

# Diego de Sousa Rodrigues

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## Employment

- **Bank of England** London, United Kingdom  
*Ph.D. Trainee within the Structural Economics Division* Jul. 2023 -  
– Responsibilities include enhancing comprehension of how profits influence the inflationary process, engaging in HANK modeling to explore potential non-linearities in the United Kingdom's monetary transmission process, and undertaking a research project to analyze the impact of markups on both the inflationary process and the monetary transmission mechanism.  
– Supervisor: Tim Willems

## Education

- **Department of Economics, Sciences Po** Paris, France  
*Ph.D. in Economics* Aug. 2021 - Expected Aug. 2024  
– Supervisor: Xavier Ragot
- **Department of Economics, University of Minnesota** Minneapolis, MN/USA  
*M.Sc. in Economics* Aug. 2018 - Aug. 2020  
– Supervisor: Manuel Amador
- **Department of Economics, Michigan State University** East Lansing, MI/USA  
*Visiting Short-term Scholar* Sep. 2017 - Feb. 2018  
– Research project: Coordination in the use of asset-backed securities  
– Supervisor: Luis Araujo  
– Scholarship from FAPESP<sup>1</sup>: Grant number 2017/06724-1
- **Sao Paulo School of Economics, FGV** Sao Paulo, SP/Brazil  
*M.Sc. in Economics* Jan. 2016 - Jul. 2018  
– Research project: Understanding liquidity of asset-backed securities  
– Supervisor: Bernardo Guimarães  
– Scholarship from FAPESP: Grant number 2016/25084-0
- **School of Economics, Business and Accounting, USP** Sao Paulo, SP/Brazil  
*B.A. in Economics* Feb. 2011 - Dec. 2015  
– Research project: Growth under external constraint: a comparative empirical analysis between Brazil and South Korea  
– Supervisor: Gilberto Tadeu Lima

## Publications

1. **Financial constraints and collateral crises**, *Review of Economic Dynamics* (May, 2020)  
Bernardo Guimares<sup>2</sup>, Diego Rodrigues, and Luis Araujo<sup>3</sup>

<sup>1</sup>Sao Paulo Research Foundation.

<sup>2</sup>Sao Paulo School of Economics, FGV, Brazil.

<sup>3</sup>Michigan State University.

- Assessing the fundamental value of a wide range of asset-backed securities is costly. As a result, these assets can become information insensitive, which allows them to be used as collateral in credit transactions. In this paper, we show that while it is true that information-insensitive assets can play a liquidity role, the fact that they play this role reinforces their information insensitivity. This implies that the availability of alternative ways of financing can harm the liquidity role of assets, even if these alternatives are costly and not used in equilibrium. The reason is that such options raise the asset's sensitivity to information by increasing the relative importance of their fundamental value vis-a-vis their role as collateral.

## Working papers

### 1. **The Welfare of Nations: Do social preferences matter for the macroeconomy?**

François Le Grand<sup>4</sup>, Xavier Ragot<sup>5</sup>, and Diego Rodrigues

- The levels of public debt, capital and labor taxes are very different across developed countries. To distinguish between the role of preferences and technologies in these differences, we derive a methodology to identify the Social Welfare Function (SWF) of a government, which is consistent with the empirical wealth and income distributions given the actual tax structure. We apply our methodology to identify the SWFs of France and the United States, using four fiscal instruments: consumption, capital and labor taxes, and public debt. The estimated SWFs of the two countries markedly differ from each other. The SWF for France gives a higher Pareto weight for individuals with lower income, whereas the United States SWF gives a higher social weight for agents at the top of income distribution. Finally, to assess the macroeconomic role of the SWF, we compute the fiscal system in the United States if they were to have the French SWF. We find that the SWFs affects the optimal steady-state fiscal system and equilibrium inequality, but surprisingly less the dynamics of the economy.

### 2. **Food Crisis and Debt Distress**

Naomi Cohen and Diego Rodrigues

- This paper studies how food crises and sovereign debt defaults are connected in developing economies reliant on food imports. Fluctuations in food prices can worsen these economies' debt situations, leading to defaults. To examine this, we use unexpected harvest shocks as an instrument to isolate the impact of food price changes. Focusing on Ghana, which defaulted in 2022, we find that positive price shocks raise import prices, inflation, trade imbalances, currency depreciation, and external debt. We use a small open economy model to clarify this interplay. The results indicate that even countries reliant on food imports with low debt can default due to high food import prices. On the other hand, highly indebted nations can default even with minor price increases. These findings emphasize the need for urgent international aid to mitigate the combined effects of food and debt crises, especially for countries heavily reliant on commodity imports.

