I am a macroeconomist working at the intersection of public finance, development economics, and political economy. My research examines the role of government in addressing the challenges posed by rising economic inequalities, enhancing state capacity in low-income African countries, and the relationships between social movements and finance. In my work, I develop and quantify new theories to address these questions. I use quasi-experimental and experimental empirical methods, collecting detailed survey data in settings where rich administrative data are unavailable.

1 Government responses to economic inequalities

The first agenda of my research portfolio studies policy responses to inequalities that materialize over an individual's *life cycle* and over the *cross section* of workers.

Unaffordable housing for young households is a major component of life cycle inequality in the U.S. In "Property Taxes and Housing Allocation Under Financial Constraints" (Coven, Golder, Gupta and Ndiaye, 2024), we quantify how property taxes impact the housing distribution across generations. First, our empirical analysis shows that homeownership is largely concentrated among older, wealthier households who typically age in place without younger family members. Second, our structural model outlines a key channel through which property taxes affect housing, rental, and location choices: capitalization effects reduce upfront down payments, increasing affordability for young, financially constrained households. Lastly, we quantify the magnitude of these effects in an OLG model that captures household choices across two regions—California and Texas—known for their contrasting property tax regimes, with California's low property taxes under Proposition 13 and Texas's comparatively high property taxes. Raising California's effective property tax rates to match Texas's would result in a 4.6% increase in overall homeownership and a 7.4% increase among younger households in the steady state. In summary, our paper shows that property taxes can relocate housing to younger households and provides a novel rationale for property taxation.

As the U.S. population ages and longevity increases, Social Security reform has become urgent to ensure sustainable support for individuals in their later years. In "Flexible Retirement and Optimal Taxation" (Ndiaye, 2020, Reject & Resubmit at the ***Quarterly Journal of Economics***), I examine how to reform public retirement pensions, taxes, Medicare, and disability insurance to account for the dynamic changes in income, health, disability, and retirement decisions over an individual's life cycle. By integrating endogenous retirement choices and health shocks into a life-cycle income taxation model, I explore both the qualitative features of optimal retirement and taxation systems and their quantitative implications, specifically regarding the balance between self-insurance (e.g., savings, medical expenses) and social insurance (e.g., taxes, social security). Key findings reveal that optimal policies should account for health-induced nonconvexities in labor supply, as unhealthy workers require greater support due to utility losses when working, while healthy workers benefit from delayed retirement incentives. Furthermore, productivity and mortality deterioration due to poor health create labor and savings distortions. The quantitative analysis shows that labor supply nonconvexities and early retirement options through disability insurance are the primary factors explaining how poor health drives retirement in the U.S. Policy experiments show that among social security, disability insurance, and Medicare Part B reforms, social security reform has the greatest potential to encourage delayed retirement and improve welfare.

Incentive pay—such as piece-rate pay, bonuses, profit sharing, commissions, and stock options—is empirically widespread and contributes to cross-sectional wage inequalities. In "Bonus Question: How Does Flexible Incentive Pay Affect Wage Rigidity?" (Gaur, Grigsby, Hazell and Ndiaye, 2023), we study how such pay structures impact the dynamics of the two core pillars of modern macroeconomics—unemployment and inflation. We incorporate long-term incentive wage contracts into a model of inflation and unemployment dynamics. Our main result is that wage cyclicality due to incentives does not alter the slope of the Phillips curve for prices, nor does it dampen the response of unemployment to economic shocks. Specifically, the impulse response of unemployment in economies with flexible, procyclical incentive pay is first-order equivalent to that of economies with rigid wages. Likewise, the slope of the Phillips curve is the same in both economies. This equivalence arises from effort fluctuations, which make marginal costs rigid even when wages are flexible. Our calibrated model suggests that 46% of the wage cyclicality in the data arises from incentives, while the remainder is driven by bargaining and outside options. A standard model without incentives, calibrated to weakly procyclical wages, produces similar unemployment responses to our incentive pay model calibrated to strongly procyclical wages.

Given that incentive pay is a significant component of compensation in half of U.S. jobs, designing efficient redistributive taxes on incentive pay is crucial. In ”Redistribution with Performance Pay” (Doligalski, Ndiaye and Werquin, 2023, ***Journal of Political Economy Macroeconomics***), we examine the implications of incentive pay on tax progressivity and the optimal income tax rate. We derive formulas for the incidence and optimal rate of tax progressivity when incentive wage contracts arise from moral hazard frictions within firms. Our first key finding is that the sensitivity of workers' compensation to performance remains largely unaffected by tax progressivity. Second, we show that the optimal tax schedule is less progressive than in models where pretax earnings risk is treated as exogenous. Quantitatively, we find that not accounting for incentive pay in determining tax progressivity results in a welfare cost of 0.3% of consumption.

