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Research Statement

I am a monetary economist interested in the role of money in economic outcomes. I draw on an eclectic set of approaches, from New Monetarist to New Keynesian frameworks, and on both macro- and micro-econometric methods. Having been born in a developing country, I am also interested in the intersection of monetary economics and macro development.

Current work

My current work focuses on two fields: the role of money for monetary policy, and the link between payment method choice and tax compliance. I discuss each in turn and conclude with the outlook for my research agenda in the coming years.

The role of money for monetary policy

Monetary economics currently comprises two main traditions, New Keynesian (NK) and New Monetarist (NM). They differ along several dimensions, including the role assigned to money and the latter's emphasis on the long run (Williamson and Wright, 2010). Over the last two decades, little work has studied short-run fluctuations and monetary policy transmission in models with money. This is due to results indicating a limited informational value in monetary aggregates (Sims, 1980; Friedman and Kuttner, 1992; Estrella and Mishkin, 1997), the breakdown of the money demand relationship in the mid-1970s (Goldfeld et al., 1976), and the small quantitative role of money in representative-agent models (Schmitt-Grohé and Uribe, 2007; McCallum, 2001).

My job market paper, *New Keynesian Open Market Operations: A Reassessment of the Role of Money*, shows that money matters for the outcomes of monetary policy through the open market operations that implement it. I build on recent advances in heterogeneous-agent New Keynesian (HANK) modelling. The heterogeneous-agent framework produces a downward-sloping demand curve for bonds (Campos et al., 2024) and distinctive implications for open-market operations (Rocheteau et al., 2018; Herrenbrueck, 2019). I further assume that firms must finance investment through bond issuance, which yields an upward-sloping bond supply curve. In a model with money, with both curves sloped, the bond market determines the interest rate for a given money supply. A Taylor rule fixes that same rate, so the two can be reconciled only if the money supply adjusts, and the adjustment is carried out through open-market operations (OMO). Using a VAR-IV with high-frequency identified interest rate shocks, I show that these shocks indeed move OMO volume, and more so after the Fed began announcing its federal funds rate target in 1994. In the model, OMO finance investment by imposing an inflation tax on households, especially poorer ones. Relative to a cashless

benchmark, this produces substantial quantitative differences in monetary transmission and in how the economy responds to the central bank's reaction function.

While my JMP studies the role of a medium of exchange in a model with nominal rigidities, in another paper, titled *On the Distributional Effects of Monetary Shocks and Market Incompleteness*, I analytically study how the redistribution of real balances caused by monetary shocks affects monetary policy transmission. The paper builds on the literature on the distributional effects of monetary shocks and on the seminal insight of Friedman (1969). I show that, as Friedman suggested, even without nominal frictions the return to the steady state is gradual and has real aggregate effects when nominal balances are redistributed. If, however, agents can share monetary policy risk by borrowing from one another after the shock, the economy moves immediately to a new steady state, with negligible aggregate real effects but persistent wealth differences. I also characterize an intermediate case in which limited debt enforcement gives rise to collateral constraints.

Payment method choice and tax compliance

Another important dimension of the role of money is the form it takes. In fact, different payment methods can have implications for monetary policy, as illustrated in the recent CBDC literature (Keister and Sanches, 2023; Fernández-Villaverde et al., 2021). I take a development angle and bring fiscal policy into this picture by studying a fiscal-monetary policy interaction.

In *The Price of Traceability: Tax Compliance, Currency Ratio, and Policy*, joint work with my supervisor Dr. Burak Uras, we study how payment method choice shapes firms' tax evasion decisions and, through them, government revenue. Using experimental data from Kenya, we first show that (1) discounts on cash payments are linked in a non-trivial way to tax evasion, and (2) tax compliance rises with the adoption of digital payment technologies. We then build an NM model in which a good can be sold through two payment methods, cash and debit, at different prices. Firms differ in productivity and in the cost of evading taxes, with more productive businesses more likely to be caught and punished by the tax authority.

Our calibration replicates the RCT patterns, including the estimated treatment effect, and delivers a Laffer curve and a positive correlation between inflation and cash usage, a novel result in the theoretical literature. We also discuss the optimal policy implications of these results. We find cross-country support for this pattern in the oil shocks of 1973 and 1979, when cash usage rose with inflation despite rising interest rates worldwide.

Research agenda

Going forward, I aim to build on my current research in three directions: (1) modelling quantitative easing (QE) in a money model with fractional reserves, (2) the gradual diffusion of newly injected money, and (3) the channels through which the acceptance of digital payment methods enhances tax compliance.

Fractional reserves and QE

First, I plan to model banks along the lines of Sims and Wu (2021), which allows for fractional reserves and interest payments on excess reserves. The project has two goals. On the one hand, I want to investigate whether a model with money can replicate the weak transmission of QE to inflation observed during the Great Recession. On the other, I want to return to the question of my JMP and ask whether a money model still delivers distinctive results relative to a cashless benchmark under an abundant-reserve regime, which weakens the role of open-market operations. Conceptually, under an abundant-reserve regime, money supply is elastic and adjusts to meet demand, as it does in my JMP. While accumulating excess reserves break the link between money injections and the money balances held by households and firms, the distortions introduced by the need to hold money may remain consequential for monetary policy transmission.

Money diffusion

Second, I want to study the distributional effects of monetary shocks in the decentralized markets typical of the NM tradition. In such markets, goods market frictions limit sellers' exposure to the higher demand of buyers made richer by a money injection. In the spirit of Angeletos and La'o (2013), I therefore plan to model the diffusion of new money, and of information about prices, through an infection model. This involves a Lucas islands framework, where simulated transaction histories constrain the diffusion of money and information. This can generate endogenous price-setting frictions of the kind found in the NK tradition within an NM environment, bridging the two approaches. It also connects the Lucas-type informational frictions that make money non-neutral with the literature on nominal rigidities.

The determinants of the tax compliance–digitization relationship

Third, with Dr. Burak Uras and Dr. Thorsten Beck, I aim to study the determinants of the relationship between tax compliance and digitization through a new experiment in Kenya. The goal is to disentangle three channels through which this relationship may operate: (1) lower compliance costs under digital payments, (2) greater transaction visibility for the tax authority, and (3) the salience of the tax enforcement implications of digital payment technology. We have applied for a grant from the Abdul Latif Jameel Poverty Action Lab (J-PAL) to finance the experiment. Our letter of interest has been accepted, and we have advanced to the second phase, which requires a detailed experimental design.

Taken together, these projects can deepen our understanding of the role money plays in monetary policy, of the microfoundations of nominal rigidities, and of the relationship between payment method choice and tax compliance. Their implications range from a better theoretical understanding of observed pricing behavior and historical episodes to the practical conduct of monetary and fiscal policy.

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