Research Statement

Gaston Navarro, Federal Reserve Board

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I am a macroeconomist who uses empirical tools to quantify structural models and derive answers for policy relevant questions. My research spans fiscal policy, international economics, and monetary economics.

My research is motivated by policy-oriented questions, with a focus on how heterogeneity shapes the aggregate and distributional effects of shocks and policies. I have evaluated the effects of government policies such as spending stimulus, targeted transfers, and labor tax cuts. I have also analyzed the international transmission of shocks, considering both their aggregate and distributional effects. I have approached these questions by sometimes developing theory, sometimes using empirical tools, and most often bringing the two together. Below, I briefly describe my research papers.

1. Fiscal Policy

A significant portion of my research focuses on the design and evaluation of fiscal policies. I use cross-sectional data (or cross-sectional estimates) to quantify structural models, and then use these models to evaluate policies. When relevant, I also compare findings to historical events, such as periods of institutional changes or large tax reforms. The first few projects I describe below take a *positive* approach, assessing the effect of a certain policies. The last few projects I describe take a *normative* approach, asking what the optimal policy should be.

▷ In *"The Heterogeneous Effects of Government Spending"* [2] (joint with Axelle Ferriere, accepted at the *Review of Economic Studies*, April 2024), we revisit the classic question of how expansionary government spending is, by taking into account the distribution of taxes across households used to finance the spending. Using U.S. data since 1913, we find that spending multipliers are larger when financed with more progressive taxes. This result can be rationalized in a heterogeneous-agent New-Keynesian (HANK) model with indivisible labor. A central implication of the model is that higher-income workers are less responsive to changes in taxes due to, both, lower marginal propensities to consume and lower labor supply elasticities. Consequently, financing a spending stimulus with more progressive taxes induces smaller crowding-out, leading to larger multipliers, as empirically found. The paper also provides estimates of U.S tax progressivity for over a century, which have been used by several other researchers in the field.

▷ In *"Fiscal Management of Aggregate Demand: The Effectiveness of Labor Tax Credits"* [9] (joint with Axelle Ferriere, *R&R* (invited article) for the *IMF Economic Review*, September 2024), we investigate the effectiveness of several fiscal policies in stabilizing a demand-driven recession. We

develop a HANK model that generates empirically realistic distributions of marginal propensities to consume (*mpc*), and labor supply elasticities (*lse*), while also capturing the cross-sectional incidence of unemployment risk over the business cycle. We evaluate three policies: (*i*) targeted transfers to low-income households, (*ii*) extended unemployment benefits, and (*iii*) labor tax cuts for working low-income households. While the first two policies have been analyzed in previous work, labor tax cuts have received much less attention. This is somewhat surprising, given the large expansionary effects that empirical work finds after labor tax cuts.[1] Indeed, among the policies we consider, labor tax cuts is the most effective policy in stabilizing a recession: as it targets both high-*mpc* and high-*lse* households, and thus jointly stimulates consumption and labor supply. This result holds despite the recession resulting in higher unemployment risk.

▷ In *"Sectoral Shocks, Reallocation, and Labor Market Policies"* [3] (joint with Joaquin Garcia-Cabo Herrero and Anna Lipinska, accepted at the *European Economic Review*, July 2023), we assess the impact of two commonly used labor market policies: unemployment insurance (UI) and wage subsidies (WS). We develop a multi-sector search-and-matching model with on-the-job human capital accumulation and sector-specific shocks. We unveil a trade-off between UI and WS after a sector-specific shock. While UI improves reallocation toward productive sectors, it initially raises unemployment, leading to human capital destruction. In contrast, WS reduce unemployment and preserve human capital at the cost of limiting reallocation. We argue that UI is preferred in more dynamic labor markets with high job-finding rates, while WS are preferred in more rigid economies. This framework explains why the U.S. typically favors UI, while the Euro Area leans toward WS.

