Research Statement

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My research focuses on the macroeconomics of the labor market. I combine micro data with macro theory to gain insights from the behavior of individual workers and firms into the functioning of the aggregate labor market. I use empirical methods, theoretical models, and computational tools throughout my research.

The first strand of my research studies labor market frictions, as manifested by the coexistence of unemployed workers and unfilled vacancies. Although they are the two sides of the labor market equilibrium, considerably less is known about vacancies than unemployment. My research seeks to extend our knowledge of the employer side to provide a complete picture of the frictional labor market.

In my job market paper, "***Vacant Jobs***," I study the nature of vacancies and their relation to labor supply. Canonical theories of a frictional labor market conceptualize separations as job destruction and vacancies as job creation. This paper shows that the act of workers exiting the labor force and vacating their positions is an empirically important source of both separations and vacancies. Incorporating this vacating channel of vacancies brings novel insights into several important labor market issues. First, common practice presumes that the labor force participation margin does not matter much in the business cycle theory of unemployment. In contrast, this paper shows that procyclical employment-to-nonparticipation quits cause job-finding fluctuations through the vacating channel of vacancies, and account for about one-third of unemployment fluctuations. Second, this paper finds that massive labor force outflows in three episodes in the past century with large negative aggregate labor supply shocks led to skyrocketing vacancies due to the vacating channel. Third, conventional wisdom maintains that higher real interest rates depress vacancies and hence elevate unemployment. This paper shows that although the standard creation channel of vacancies, as an investment activity, is responsive to changes in the real interest rate, the vacating channel is not. Thus, the aggregate effect depends on the dominant source of vacancies, shedding light on the possibility of a "soft landing"—raising interest rates without causing high unemployment—during the "Great Resignation," a period featuring abundant vacated vacancies. The vacating channel is absent in standard models where vacancies are a jump variable and isomorphic to flow recruiting efforts. In contrast, I document three facts about vacancy dynamics that point to an alternative view of vacancies. First, I provide evidence at the sector, state, and establishment level that workers' voluntary quits lead to vacancies. Second, using multiple data sources, I show that vacated vacancies are more prevalent and procyclical than newly created vacancies. Third, I utilize vacancy data from various countries and document a robust finding that vacancy outflow accounts for most vacancy fluctuations over the business cycle. The key for vacancy behavior to be consistent with these facts and for the vacating channel to be operative, is to model vacancies as "vacant jobs" that embody sunk investment to physical or organizational capital.

I have expanded this line of thinking and its labor market implications in my other research. First, the capital nature of vacant jobs sustains sorting between heterogeneous workers and firms. In "***Precautionary Mismatch***" (with Jincheng Eric Huang), we study how wealth inequality affects allocative efficiency, i.e., the extent to which the labor market allocates the right workers to the right jobs, contributing to a broader research program on aggregate consequences of distributions. Motivated by the evidence we document in the NLSY that wealth-poorer workers are more mismatched, we develop a framework that features two-sided heterogeneity, search frictions, and incomplete markets, which organically nests three workhorse models—Becker's sorting model, Diamond-Mortensen-Pissarides model, and Bewley-Huggett-Aiyagari model. The model is computed using the state-of-the-

art continuous-time computational method for heterogeneous agent models. Second, the long live nature of vacant jobs also implies that not all layoffs are inherently associated with job destruction, and the match capital can be preserved through recalls, i.e., if the worker returns to her previous job after a nonemployment spell. In "***Job Recalls and Worker Flows over the Life Cycle***" (with Justin Franco Lam), we find that the recall share strongly increases over the life cycle using the SIPP. The introduction of recall options into a match-quality job ladder search model is crucial to reproduce all worker flow rates over the life cycle, and in particular, a declining job-finding rate.

My research in this agenda has also addressed other aspects of frictional labor markets, emphasizing the joint consideration of the worker and firm sides. The paper "***The Geography of Job Creation and Job Destruction***" (with Moritz Kuhn and Iourii Manovskii) studies large and persistent differences in unemployment rates across locations. Existing work on spatial unemployment focuses on worker flows. We document novel facts on the geography of vacancy posting and filling. These facts are instrumental in disciplining the development of a theory of local labor market performance. We find that a spatial version of the Diamond-Mortensen-Pissarides model with endogenous separations and on-the-job search quantitatively accounts for all the documented empirical regularities, providing a benchmark quantitative theory of spatial unemployment disparities.

The second strand of my research studies the labor market in the long run and in its relation to economic development. In "***"Golden Ages": A Tale of the Labor Markets in China and the United States***" (with Hanming Fang), we document stark differences in the age-earnings profiles between China and the US during the past three decades. Strikingly, the peak age in the age-earnings profiles decreases sharply from 55 to 35 years old in China but stays constant at around 48 years old in the US. We propose a decomposition framework and find rapid inter-cohort productivity growth in China, which manifests itself in the unusual behavior of the age-earnings profiles. We use the inferred components from the decomposition to construct a new measure of human capital and revisit growth accounting and skill-biased technical change. Moreover, in the paper "***"Growing Pains" in China's Social Security System***" (with Hanming Fang and Yi Zhang), we find that such a rapid inter-cohort productivity growth is at the root of many puzzling phenomena and financial stress in China's social security system. My research also studies the relationship between long-run labor market trends and structural change. In "***Female Labor Force Participation and Structural Transformation***" (with Moritz Kuhn and Iourii Manovskii), we find that the female employment shares within manufacturing and services have remained virtually constant over the past decades. This is striking given the two secular trends of rising female labor force participation and structural transformation from manufacturing to service. We propose a theory of gender-biased industry-specific technologies and a novel perspective that the rising female labor supply is a cause of structural change.

In the ongoing work "***Coordinated Firm-Level Work Processes and Macroeconomic Resilience***" (with Moritz Kuhn, Jinfeng Luo, and Iourii Manovskii), we study the interdependence of workers in the production processes. This is challenging due to a lack of data. We designed and implemented a targeted employer survey to measure the extent of coordination in production processes and provide the first direct empirical evidence towards understanding coordinated work processes. Zooming in on how workers are hired and arranged within firms and their macroeconomic implications is an exciting avenue of future research. I have recently negotiated access to a novel, proprietary dataset covering a wide range of firms with rich information on recruitment, employees, turnovers, and organizational structures. The data make it feasible to trace the life cycle of a job by linking the position-level vacancy information in the recruitment database with the personnel information in the employee database, allowing me to advance further the idea proposed in my job market paper with detailed microdata. It offers a promising opportunity to open the black box of the "matching function" and to uncover the nature of production teams.