Taken together, my research advances our understanding of how government policies can address economic inequalities—both over the life cycle and across workers—by providing new theoretical frameworks and empirical evidence on property taxation's impact on housing affordability for young households, reforming social security to account for life-cycle changes in health and retirement decisions, and examining the role of incentive pay in wage inequality, unemployment, inflation, and tax policy.

2 Building fiscal capacity and the social safety net in Africa

An important focus of my research portfolio is enhancing fiscal and state capacity in low-income African countries to support stronger social safety nets. My first publication in this agenda ”How to Fund Unemployment Insurance with Informality and False Claims: Evidence from Senegal” (Ndiaye, Herkenhoff, Cisse, Dell'Acqua and Mbaye, 2024, Forthcoming at ***Journal of Monetary Economics***), stems from my tenure as a Senior Advisor to the Minister of the Economy, Planning, and Cooperation of Senegal during the COVID-19 pandemic in 2021. Several projects are presented as part of my ongoing research on this agenda in Section 4.

This paper studies the design and impact of unemployment insurance (UI) in Senegal, where high informality and limited enforcement pose challenges to implementing UI. First, we use nationally representative living standards and labor force surveys to document four key facts about the Senegalese labor market: (1) it is mostly informal, with only a small fraction of its workers and firms being formally established; (2) even within formal firms, there is a substantial subset of undeclared informal workers who could falsely claim UI intended for formal workers; (3) there are pronounced income, consumption, and asset disparities across different employment statuses, indicating high potential for consumption smoothing through social insurance; and (4) informal networks serve as a crucial mechanism to help workers cope with job loss.

Second, we adapt the Baily-Chetty framework for sufficient statistics analysis of UI to the Senegalese context. We include informal and formal employment alongside unemployment and allow some informal workers to submit false claims and collect UI benefits while working. We compare a payroll tax-funded UI system with limited enforcement—where only formal workers contribute, but informal workers may fraudulently claim benefits—to a broad-based consumption tax-funded system. The welfare gains from the payroll tax scheme are determined by the balance of moral hazard and liquidity effects and are dampened by increased false claims and a potential crowding-out of private and family insurance. Conversely, the consumption tax is less targeted and yields lower welfare gains than an equivalent payroll-tax-funded UI scheme. However, the consumption-tax-funded UI scheme remains feasible even at high levels of false claims.

Third, we conducted a highly customized in-person labor force survey of 1,378 individuals in Senegal to quantify the welfare effects of these policies. Our findings show that the liquidity gains are large and the moral hazard response to the UI benefits among workers is relatively small: an extra dollar of UI benefits yields a consumption-equivalent gain of 60–90 cents, which exceeds comparable estimates from U.S. calibrations by a factor of three to sixteen. We then show quantitatively how the welfare gains depend on the program design: UI funded through payroll taxes delivers the greatest welfare gains but becomes infeasible when there are few formal workers—below 12.5%—and high rates of fraudulent claims—above 80%. On the other hand, UI funded through consumption taxes delivers lower welfare gains but remains feasible with high informality and false claims.

This research contributes to our understanding of how to design effective social safety nets in low-income African countries by promoting broad-based funding of unemployment insurance and enhancing fiscal capacity through incentivizing formal employment with insurance provision.

3 The link between finance and social movements

The third prong of my research examines the political economy of international trade and finance.

Geoeconomic fragmentation is becoming increasingly important for international trade. In "A Theory of International Boycotts" (Ndiaye, 2024c, Revise & Resubmit at ***Journal of International Economics***), I develop a framework to analyze international consumer boycotts and their effects on trade and welfare. Using a canonical Ricardian model, I examine how domestic consumers' decisions to boycott goods from a foreign country affect the welfare of both nations involved. My main qualitative result is that every optimal boycott takes the form of a cutoff in the space of foreign comparative advantage; boycotters only import goods for which the foreign country's comparative advantage is sufficiently large. The paper also contrasts the mechanisms of boycotts with government-imposed sanctions and shows how they affect trade patterns differently.