▷ In *"On the Optimal Design of Transfers and Income-Tax Progressivity"* [4] (joint with with Axelle Ferriere, Philipp Grübener, and Oliko Vardishvili, *Journal of Political Economy: Macroeconomics*, June 2023) we combine tools from public finance and quantitative macroeconomics to study the joint optimal design of means-tested transfers and progressive income taxes. This work is motivated by the high levels of inequality in several advanced economies, which made redistributive policies a core topic in recent policy debates. We provide a key insight: while redistribution requires progressive *average tax rates*, maintaining incentives to work requires limited progressivity in *marginal tax rates*. Transfer allow precisely for more progressive average tax rates than marginal rates, thus achieving redistribution while preserving efficiency. In a simple analytical model, we show that a lump-sum transfer added to a log-linear tax function induces welfare gains almost as large as in the second-best Mirrlees allocation. In a rich quantitative model, we use a Ramsey approach to quantify the optimal fiscal plan. We introduce new flexible tax functions, featuring targeted transfers and progressive income taxes, which fit well tax rates across the U.S. income

[1] See Mertens and Ravn, "The Dynamic Effects of Personal and Corporate Income Tax Changes in the United States", American Economic Review (2013); and Zidar, "Tax Cuts for Whom? Heterogeneous Effects of Tax Changes on Growth and Employment", Journal of Political Economy (2019).

distribution. We find that transfers should be larger than currently in the U.S. and funded with moderate income-tax progressivity. A universal basic income is close to optimal, though targeted transfers achieve higher welfare. The paper also provides estimates of several flexible parametric tax functions, that have been used by several other researchers in the field.

▷ In *"Why Has the EITC Expanded So Much? Intensive and Extensive Elasticities Over Time"* [13] (joint with Axelle Ferriere and Philip Gr"ubener), we extend our research on optimal tax design by focusing on work incentives for low-income individuals. We document a significant change in the U.S. welfare state since the 1980s: while programs like the Earned Income Tax Credit (EITC), that are conditional on work, have expanded dramatically, cash transfer programs have shrunk. This project investigates the underlying fundamental shifts that may have driven these changes in U.S. welfare policy. To explore this, we develop a quantitative lifecycle model of singles and couples, incorporating both the intensive and extensive margins of labor supply, with household-level taxation. We use the model to estimate how structural trends—such as rising female labor participation, increased assortative mating, and changes in idiosyncratic risk—have impacted household-level labor supply elasticities at the extensive and intensive margin.[2] Ultimately, we aim to characterize the optimal balance between standard transfers and work-conditioned transfers in the modern U.S. welfare system.

2. International Economics

A portion of my research focuses on topics in international economics I worked on projects exploring the quantitative importance of expectations-driven (self-fulfilling) equilibria in models of sovereign default. I have also worked on assessing how shocks spillover across economies, and the distributional effects that they may have. I use a combination of empirical tools and structural modeling to answer these questions.

▷ In *Sovereign Default: The Role of Expectations* [6] (joint with Joao Ayres, Juan Pablo Nicolini, and Pedro Teles, published in the *Journal of Economic Theory*, May 2018), we show that small modifications to the standard sovereign default model can generate multiple (self-fulfilling) equilibria. Specifically, we explore the multiplicity described by Calvo (1988), where pessimistic expectations about future default risk increase interest rates, making future default more likely, and thus validating the initial pessimism. This multiplicity arises when the borrower chooses current debt issuance, and lenders set repayment terms at maturity, allowing lenders' expectations to influence interest rates and thus future default probabilities. This is in contrast with standard

[2] See Erosa, Fuster, and Kambourov, "Towards a Micro-founded Theory of Aggregate Labour Supply," The Review of Economic Studies (2016); Attanasio, Levell, Low, and Sanchez-Marcos, "Aggregating Elasticities: Intensive and Extensive Margins of Women's Labor Supply," Econometrica (2018); Fernandez and Rogerson, "Sorting and Long-Run Inequality," The Quarterly Journal of Economics (2001); and Saez, "Optimal Income Transfer Programs: Intensive versus Extensive Labor Supply Responses," The Quarterly Journal of Economics (2002).

default models, where the borrower chooses debt at maturity, thus removing the effect of lenders' expectations on future default risk. We also show that a bimodal endowment process, with alternating good and bad times, makes the Calvo-type multiplicity robust across a wider range of debt levels. Since standard sovereign default models often abstract from these variations, they fail to exhibit this type of self-fulfilling equilibria.

▷ In *Self-Fulfilling Debt Crises with Long-Stagnations* [1] (joint with Joao Ayres, Juan Pablo Nicolini, and Pedro Teles, accepted for publication at *Journal of Political Economy*) we extend our previous work an build a dynamic quantitative model to assess the role of expectations in triggering sovereign debt crisis, focusing on the Argentina's 2001 default and Spain crisis in the early 2010s. In line with out previous work, we argue that crucial for multiplicity is an output process characterized by long periods of either high growth or stagnation, which we estimate using data for these countries. We find that expectations-driven debt crises are quantitatively relevant but state dependent, as they occur only during periods of stagnation. We argue that expectations are a major factor explaining differences of default rates and credit spread between Spain and Argentina. A key policy implication is that a lender of last resort could eliminate the expectations-driven crises; and that the ECB likely played that role for Spain, while the IMF fail to do so for Argentina. Indeed, we find that Argentina's 2001 default could have been avoided had expectations been more optimistic.

