Research Statement

My research examines issues at the intersection of macroeconomics, international trade, and economic development. Currently, I focus on three interconnected areas: **technological change and labor markets**, **geopolitics and geoeconomics**, and **unequal growth and development**. Through both theoretical modeling and empirical analysis, my work investigates how technological progress, geopolitical forces, and structural transformation shape economic outcomes across countries and within societies.

Technological Change and Labor Markets

My research in this area explores how new technologies transform labor markets and affect workers differently across the skill distribution. The rapid emergence of generative AI presents an unprecedented challenge: unlike previous automation that displaced routine tasks, AI affects creative and analytical occupations traditionally considered automation-proof. Understanding these distributional impacts is critical for predicting which workers benefit versus suffer from AI adoption and designing appropriate policy responses.

1. **The Labor Market Incidence of New Technologies** *(Job Market Paper #1)*
   In this paper, I develop a general framework for evaluating the incidence of labor market shocks, focusing particularly on automation and artificial intelligence. Unequal labor market shocks are distributed among workers across jobs depending on their substitutability. Central to our theory is the concept of distance-dependent elasticity of substitution (DIDES), where substitutability between jobs declines with their distance in skill space. Our analysis reveals that automation and AI cluster in skill-adjacent occupations, generating limited employment shifts but significant wage disparities. A flexible substitution structure is crucial for assessing the labor market outcomes of technological changes.
2. **Partial Automation** (with Pascual Restrepo, *Work in Progress*)
   In this ongoing project, we study the effects of partial automation (i.e., the creation of technology capable of automating some but not all components of a job) on within-job wage inequality and allocation of workers across jobs.

Geopolitics and Geoeconomics

This strand of my research investigates how geopolitical relationships shape economic growth, trade patterns, and capital flows in an increasingly fragmented global economy. I develop a novel event-based measure of bilateral geopolitical alignment by leveraging large language models to systematically analyze 833,485 political events spanning 193 countries (1950–2024), capturing both the precise timing and continuous intensity of diplomatic dynamics essential for causal identification. This methodological innovation enables me to trace how international alignment drives economic outcomes across three complementary projects: establishing geopolitics as a first-order growth determinant, quantifying its role as a barrier to global trade, and uncovering the fundamental forces that shape geopolitical relations themselves.

1. **The Geopolitical Determinants of Economic Growth, 1960-2019** *(Job Market Paper #2)*
   This paper establishes geopolitical relations as a first-order determinant of economic growth. Using local projections with country fixed effects, we find that a one-standard-deviation improvement in geopolitical relations increases GDP per capita by 10% over 25 years. These persistent effects operate through

multiple reinforcing channels—enhanced political stability, increased investment, expanded trade, and productivity gains. Across our sample, geopolitical factors generate GDP variations ranging from -35% to +30%, with developing nations facing particularly severe penalties from international isolation. Our findings reveal how geopolitical alignment shapes economic prosperity in an increasingly fragmented global economy.

2. **Geopolitical Barriers to Global Trade and Capital Flows** (with Mai Wo and Wei Xiang, *Working Paper*)
   This paper provides the first systematic estimation and quantification of how geopolitical alignment shapes global trade from the Cold War through globalization to recent fragmentation. Our study provides empirical benchmarks for understanding how political relationships shape trade globalization and for evaluating the costs of geopolitical fragmentation in an era of renewed great power competition.
3. **Anatomy of Geopolitical Dynamics** (with Jizhou Liu and Wei Xiang, *Work in Progress*)
   In this ongoing project, we seek to identify the fundamental determinants of geopolitical relations. We empirically test foundational theories in international relations: democratic peace theory and the clash of civilizations hypothesis. Beyond bilateral factors, we develop and estimate models of geopolitical networks to understand how alliance formations trigger realignments among third parties and how bilateral tensions cascade through the international system.

Unequal Growth and Development

My work on unequal growth examines how structural transformation and economic policies generate heterogeneous effects across regions, sectors, and income groups. Understanding both the causes and consequences of inequality is crucial: growth strategies can create unequal distributions of benefits, while the resulting inequality may constrain future growth by limiting human capital accumulation and market participation among disadvantaged populations.

1. **Growing Like India: The Unequal Effects of Service-Led Growth** (with Michael Peters and Fabrizio Zilibotti, *Econometrica*, 2023)
   This paper provides a novel framework to structurally estimate productivity growth in service industries that circumvents the notorious difficulties in measuring quality improvements. We find that productivity growth in non-tradable consumer services such as retail, restaurants, or residential real estate was an important driver of structural transformation and rising living standards between 1987 and 2011. However, the welfare gains were heavily skewed toward high-income urban dwellers.
2. **Measuring Inflation Inequality with Incomplete Prices** (with Olivia Ding and Kan Yao, *Work in Progress*)
   Poor U.S. households have faced higher inflation rates than rich households over the last four decades, but do unmeasured quality improvements offset this inequality? This paper develops a novel Engel curve approach to measure inflation inequality when official prices incompletely capture quality changes. Applying this method to U.S. data (1984-2019), we find that unmeasured quality improvements exacerbate observed inflation inequality, implying official statistics understate inflation's regressivity.