James J. Otterson, PhD

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Overview: Work and research experience in industrial organization, trade and finance. Strong quantitative background (PhD in math and graduate-level training in economics). Track record of published research on math and economics.

Relevant Work Experience

- **Congressional Budget Office - US Congress** Washington, DC
  Principal Analyst (Senior Economist) *04/2018 - present*
  - Worked on macroeconomic models developed to evaluate the impact of fiscal policy, including their impact on income variables.
  - Worked on state space models used to estimate the long-run uncertainty of key economic variables.
- **Goldman Sachs** New York, NY
  Vice President, Macro Economics Team, Risk and Quantitative Analysis Group *11/2015 - 04/2018*
  - Designed and implemented macroeconomic stress test models. Co-authored CCAR and DFAST documents submitted to the FED.
  - Developed quantitative analysis projects from initial concept to completion. Worked on the scenario analysis of Hard Brexit, Grexit, North Korean War, the 2016 US Presidential Election, and a US Debt Ceiling Crisis. The studies included impact estimations on trading and banking books.
  - Simulated the effect of mass deportations of workers in the US to Mexico and of an increase on trade tariffs between these two countries via a General Equilibrium model.
  - Applied econometric techniques and related software to macroeconomic and financial modeling. Main modeling techniques: VAR models, Regime Switching models, and Computable General Equilibrium (CGE) models. Software used: R, Matlab and SecDB (company's proprietary programming language).
- **World Bank** Washington, DC
  Economic Consultant, Trade and International Integration Team *11/2014 - 11/2015*
  Development Economics Research Group
  - Worked on econometric and Dynamic General Equilibrium models of labor allocation under international trade shocks.
  - Extended a well known fact in functional analysis and demonstrated that it can be used to give simple derivations of key microeconomic formulas.
  - Main modeling techniques: CGE models, Regression models, and dynamic optimization. Software used: R and Matlab.
- **National Bureau of Economics Research (NBER)** New York, NY
  Research work for MIT/Stanford professor Dave Donaldson, Clark Bates medalist *10/2013 - 11/2014*
  - Constructed optimization models in economic geography to find a country's transportation network that is on budget and yields the highest welfare. Main modeling techniques: convex optimization, graph theory, functional analysis.
  - Developed econometric models to study the key aspects of companies that participate in international trade.
- **Strategic Affairs Office of the Brazilian Presidency (SAE)** **Rio de Janeiro, Brazil**
  (at IPEA, the Applied Economics Institute of the SAE.) *01/2011 - 09/2013*
  National Development Fellow, PhD level
  - Managed the modeling part of a large study on the Brazilian pharmaceutical sector.
  - Key tasks: liaising with other team members to define problems, identify objectives, build models, and develop findings to inform policy makers on pros and cons of pharmaceutical policy options.
  - Was first author of a paper presented at the European Association for Research in Industrial Economics (EARIE) conference, and at a NYU conference on Patent Law.

- Gave seminar talks on industrial organization and antitrust issues based on research findings at several Brazilian federal government agencies.
- Wrote four internal research reports for IPEA. Reports were distributed to senior leadership to inform economic policy decisions.
- Interacted with government officials, NGOs, and the private sector to get a high level view and data on the pharmaceutical market from key market stakeholders.
- Main modeling techniques: OLS, GLS, panel analysis, probit, (zero-inflated) count data models, and survival analysis models.

Core Technical Skills

Software: Python, R, Matlab, Stata, Eviews, MS Office, Latex (LaTeX), Javascript and related web languages (React, HTML, CSS, Markdown, Yaml). Databases: SQL and MongoDB.

Languages: Fluent in English and Portuguese. Strong command of Spanish. Basic French.

Relevant course work: Completed six graduate level courses in economics (micro, macro, econometrics, health economics, trade, and economic inequality) and several graduate level courses in statistics and its foundations (measure theory, functional analysis, Banach algebras, and C^*-algebras).