▷ In *"Escaping the Losses from Trade: The Impact of Heterogeneity and Skill Acquisition"* [10] (joint with Axelle Ferriere and Ricardo Reyes-Heroles), we reassess the distributional effects of trade openness, focusing on skill acquisition as a key margin of adjustment for younger generations. Our approach contrasts with previous work, by incorporating life-cycle components to assess the welfare effects of trade openness. The paper contains empirical and theoretical contributions. We present two key empirical findings: (*i*) the adverse labor market effects of trade shocks are largely borne by low-skilled workers, and (*ii*) young individuals respond to the trade shock by enrolling into college more, provided that their household is wealthy enough. To explain these findings, we develop an overlapping-generation model with incomplete markets, costly skill acquisitions, and inter-vivos transfers; and embed it into a multi-region, multi-sector model of trade. The model can quantitatively account for our empirical findings, particularly the relationship between college enrollment responses to trade shocks and household wealth. A key implication of the model is that skill acquisition shapes long-run welfare gains, as failing to account for this margin would make initial losses permanent for some households.

▷ In *Foreign Effects of Higher U.S. Interest Rates* [5] (joint with Matteo Iacoviello, published at *Journal of International Money and Finance*), we explore the spillovers of higher U.S. interest rates on foreign economies, using a panel of 50 advanced and emerging economies. We allow countries GDP responses to vary according to their exchange rate regime, trade openness, and a

financial-vulnerability index. In response to a U.S. monetary tightening, GDP in foreign economies drops about as much as it does in the U.S., with a larger decline in emerging economies than in advanced economies. In advanced economies, trade openness with the U.S. and the exchange rate regime account for a large portion of the contraction in activity. In emerging economies, the responses do not depend on the exchange rate regime or trade openness, but are larger when financial vulnerability is high.

▷ In *Cross-Sectional Labor Dynamics After a Foreign Shock* [11] (joint with Rosario Aldunate, Andres Blanco, Andres Fernandez, and Mario Giarda, October 2024), we evaluate how foreign shocks affect labor market outcomes in small open economies (SOEs). Despite the recognized role of foreign shocks in SOE business cycles, their labor market effects remain understudied, partly due to limited high-quality data. In this paper, we address this gap using matched employer-employee data provided by the Chilean tax agency at *monthly frequency*. We estimate outcomes after two classical foreign shocks discussed in the literature: an interest rate shock (r^*), and terms-of-trade shock (p^*). While both shocks lead to an economic contraction, they differ in the labor market responses. The r^* shock leads to deflation, muted responses of real wages, and large job destruction, especially for low-income workers. In contrast, the p^* shock leads to inflation, a largely uniform decline in real wages across workers, and minimal job destruction. We attribute these findings to nominal wage rigidity and on how monetary policy responses affect nominal exchange rates.

▷ In *Peg or Float? Exchange Rate Policy and Distributional Effects of Aggregate Shocks* [12] (joint with Andres Blanco, Andres Fernandez, and Mario Giarda), we revisit a classical question on how nominal exchange rates (*ner*) should respond to foreign shocks. Previous research suggest that, in the presence of nominal rigidities, the *ner* should respond to shocks in order to eliminate inefficient fluctuations—such as depreciating the *ner* after a contractionary shock to prevent an unemployment spike due to excesively high real wages.[3] We challenge this view by focusing on distributional effects. A *ner* devaluation presents a trade-off: it reduces unemployment risk for some workers, at the cost of lowering real wages for all workers. Thus, the optimal *ner* policy must balance the effects of unemployment and lower real wages. Our previous empirical work [11] offers the needed evidence to quantify this trade-off. We argue that, when unemployment disproportionally affects low-income workers, it is better to avoid a *ner* devaluation and instead provide more generous unemployment benefits. Our findings are consistent with policies implemented by Chile.

3. Monetary Economics

Working at the Federal Reserve naturally exposed to topics related to monetary policy, and I picked up an interest in research questions related to monetary policy implementation and liquidity provi-

[3] See Schmitt-Grohe and Uribe, "Downward Nominal Wage Rigidity, Currency Pegs, and Involuntary Unemployment", Journal of Political Economy (2016).

sion by central banks. As with my other research, I approach these questions with a combination of empirical work and structural modeling.