### 3. **Circulation of debts issued by the bank and the probability of bank runs**

Diego Rodrigues and Luis Araujo

- We consider a version of Diamond & Dbyvig (1983) which allows for the circulation of debt issued by the bank. We obtain that welfare is strictly larger when debt circulates, but it implies a larger loss if there is a bank run. We then use dynamic games to map from fundamentals to the probability of a bank run. We obtain that bank runs are less likely when debt circulates. This is apparently at odds with the idea that circulation of debt leads to more instability.

## Work in Progress

### 1. **Optimal Monetary and Fiscal Policy in a World of supply shocks**

<sup>4</sup>Rennes School of Business and ETH Zurich.

<sup>5</sup>SciencesPo, OFCE, and CNRS.

2. A HANK model for France

3. Markups and Inflation

## Teaching experience

1. **Lecturer for Macroeconomics I at the Master in Economics at Sciences Po.**

- **Topics:** The Solow-Swan Model. Neoclassical Growth Model. Overlapping Generations Model. Endogenous Growth Model. Structural change. Introduction to Dynamic Programming. Introduction to Labor Markets. Search Models. The Search and Matching Model. Extensions of Search and Matching Model.
- **Period:** Fall 2022.
- **Github page:** [https://github.com/Diego-de-Sousa-Rodrigues/Macroeconomics\\_I](https://github.com/Diego-de-Sousa-Rodrigues/Macroeconomics_I)

2. **Teaching Assistant for Macroeconomics III at the Master in Economics at Sciences Po**, under the supervision of Professor Xavier Ragot.

- **Topics:** Complete Markets (Arrow-Debreu and Sequential Markets Equilibrium). Incomplete Markets. Stochastic Environment. Finite Markov Chains. Dynamic Programming. Value Function Iteration. Value Function Iteration in a Stochastic Environment. Incomplete Markets and Heterogeneous Agent Models. Economies with idiosyncratic risks and Incomplete Markets. Economies with idiosyncratic and aggregate risks and Incomplete Markets.
- **Period:** Fall 2022.
- **Github page:** [https://github.com/Diego-de-Sousa-Rodrigues/Macroeconomics\\_III](https://github.com/Diego-de-Sousa-Rodrigues/Macroeconomics_III)

3. **Lecturer for Programming Course at the Master in Economics at Sciences Po.**

- **Topics:** Terminal. GitHub. Basics in R: Introduction to data types and structures, logical operators, functions, data analysis, plots, input/output etc. Advanced programming in Julia: Introduction to type systems, package management, code profiling and optimization etc.
- **Period:** Spring 2022.
- **Github page:** <https://github.com/Diego-de-Sousa-Rodrigues/IP2022>

4. **Teaching Assistant for Macroeconomics III at the Master in Economics at Sciences Po**, under the supervision of Professor Xavier Ragot.

- **Topics:** Heterogeneity, inequality and basic asset pricing. Saving, asset prices, and precautionary savings. Modeling intertemporal problems. Dynamic programming. Credit constraints and the macroeconomy. Money and liquidity. Income and wealth inequality. Sovereign default. Firm Dynamics. Inequality and aggregate fluctuations. Heterogeneity and optimal policies.
- **Period:** Fall 2021.

5. **Teaching Assistant for Macroeconomics I at the Master in Economics at Sciences Po**, under the supervision of professor Jeanne Commault.

- **Topics:** Economic growth. Labor markets. Unemployment. Search and matching.
- **Period:** Fall 2021.

6. **Teaching Assistant for Intermediate Microeconomics at the Undergraduate Level in Economics at the University of Minnesota.**

- **Topics:** Behavior of households, firms, and industries under competitive/monopolistic conditions. Factors influencing production, price, and other decisions. Applications of theory. Economic efficiency. Distribution of well-being.
- **Period:** Fall 2020.