Since the Occupy Wall Street movement, social movements have played an increasingly significant role in shaping financial markets and investor behavior. In "Mispricing Narratives after Social Unrest" (Ba, Ndiaye, Rivera and Whitefield, 2024), we study how negative sentiment around an industry impacts beliefs and behaviors, focusing on demands for racial justice after the murder of George Floyd and the salience of the Defund the Police movement. We assess stakeholder beliefs on the impact of protests on the stock prices of police-affiliated firms. In our survey experiment, laypeople and finance professionals predicted more negative stock price outcomes when they lacked details on the products supplied by such firms. Exposure to narratives about the context of the protests further reduced the prediction accuracy of these groups. In contrast, providing product information improved respondents' prediction accuracy. Turning to realized outcomes, we find that mutual funds exposed to protests were 20% less likely to hold police stocks after the protests than funds in areas without protests. Political support for maintaining police funding, though still in the majority, declined by 4.3 percentage points in protest areas. The salience of the "defund the police" narrative led to significant overreactions in both financial predictions and real-life behavior.

Recognizing the growing importance of new financial technology and its use in Africa, I have researched blockchain design and decentralized governance. In "Why Bitcoin and Ethereum Differ in Transaction Fees: A Theory of Blockchain Fee Policies" (Ndiaye, 2024d) and "Blockchain Price vs. Quantity Controls" (Ndiaye, 2024a, ***ACM FC 2024***), I show how differences in transaction fee policies between the two most used public blockchains can be explained by their differences in decentralized governance and the production functions of their suppliers of transaction services. In "Relative Pricing and Efficient Allocation in Blockchains" (Ndiaye, 2024b), I investigate how to design better pricing schemes so that these new financial rails can be more effective in processing transactions and overcome their scalability issues. These papers demonstrate that public blockchains are public goods for which classical public economics provides valuable insights.

4 Ongoing research

1. Government responses to economic inequalities

My ongoing work on inequality continues with ”Breaking Barriers: How Policies, Norms, and Preferences Shape Women’s Labor Force Participation” (with Zhixiu Yu), in which we study how policies, norms, and preferences collectively shape women’s labor force participation. What are the implications of the trends in female labor force participation in the U.S. on the best reforms to participation incentives and parental leave policies? To tackle these questions, we have developed a framework that models the dynamic nature of labor force participation decisions throughout an individual’s life. Our model incorporates choices made by both women and men, with a particular focus on the role of social norms in household cooperative bargaining.

2. Building fiscal capacity and the social safety net in Africa

My ongoing research centers on the role of fiscal capacity and the social safety net in development and growth. In ”Can Digitization Help Foster Synergies between Urban Service Delivery and Local Revenue Mobilization?” (with Hamidou Jawara, Justine Knebelmann, Joseph Levine, and Victor Pouliquen), we study how the adoption of a new addressing system based on *Open Location Codes* can be leveraged to increase tax revenue and improve public good provision—specifically, waste collection services—in Kanifing, the largest municipality in The Gambia. With randomized field experiments on tax revenue collection, tax enforcement, and service quality combined with a structural welfare assessment, we study to what extent making simultaneous progress on these aspects of the local social contract between citizens and the administration can help reach a new equilibrium with higher tax revenue, improved waste collection services, better environmental quality, and enhanced citizens’ well-being. This project is currently in the field.

In ”Productivity Growth in Government: Evidence from Tax Collection” (with Radhika Goyal, Andres Jensen, and David Lagakos), we study the production function of tax collection. Our data show that countries with high GDP per capita have higher tax collections per unit of expenditure. To estimate the production function of tax collection, we use administrative reforms that impact government resources and lead to immediate changes in collection while being plausibly unrelated to underlying economic conditions and tax base changes. Finally, we build a Ramsey model of income and capital taxation, public expenditure, and public capital provision to quantify the role of the production function of tax collection in the growth trajectory of nations.

3. The link between finance and social movements

My ongoing work also examines the role of political economy and social movements in finance. In ”Credit and Conflict in Nigeria” (with Olalekan Bello, Simone Lenzu, and Toni Oki), we leverage rich credit registry data from Nigeria to study the mechanisms through which conflict affects the provision of credit to firms and individuals. Conflicts of all types have been on the rise in Nigeria. In particular, we use the spread of commercial kidnappings across all 36 states and the country’s capital, Abuja, since 2011 to study the effects of persistent conflict on credit. Additionally, the End SARS movement of October 2020 is a natural experiment to study the effects of acute and transitory conflict on credit. We find that outstanding credit to firms has been relatively stable over time, while there is more volatility in credit to individuals.

Going forward, I will continue to seek to improve our understanding of how tax policy can mitigate economic inequalities, how to enhance fiscal capacity and the social safety net in Africa, and how political economy and social movements affect financial outcomes. To do so, I will continue to develop new theoretical frameworks that enable thorough quantitative assessments of policies and provide empirical evidence based on randomized field experiments, detailed surveys, and archival data.

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