▷ In *"Monetary Operating Procedures in the Fed Funds Market: Theory, Evidence, and Policy Analysis"* [8] (joint with with Ricardo Lagos, September 2024) we develop a theory about the fed funds market, a key market where monetary policy is implemented. In particular, we provide an estimate of the *aggregate demand for reserves* (*adr*)—that is, of the relationship between total reserves and the fed funds rate. We take a micro-to-macro approach: we document market-wide facts about banks trading behavior, develop a structural model that accounts for these facts, and then derive the theory-implied *adr*. Empirically, we uncover significant heterogeneity in banks' trading behavior, with a few core banks intermediating most of the traded reserves and the remaining majority of banks trading more passively. We show that an heterogeneous-banks over-the-counter theory can account for these facts. We use the theory to evaluate several policy changes, and find that liquidity regulation on these core banks can have large effects. The theory suggest that total reserves should be 7% to 10% to ensure that the fed-funds rate remains within the FOMC target range.

4. Service to the Profession

In addition to my research, I have actively contributed to the profession and the academic environment at the Federal Reserve. From 2017 to 2021, I organized the International Finance Seminar series, hosting around 30 seminars per year with both internal and external speakers. I also served on the Federal Reserve Board's hiring committee for the 2020-2021 and 2021-2022 job markets, during which we updated our hiring protocols to ensure a diverse and inclusive candidate pool. Since 2017, I have refereed over 150 papers across 24 different journals.

I am passionate about mentoring and supporting the career development of younger colleagues. As a mentor for research assistants (RAs) at the Fed Board, I help them use their time efficiently and guide them through PhD applications, which often involves writing them recommendation letters. Recent placements of our RAs include top programs such as UCLA, Yale, NYU, and Michigan. More recently, I began mentoring young economists, meeting frequently with them, and ensuring that they pursue a reasonable yet ambitious research agenda. I also coordinate the "Public Finance and Quantitative Macro" research group, which meets monthly.

List of Publications, Working Papers, and Work in Progress

Published and Accepted

1. "Self-Fulfilling Debt Crises with Long Stagnations", with Joao Ayres, Juan Pablo Nicolini, and Pedro Teles, accepted at *Journal of Political Economy*, June 2024. [WP link]

2. "The Heterogeneous Effects of Government Spending: It's All About Taxes", with Axelle Ferriere, *Review of Economic Studies*, April, 2024. [journal link] [WP link]

3. "Sectoral Shocks, Reallocation, and Labor Market Policies", with Joaquin Garcia-Cabo Herrero and Anna Lipinska, *European Economic Review*, July 2023. [journal link] [WP link]

4. "On the Optimal Design of Transfers and Income-Tax Progressivity", with Axelle Ferriere, Philipp Grübener, and Oliko Vardishvili, *Journal of Political Economy: Macroeconomics*, June 2023. [journal link] [WP link]

5. "Foreign Effects of Higher U.S. Interest Rates", with Matteo Iacoviello, *Journal of International Money and Finance*, July 2019. [journal link] [WP link]

6. "Sovereign Default: The Role of Expectations", with Joao Ayres, Juan Pablo Nicolini, and Pedro Teles, *Journal of Economic Theory*, May 2018. [journal link] [WP link]

7. "The Argentine Economy After Two Centuries", with Francisco Buera and Juan Pablo Nicolini, *Latin American Journal of Economics*, November 2011. [journal link]

Working Papers

8. "Monetary Operating Procedures in the Fed Funds Market: Theory, Evidence, and Policy Analysis", with Ricardo Lagos, September 2024. [WP link]

9. "Fiscal Management of Aggregate Demand: The Effectiveness of Labor Tax Credits", with Axelle Ferriere, September 2024, R&R (invited article) at *IMF Economic Review*. [WP link]

10. "Escaping the Losses from Trade: The Impact of Heterogeneity and Skill Acquisition", with Axelle Ferriere and Ricardo Reyes-Heroles, November 2023. [WP link]

Work in Progress

11. "Cross-Sectional Labor Dynamics After a Foreign Shock", with Rosario Aldunate, Andres Blanco, Andres Fernandez, and Mario Giarda, October 2024.

12. "Peg or Float? Exchange Rate Policy and Distributional Effects of Aggregate Shocks", with Andres Blanco, Andres Fernandez, and Mario Giarda, October 2024.

13. "Why Has the EITC Expanded So Much? Intensive and Extensive Elasticities Over Time", with Axelle Ferriere and Philipp Grübener.