7. **Teaching Assistant for Principles of Microeconomics at the Undergraduate Level in Economics at the University of Minnesota.**
  - **Topics:** Microeconomic behavior of consumers, firms, and markets in domestic and world economy. Demand and supply. Competition and monopoly. Distribution of income. Economic interdependencies in the global economy. Effects of global linkages on individual decisions.
  - **Period:** Summer 2020.
8. **Teaching Assistant for Macroeconomics II at the Ph.D. Level in Economics at the Sao Paulo School of Economics - FGV, under the supervision of Professor Luis Araujo.**
  - **Topics:** Basic macroeconomics models in discrete time, including search models of the labor market. Monetary models. Consumption in complete and incomplete markets. Models with financial frictions.
  - **Period:** April 2017 to June 2017.
9. **Teaching Assistant for Microeconomics at the Professional M.A. in Economics offered by the Sao Paulo School of Economics - FGV, under the supervision of Professor Angelo Gurgel.**
  - **Topics:** Choice and demand. Production and supply. Competitive markets. Market power. Market failure.
  - **Period:** April 2017 to June 2017.
10. **Teaching Assistant for International Finance at the Professional M.A. in Economics offered by the Sao Paulo School of Economics - FGV, under the supervision of Professor Joao Ricardo Mendes Goncalves Costa Filho.**
  - **Topics:** Introduction to international finance and open macroeconomics. Capital mobility. Purchasing power parity, interest rate parity, and real interest rates. Future foreign exchange market: volatility and efficiency. Exchange risk premium. Exchange rate and macroeconomics.
  - **Period:** April 2017 to June 2017.
11. **Teaching Assistant for Macroeconomics I at the Master in Banking, Financial Institutions and Economics offered by the Sao Paulo School of Economics - FGV, under the supervision of Professor Paulo Gala.**
  - **Topics:** Basic macroeconomics models for short and medium term with a closed economy.
  - **Period:** April 2017 to June 2017.
12. **Teaching Assistant for Financial Macroeconomics I at the Professional M.A. in Economics offered by the Sao Paulo School of Economics - FGV, under the supervision of Professor Joao Ricardo Mendes Goncalves Costa Filho.**
  - **Topics:** Basic models of integration of macroeconomic theory to finance. Issues related to finance and economic development. Contagion and systemic risk. Convergence of financial systems.
  - **Period:** January 2017 to March 2017.
13. **Teaching Assistant for Macroeconomics II at the Master in Financial Economics offered by the Sao Paulo School of Economics - FGV, under the supervision of Professor Paulo Gala.**
  - **Topics:** Basic macroeconomics models for open economy and elements of international finance.
  - **Period:** January 2017 to March 2017.

## Conferences

EEA-ESEM in Milan	August 22-26, 2022
AFSE in Dijon	June 14-16, 2022
Quantitative Economics Workshop, CREST	September 12-14, 2022
D1 Presentations, Sciences Po	June, 2022
Graduate Student Seminar, Sao Paulo School of Economics	August, 2017

## Skills

1. **Programming Skills:** MATLAB, Julia, R, Stata, E-Views, Gretl, and Latex.
2. **Languages:** Portuguese (Native), English (Fluent), French (B2), Spanish (B1).
3. **Models:** Growth model and data sources. Dynamic programming (Value Function Iteration). Linear Quadratic Methods. Vaughan's method. Growth model with distortions. Kalman Filter. Weighted residual methods. Finite element method. Finite difference method. Parallel processing. Search Models. Business Cycle Accounting. Incomplete Markets Models with Endogenous Labor decisions. Aiyagari model with aggregate productivity shocks using Krussel and Smith and Reiter's method to solve. Firm dynamics with Default Risk. Sovereign Debt Models (Numerical analysis of Eaton-Gersovitz). Sovereign risk and firm heterogeneity. RBC Models (Stochastic and Deterministic with and without taxes). New Keynesian Models.

## Professional experience

1. **Research Assistant at Sciences Po under supervision of Xavier Ragot.**
  - **Activities:** Research assistant to the project Optimal Policies with Heterogeneous Agents: Truncation and Transitions and Should we increase or decrease public debt? Optimal fiscal policy with heterogeneous agents.
  - **Period:** February 2021 to August 2021.
2. **Intern and Consultant at Neuding Management Consultant, Sao Paulo/SP, Brazil.**
  - **Activities:** Design of business strategy. Quantitative studies with statistical and graphical analyzes in order to identify market trends. Identification and organization of the best practices of category management and negotiation in order to design and create a methodology to achieve business objectives.
  - **Period:** February 2012 to December 2015.

## Awards and Honors

Fellowship University of Minnesota . . . . .	2018-2019
Scholarship from Sao Paulo Research Foundation (FAPESP) . . . . .	2017-2018
Scholarship to Research Internship Abroad at Michigan State University . . . . .	2017-2018

## References

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3. **François Le Grand**

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4. **Bernardo Guimarães**

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