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Education

PhD In Economics, New York University, 2017-2023 (expected)
MA in Economics, Pontifical Catholic University of Rio de Janeiro, 2015-2017
Thesis Title: *Demographics and the Fisher Effect in the Nineteenth Century*.
BA in Economics, Insper – Instituto de Ensino e Pesquisa, 2010-2014

References

Professor Elena Manresa
19 West Fourth St., 6th Floor
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Professor Quang Vuong
19 West Fourth St., 6th Floor
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Professor Konrad Menzel
19 West Fourth St., 6th Floor
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Teaching and Research Fields

Primary field: Econometrics
Secondary field: Applied microeconomics

Research Papers

Predictive Inference in a Wide Class of Temporal Data (Job Market Paper)

Forecasters usually report point predictions; however, understanding the randomness around such values is of practical importance. An example: a central bank predicts 2\% inflation next quarter but is also interested in an interval (0\%-4\%, for example) that will contain the future realization of this series with a set probability. I show how to construct intervals as such, and I prove their asymptotic validity. I propose a model free method that encompasses, but not limited to, any off-the-shelf machine-learning method including high-dimensional ones. The method is based on a subsampling estimation strategy, consisting of analyzing smaller cuts of the original time series. I prove the prediction intervals constructed with the

subsampling method remain valid even when the data exhibits nonstationarities of many kinds –- such as time-varying parameters, structural breaks, unit roots, and transitions between steady-states. In addition to this theoretical work, I provide simulation studies to show the numerical performance of this method. I also apply the method to a demand dataset and to the forecast of inflation in a high-dimensional setup. The subsampling procedure extends to allow for comparisons of predictive accuracy between different models.

Estimation of Multi-Unit Double Auctions (Awarded third-year paper prize)

Estimating market power is an essential, if not complicated, task for market designers. This is rendered even harder when there are few sellers and few buyers in a given market. This research aims to allow for the distinction of market power from both the demand and supply sides simultaneously. I propose a bootstrap-based procedure to estimate multi-unit, two-sided auctions in which all agents can submit elastic price schedules. I use this methodology to estimate the private values of all agents in the Italian electricity market. The results suggest that buyers and sellers both have market power.

Solving and Estimating Finite-Time, Dynamic Discrete Choice Models with Deep Learning

Empirical evidence shows that deep learning performs well in situations where the curse of dimensionality is computationally prohibitive. This situation is common when solving finite-time, dynamic discrete choice models because they feature infinite dimension state-space, and also because of the nonstationary nature of these problems. I show how to approximate policy functions of those models with deep neural networks. These methods reduce the complexity of the problem, simplifying the computation process when closed-form solutions are not available.

Research In Progress

Detecting Weak Instruments Under Heteroskedasticity

Stock and Yogo (2005) show how to detect weak instruments in linear instrumental variable models. Their test relies on the assumption that the error terms are homoskedastic. While this assumption yields a easily characterizable distribution of the test statistic, it is rarely satisfied in economic data. Since then, other tests have been developed relaxing the heteroskedasticity assumption, but their approach is limited to one endogenous regressor. I study a test that allows for a finite number of regressors and instruments, filling this gap in the literature.

Estimating the Mixing Distribution of a Mixed Poisson

Estimating the distribution of the hyperparameter of a mixed Poisson distribution is a challenging task when the observations assume small values (say 0-4). I propose a generalized method of moments estimator for the hyperparameter distribution that always recovers a probability distribution in finite samples and is asymptotically optimal.

Research Experience

Spring 2020	Research Assistant for Professor Elena Manresa
Spring 2017	Research Assistant for Professor Eduardo Zilberman
Spring 2013	Research Intern at the Brazilian Ministry of Finance

Teaching Experience

Summer 2022	Introduction to Econometrics (Undergrad), NYU, Instructor
Summer 2021	Introduction to Econometrics (Undergrad), NYU, Instructor
Spring 2022	Econometrics II (Ph.D.), NYU, TA for Professors Tim Cogley and Richard Crump
	Money and Banking
Fall 2021	Introduction to Econometrics
Summer 2021	Introduction to Econometrics
	Introduction to Econometrics
Spring 2021	Introduction to Econometrics
Fall 2020	Introduction to Econometrics
Summer 2020	Statistics
Spring 2020	Introduction to Econometrics
	Introduction to Econometrics
Fall 2019	Macroeconomics II (Ph.D.), NYU, TA for Professors Mark
Summer 2019	Gertler and Corina Boar
Spring 2019	Introduction to Econometrics
	Introduction to Econometrics
Fall 2018	Macroeconomics II (MA), PUC-Rio, TA for Professors Carlos
Fall 2016	Viana and Tiago Berriel
	Statistics (MA), PUC-Rio, TA for Professors Leonardo Rezende
Summer 2016	and Pedro Souza

Honors, Scholarships, and Fellowships

Summer 2021	Attended the Machine Learning and Economics Summer Institute (MLESI) at the University of Chicago
Spring 2020	Awarded best third-year paper prize, NYU
Fall 2017 – May 2022	McCracken Fellowship for Ph.D. Students, NYU
2016	Vinci Capital Fellowship for MA Students, PUC-Rio
2015 – 2016	CAPES Fellowship for MA Students, PUC-Rio
2015	Awarded best student paper prize, PUC-Rio
2014	Ranked first the 2014 Economics class, Insper

Organizational Leadership Experience

Econometrics Student Lunch
Econometrics and applied microeconomics and reading group

Coding

MATLAB
R
Python

Languages

Portuguese (native)
English (fluent)