups with production data \(with Amit Gandhi and James Traina\)](#)
- [Ex-ante evaluation of a policy's effect on productivity: the substitution and scale effects of carbon taxation on power plant productivity](#)
- [Unproductive by choice: substitution and the slowdown in aggregate productivity growth in the United States](#)
- [Partial identification of production functions with flexible inputs \(with Amit Gandhi\)](#)
- [Identifying the elasticity of experience and its effect on market structure](#)

Published Papers

- Parametric Inference Using Structural Breaks (with Leandro Magnusson). Stata Journal (2013).

Short writing

- [Estimating Logistic Regressions Using Two Stage Least Squares](#)

Awards and Fellowships

Alice S. Gengler Fellowship – University of Wisconsin Madison – awarded May 2016

Culbertson Prize for Top Field Paper – University of Wisconsin Madison – awarded May 2015

Graduate Research Fellowship – University of Wisconsin Madison – awarded May 2015

Programming languages and computing

Environments and programs: AWS, Linux, some Spark knowledge

Programming languages: C/C++, R, SQL (MySQL, Oracle, Redshift, PostgreSQL, etc), SAS, InfluxDB, Fortran, Matlab/Octave, Ada, Perl, Python, Stata, Julia, Shell Scripting, Lisp, and Scheme.

For some examples of projects I have done/jobs where I used the above languages regularly:

- C/C++ – I have used C++ for projects at Afiniti and I have written C code for open source projects.
- R – All of my academic papers were mostly written in R (and Fortran). The censored quantile regression project at Amazon mentioned above was done in R as well. I use it frequently for projects at Afiniti.
- Julia – I work in Julia on an internal project at Afiniti.
- I used various SQL products essentially daily at both Afiniti and Amazon.
- Stata – Some of my RA work at Wisconsin was in Stata, the paper with Lenadro Magnusson developed a Stata package, and I used Stata at Amazon for many projects.
- RA work with Jesse Gregory used both Matlab and Fortran.
- I use Perl in personal scripts, and I used it to automate many tasks at Amazon.
- I learned SAS in college and did some part time "consulting" in SAS while in grad school to help pay for... food... in the summers when there was no TA salary coming in (I helped people write programs to get results they needed for their thesis for 20 dollars an hour).

Free Software/Open Source Projects

- **genvar.** genvar is an R package that implements an imperative syntax for cleaning and analyzing datasets. Imperative means: give a command and then the state of the dataset is modified. This is like Stata's model of modifying data and differs from standard R's more functional type approach. The idea is to eliminate one barrier to switching towards R from Stata by providing a similar data management model in a Free Software package.
- **Leas.** Leas is the Little Extensible Accounting System. It is a command-line, interactive program for managing personal finances. It can be extended using a programming language (Guile Scheme). If you are familiar with Emacs, it is the Emacs of personal finance programs. I've used it to manage my finances for a couple years, and decided to release it in case anyone else finds it useful.
- **ARBEL.** ARBEL is a programming language I wrote. It is based on a flexible data type called a Registry (a hash table) and has the unique feature that it is "naturally generic", i.e. because instructions in the language are executed inside registries, any object of an instruction can be replaced by any other, not just the objects included in the arguments of the function. The primary method of interacting with ARBEL is interactively, through a REPL. It has a command-like syntax, and the ability to save Registry objects to disk and re-load to start up from a previous state.
- **pushmac.** pushmac is a simple stack-based macro language. I've used it in other projects for generating repetitive code (in ARBEL), and I generally prefer it to C preprocessing macros because it is a bit more flexible. I also used it to write the pages for my personal website.