Massachusetts Institute of Technology

Victor Orestes
PhD Candidate
Economics
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Cover Letter February 28, 2022

Dear Organizers,

I am writing to submit my application to the Graduate Student Workshop on Heterogeneous-Agent Macroeconomics, which I view as a terrific opportunity to learn about the research frontier in macroeconomics.

Contact Information

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Reference

Professor Stephen Morris
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Thank you very much for considering my application. I appreciate your time and look forward to your response.

Sincerely yours,

Victor Orestes

MIT Economics

VICTOR M. ORESTES

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DOCTORAL STUDIES
Massachusetts Institute of Technology (MIT)
PhD, Economics, Expected completion June 2026

REFERENCES

Professor Stephen Morris
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Professor Robert Townsend
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PRIOR EDUCATION

São Paulo School of Economics - FGV — 2019
Msc Economics

University of São Paulo — 2016
Bsc Economics

LANGUAGES
English (advanced), Spanish (intermediate), Portuguese (native)

FIELDS
Primary Fields: Macroeconomics, Econometrics

Secondary Fields: International Finance, Theory

TEACHING EXPERIENCE

14.454 Economic Crises (Graduate) — 2022
Teaching Assistant to Professor Ricardo Caballero

14.02 Principles of Macroeconomics (Undergraduate) — 2022
Teaching Assistant to Professors James Poterba and Ricardo Caballero

RELEVANT POSITIONS
Research Assistant to Professor Stephen Morris — 2021

FELLOWSHIPS, HONORS, AND AWARDS

Department of Economics Fellowship, MIT — 2019
Inter-American Development Bank Fellowship — 2018
CAPES Master`s Fellowship, Brazil — 2017
Merit Fellowship, FGV-EESP, Brazil — 2017

1st place in the National Exam for Admissions to Economics Graduate Programs (ANPEC), Brazil — 2016

MACRO COURSEWORK

Dynamic Programming (14-451, Alp Simsek), Economic Growth (14-452, Daron Acemoglu), Business Cycles (14-453, Marios Angeletos), Economic Crisis (14-454, Ricardo Caballero), Advanced Macro I (14-461, Martin Beraja and Ivan Werning), Advanced Macro II (14-462, Ricardo Caballero and Robert Townsend) and Development Macro (14-772, Abhijit Banerjee and Robert Townsend)

RESEARCH IN PROGRESS

Payments and Liquidity in General Equilibrium (joint with Thiago Silva and Henry Zhang)

The Macroeconomics of Smart Contracts (joint with Gabriel Toledo and Henry Zhang)

Tariff-Identified Exchange Rates (joint with Sarah Gertler)

Inference in high dimensional two-player zero-sum games

WORKING PAPER

A Framework for Solving Non-Linear DSGE Models (joint with Ricardo Masini)

We propose a framework to solve non-linear DSGE models combining approximation and estimation techniques. Instead of relying on a fixed grid, we use Monte Carlo methods to draw samples from the state space, which are used to estimate an approximation for the value or policy functions of interest. By using estimators from high-dimensional statistics we can attenuate the curse of dimensionality while maintaining flexibility, theoretical guarantees for convergence and upper bound for the errors. In particular, we propose two different methods: a regularized projection and a support vector machine algorithm. To illustrate these solution procedures, we apply the first algorithm to solve a standard growth model, which has a known linear solution, and show that it achieves good accuracy, correctly shrinking the coefficients of a polynomial basis. Moreover, we use the support vector machine algorithm to solve a New Keynesian model with a Zero Lower Bound (ZLB) and compare our results with the ones from the Smolyak Method, which is widely used in the literature. We show that the latter overestimate the impact of the ZLB in the economy, achieving a lower accuracy than the one from our solution.

Statement

I hope to attend the workshop to learn about the frontier of HANK models, both the analytical and computational tools. I have one specific application in mind in an open-economy macro model. However, more than that, one of my main objectives with the workshop is to use the opportunity to think about new projects (and meet new people). In particular, I am interested in how financial heterogeneity mediates shock propagation and policy responses.

I am a third-year PhD candidate at MIT. My research interests are in econometrics and macroeconomics, focusing on macro-finance and international finance. My ongoing research centers around three main themes: First, how does the interaction between production and financial networks matter for liquidity shocks propagation, and what is the implication for monetary policy. Second, what are the benefits and risks of new forms of financial intermediation? Finally, how important are the financial market's coordination failures in determining exchange rate dynamics and FX interventions effectiveness. My research in econometrics focus on inference in high-dimensional settings.

I am particularly interested in applying the instrumental from HANK models to a project I am working on with Sarah Gertler. We exploit US import tariff shocks to identify exchange rate fluctuations. Preliminary analysis suggests that countries that maintain high-interest rates have more significant currency fluctuations in response to a trading partner's import tariff. We find the effects of both announcements and month-long tariff value changes. We find associated effects of the value changes on UIP deviations and possibly CIP. We plan to incorporate our mechanism in a multi-country general equilibrium model in future extensions. In particular, we plan to answer how the degree of heterogeneity in countries' access to international financial markets mediates the transmission of shocks and the implications for optimal exchange rate policy and reserves management.

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