Education

- **PhD in Mathematics** **2006 - 2010**
  Imperial College *London, U.K.*
  - Studied mathematical physics at the research group of Sir Simon Donaldson (Fields Medal). This group was considered to be the top math group in the country (RAE rating of 2008).
- **Post Graduate Studies in Physics and Math:**
  The State University of Rio de Janeiro, Brazil *2004 - 2005*
  Utrecht University, the Netherlands *2003 - 2004*
  - Completed several post-graduate courses in physics and mathematics.
  - Main modeling techniques: differential equations and functional analysis.
- **MA in Mathematics** **2001 - 2003**
  UC Berkeley *CA, USA*
  - Obtained a new research result in differential equations.
  - Completed courses in measure theory and functional analysis (the math foundation of statistics).
- **BA in Math (major) and Statistics (minor)** **1998 - 2001**
  Rutgers, New Brunswick *NJ, USA*
  - Graduated with magna cum laude.
  - Completed several courses in math, economics and statistics (including post-grad courses).
  - Worked in math and social science research projects.

Software development

- Python packages distributed via pypi: datapungibea and datapungi-fed (over 16k downloads in total). FED API website lists datapungi-fed as a suggested third party python package. datapungibea solves some problems of the BEA API.
  (github) `https://github.com/jjotterson` (pypi) `https://pypi.org/user/jjotterson/`
- Eviews package: giteviews, a package for running git directly from Eviews.
  `https://www.eviews.com/Addins/addins.shtml`
- A headless website (Django REST framework backend and a React frontend) with an automated tracking of news clippings of a 100 central banks, among other things.
  `https://www.econbrief.com/`
- PyPungi, a free software to aid time-series modeling in python.
  `https://www.pypungi.com`,

Selected Articles and Research in Economics

- *Long-Term Uncertainty*, CBO working paper.
- *Otterson, J., "An Extension of Hölder's Inequality with an Application to Economics"*, submitted.
- *Otterson, J., "Datapungibea: Accessing BEA datasets in Python."*, open source package documentation.
- *Aging and Migration Impacts on Trade*, a general equilibrium model measuring the impact of aging and migration on trade patterns. In preparation with co-authors.
- *DFAST 2017, Scenario Regression Models*, document submitted to the FED.
- *CCAR 2017, Federal Reserve Scenario Regression Models* , document submitted to the FED.
- *CCAR 2017, Bank Holding Company Scenario Regression Models* , document submitted to the FED.
- *DFAST 2016, Scenario Regression Models*, document submitted to the FED.
- *CCAR 2016, Federal Reserve Scenario Regression Models*, document submitted to the FED.
- *CCAR 2016, Bank Holding Company Scenario Regression Models* , document submitted to the FED.
- *Otterson, Fiuza, and Pereira, "Entry and Competition in the Brazilian Generic Drug Market"*, initial version of the article was accepted in the EARIE 2013 conference, its current version was presented at NYU's National Policies on Secondary Pharmaceutical Patents 2016 conference.
- *ANVISA's approval waiting time*, Institute of Applied Economic Research (IPEA), 2013.
- *Do generic drugs enter in sequentially or simultaneously in the Brazilian market?*, IPEA, 2012.
- *Generic drug entry time*, IPEA, 2011.
- *Is drug price control binding in Brazil?*, IPEA, 2011.

Talks

List of talks given:

- Long-term uncertainty, CBO seminar. 02/2020
- Generic Entry Impact on Price and Share, IPEA seminar. 04/2013
- Aspects of the Brazilian Pharmaceutical Sector, Ministry of Justice 10/2012
  (SDE - the Brazilian Ministry of Justice chief investigative body in anti-competitive issues).
- Regulatory Agency Waiting Time and Generic Entry Time, 08/2011
  Ministry of Justice and ANVISA seminar.
- Generic Entry Time, IPEA seminar. 07/2011
- Seiberg-Witten Equations over Complex Surfaces, 06/2009
  Two talks, Imperial College's Postdoctoral Geometry Seminar.