Mario Rafael Silva

Assistant Professor of Economics

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Work experience

Department of Economics, Hong Kong Baptist University   **August 2021 - present**
Assistant Professor

Department of Economics and Finance, Tongji University   **Oct 2017 - July 2021**
Assistant Professor

ECON ONE RESEARCH   **Mar 2012 - Aug 2012**
Data Analyst

Teaching

Hong Kong Baptist University

Macroeconomics, Digital Economy (2021-2022)

Digital Economy focuses on ongoing work on Central Bank Digital Currency, especially as it relates to financial inclusion and liquidity, effects on bank deposit funding and investment, and government financial transfers.

Tongji University

- PhD Macroeconomics (Spring 2019, 2020), time series and computational assignments based on Python

    Covers dynamic systems, time series, dynamic programming methods, real business cycle theory and extensions, heterogeneous agents, the basic New Keynesian model, business cycle models of firm entry and endogenous variety, unemployment theory, and financial frictions. The course helps train students to simulate models using the Python language. Includes discussion of value function iteration, Euler-equation-based methods, and log linearization.

- Money and Banking (Fall 2018, 2019, 2020)

    Advanced undergraduate. Treatment of commodity money, fiat money, inflation, international monetary systems, price surprises, capital, liquidity and financial intermediation, fully backed central bank money, the payments system, bank risk, and financial multipliers.

- Market Structure, Innovation, and the Macroeconomy (Spring 2018, 2019)

    Masters level course which incorporates insights from industrial organization and imperfect competition and explores their aggregate implications for innovation, growth, trade, and the formation of new goods.

UC Irvine

Basic and intermediate micro-and macroeconomics, intermediate econometrics, game theory, global economy

Computer Skills

- Languages & Software: Juia, Python, R, Mathematica, Matlab, Dynare, LaTeX, STATA, SAS, Excel, Inkscape, GitHub, TikZ
- Quantitative: Global solution methods, Bayesian estimation, panel data methods, structural vector autoregressions, GLM, GMM
- Programming: functional, object-oriented, parallel processing, multiple dispatch

Fellowships and Awards

- National Natural Science Foundation of China Research Fund for International Young Scientists
- Graduate Dean's Dissertation Fellowship (awarded for Fall 2017)
- Economics Merit Fellowship (2012-2017)
- Summer Research Fellowship (2014, 2015, 2016)
- Pass with Distinction on Macroeconomics Qualifying Exam (June 2013)

Conference Presentations & Outside Seminars

2022 HKBU Junior Macro Group (August) National Taiwan University (April)| 2021 Universita di Roma Tor Vergata, Federal Deposit Insurance, Corporation| 2019 Peking University HSBC, Shenzen (Oct); Western Economics Association International, San Francisco (July); Seminar at Shanghai University of Finance and Economics (May)|2018 Society of Economic Measurement Conference, Xiamen University (May); Seminar at Ashoka University (April)|2017 Society for Computational Economics Conference, New York (June); Midwest Macroeconomics, Baton Rouge (May); 2016 Western Economics Association International, Portland (June); West Coast Search and Matching Workshop, San Francisco Federal Reserve (May); Midwest Macroeconomics Conference, Purdue University (May); Midwest Macroeconomics Workshop, St. Louis (May)

Research Assistantship

Project with Professors Linda Cohen and Amihai Glazer linking alumni university donations to   **Jun 2013 - Aug 2013**

patents (used Bloomberg Law, Westlaw Campus for legal dockets)

Archival research with Professor Tim Bresnahan trying to discern which developments were   **Jun 2007 - Aug 2007**

crucial for the explosion of online social networks in the mid-2000's in contrast to earlier attempts at building such networks

Languages

Spanish (fluent), Italian (conversational)

Professional Activities

American Economics Association; Econometric Society; Western Economics Association International

Education

University of California Irvine	Sep 2012 - June 2017

PhD Economics
- Dissertation: Essays on Liquidity, Monopolistic Competition, and Search Frictions
- Committee: Guillaume Rocheteau, William Branch, Fabio Milani

Stanford University	Sep 2005 - Jun 2009

BS Mathematics

Research

Published

Unsecured Credit, Product Variety, and Unemployment Dynamics, Macroeconomic Dynamics, 2020

I develop a theory of feedback between revolving credit and product development and examine its ability to explain labor market volatility. Extending the Mortensen–Pissarides model with an endogenous borrowing constraint and free entry of monopolistically competitive firms reproduces stylized facts in the data and amplifies both productivity and financial shocks through mutual causality. Higher debt limits encourage firm entry and raise product variety (the entry channel), and greater variety makes default more costly and thereby raises the equilibrium debt level (the consumption value channel). Though productivity shocks are sufficient to generate higher volatility, financial shocks are essential in approximating the time series patterns of unemployment, vacancies, and revolving credit in the data, and reproduce the rise in unemployment during the Great Recession.

Corporate Finance, Monetary Policy, and Aggregate Demand, Journal of Economic Dynamics and Control, 2019

I study how heterogeneity of financial frictions and monopolistic competition influence the pass through of the nominal interest rate to the real lending rate, its transmission into investment, and corporate cash holdings. Firms finance stochastic investment opportunities with either bank-issued credit or money. The market structure generates an aggregate demand externality which doubles transmission at the a policy rate of 4.8% and magnifies the effects of financial frictions on investment. In line with empirical evidence, the cash-to-sales ratio increases with the extent of financial constraints, and rises with the intensity of competition for financially constrained firms. Financial constraints raise firms' sensitivity to monetary policy; and a mean-preserving spread of financial frictions reduces investment and output, strengthens transmission, and reduces the external share of finance. I estimate markups on Compustat data using the production approach pioneered by Hall (1978) and more recently applied by De Loecker, Eeckhout, and Unger (2018).

"New Monetarism with Endogenous Product Variety and Monopolistic Competition", Journal of Economic Dynamics and Control, 2017

I examine the role played by endogenous variety and monopolistic competition in the long-run transmission of monetary policy. I integrate free entry, product variety and monopolistic competition into a New Monetarist framework, considering preferences that give rise to either constant or variable markups. I find that inflation generally reduces variety. Under CES preferences, firms are inefficiently small, with the inefficiency increasing with product differentiation and the extent of search frictions. The Friedman rule is the best policy under CES preferences. In contrast, with variable elasticity of demand, inflation can increase firm size, reduce markups, and raise welfare, even though output is lower. Under CES preferences, the welfare cost of inflation is high; moreover, this cost increases monotonically with the markup and is higher with endogenous variety than with a fixed product space.

"Decentralizing Constrained-Efficient Allocations in the Lagos-Wright Pure Currency Economy, Journal of Economic Theory, 2016, joint with Ayushi Bajaj, Guillaume Rocheteau, and Tai-Wei Hu

This paper offers two ways to decentralize the constrained-efficient allocation of the Lagos-Wright (2005) pure currency economy. The first way has divisible money, take-it-or-leave-it offers by buyers, and a transfer scheme financed by money creation. If agents are sufficiently patient, the first best is achieved for finite money growth rates. If agents are impatient, the equilibrium allocation approaches the constrained-efficient allocation asymptotically as the money growth rate tends to infinity. The second way has indivisible money, take-it-or-leave-it offers by buyers, and no government intervention.

Working Papers

Liquidity, Unemployment, and the Stock Market (2022), joint with William Branch, Revise and Resubmit at Journal of Economic Dynamics and Control

Interest-rate spreads and the unemployment rate vary negatively with stock prices. We study an unemployment search model with a twist: households self-insure against preference shocks by accumulating equity claims. Higher stock market valuations relax liquidity constraints, creating an aggregate demand channel that strengthens firms' hiring incentives. Quantitatively, a negative shock to stocks decreases the liquidity value of equity and increases unemployment. A ``perfect storm" of an increase in risk and a drop in the velocity of publicly-provided assets produces a self-fulfilling crash to an equilibrium with high unemployment and low stock prices. Economies which rely more heavily on privately issued assets are more fragile.

Endogenous entry, shopping effort, and the Solow residual (2022), joint with Marshall Urias

TFP is significantly more volatile and procyclical than its utilization-adjusted counterpart. We use both series as observable variables in estimating a medium-scale business cycle model in which demand from households and the government can be productive, and there is investment in both physical capital and new product lines. We examine the implications of goods market frictions for the Solow residual and other variables and decompose the Solow residual into economically meaningful components. We find that demand shocks account for most of the variation in output and the Solow residual, but technology shocks account for most of the variation in entry. The most important shocks in affecting the Solow residual are intratemporal preference shocks and and government expenditure shocks.

Work in progress

Liquidity, Unemployment, and Fiscal Policy (2022), joint with Oliko Vardishvili

We study the effect of a credit crunch on stock market values and unemployment in a heterogeneous-agent setting in which there is feedback from household consumption demand to revenue and the stock market capitalization. The forces depend on aggregate-demand and interest-rate channels. We study the effects of types of fiscal policy (direct purchases, hiring subsidy, government debt) and study the connection between fiscal multipliers and wealth inequality.

Refereeing

Economic Inquiry, Macroeconomic Dynamics