

Research Statement

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I am a labor and public economist interested in issues that are related to inequality, poverty, and firm behavior. My research involves both reduced-form and semi-structural estimation and modelling.

My current research focuses on understanding the effects of anti-poverty policies, such as minimum wage and the earned income tax credit. Motivated by my research interests, my job market paper investigates how establishments respond to exogenous wage changes. Because policies may have direct or indirect impacts on wages of workers, understanding how establishments internalize these impacts is important for understanding the effects of anti-poverty policies.

I am also interested in understanding young people's educational choices. Education is an important tool that provides opportunities for young people to move up income distribution. A variety of reasons, however, may prevent young people from acquiring education: lack of motivation, lack of access to high-quality education, budget constraint, and other barriers. Understanding the importance of these factors is policy relevant because it helps schools and policy makers to find the right policies to improve educational outcome.

The following section provides a detailed introduction of my research papers and research agenda.

Research papers:

What Do Establishments Do When Wages Increase? Evidence from Minimum Wages in the United States (Job Market Paper)

In this paper, I study how establishments respond to exogenous wage increases on various margins, including intensive- and extensive-margin use of labor and capital expenditures on machines. I analyze manufacturing plants' responses across the United States over a 23-year period. Three establishment-level surveys are used in the analysis: Annual Survey of Manufactures (ASM), Census of Manufactures (CM) and Longitudinal Business Database (LBD). I identify establishments' responses by using state-by-year changes in the minimum wage interacted with a measure of how bound the minimum wage is to each establishment as instruments.

I find that when the hourly wage of production workers increases by one percent, manufacturing plants reduce the total hours worked by production workers by 0.7 percent and increase capital expenditures on machinery and equipment by 2.7 percent. Sixty-two percent of the decline in total hours worked by production workers is driven by intensive-margin changes. The estimated elasticity of substitution between capital and labor is 0.85, with standard error of 0.177. Additionally, I find that when the hourly wage of production workers increases, establishments are more likely to exit the market. Finally, I link manufacturing plants to their respective parent firms to investigate within-firm-across-establishments responses. I find that when the wage is increased for some of the establishments in a firm, the firm will increase the wage for its other establishments.

Idle Young Men in the United States: Persistence, Educational Stepping Stones, and Longer-run Effects

With Mark Borgschulte, Xiaoyu Xia and Jin Yan

In this paper, we study idleness—time spent out of work and school—among young men in the first 10 years after leaving from high school in the United States. We document new facts on the distribution of idleness spells and cumulative exposure to idleness. We find that 45 percent of young men experience at least 3 months of idleness—aside from school breaks—between ages 18 and 24; 30 percent experience 10 or more months of idleness. At the same time, almost no youth are idle all or most of the time, implying that most idle youth return to school or work.

These facts motivate a dynamic model of the school-to-work transition that allows for transitions between work, idleness, and two levels of schooling. In the paper, we estimate two multinomial logit models: a mass-point model and a fixed-effects model. We find evidence of an idleness trap, a causal effect of idleness on future idleness. Our estimates also reveal that low-commitment school options, such as community college, provide meaningful stepping stones to further schooling but not to work.

The mass-point model allows the characterization of individual heterogeneity, and we use the estimated individual posterior types to identify the effect of youth idleness on employment and earnings when young men are in their early thirties. We find idleness reduces employment and earnings in early 30s. We estimate that an additional six-month period in idleness lowers the share of time employed by 1.6 percent and earnings by 5.4 percent.

Other ongoing research:

General Equilibrium Effects of a Minimum Wage

With Don Fullerton

This paper builds two analytical general equilibrium (GE) models—assuming competitive and monopsonistic labor markets—of the U.S. economy to evaluate efficiency impacts and other effects of the minimum wage on labor and output markets. First, we couple the GE framework with a search model and competitive labor markets to highlight a potential, but underappreciated, source of inefficiency: a higher minimum wage can increase unproductive search time of unemployed workers. Second, we assume a monopsonistic labor market. The analytical models allow us to solve explicit equations for outcomes in GE. We use those two models to derive testable hypotheses that distinguish the two models. Finally, we use panel data from 50 states over 15 years to test these hypotheses. Our empirical evidence that a minimum wage increase has a positive impact on unemployment rate and output prices supports the competitive model.

How Firms Respond to Exogenous Wage Changes: Evidence from the EITC

In this project, I investigate firms' responses to change in wage rates by exploiting variations in the earned income tax credit (EITC). My preliminary work establishes the impact of the EITC on wages. Taking advantage of the state-by-year variations in the EITC, I compare industries with a large share of EITC workers with those with few EITC eligible workers. I find that for an average industry that hires 10% EITC-eligible workers, a 10% increase in the EITC benefits increases employment of male workers by 1.2% and female workers by 2% and concurrently reduces wages among both male and female workers by 1.4%.

My follow-up work will use the wage results as a first stage and investigate how firms internalize the reduction in wage rates using three restricted-access datasets: Annual Capital Expenditure Survey (ACES), Census of Manufactures (CM), and Annual Survey of Manufactures (ASM). This project is different from my job market paper in that the EITC puts downward pressure on the wage rates. Comparing the results of this project with my JMP will shed light on if firms respond to increases and decreases in wage costs in symmetric ways.

Are Changes in Capital Investment Predicted by Share of Routine Jobs or Import Exposure across Commuting Zones?

Declining employment in manufacturing industries has long been an important topic. Two leading explanations for the decline are technology and import shocks from China. In this paper, I attempt to provide a full picture of these two explanations by taking the analysis beyond employment and investigating capital expenditures and output.

Using publicly-available version of Census of Manufactures (CM) and Annual Survey of Manufactures (ASM), I find preliminary evidence that although capital investment in manufacturing industries increase over time at national level, capital expenditures decrease in commuting zones (CZs) that have a large share of routine jobs and that are exposed to import shocks. These findings imply that manufacturing firms may relocate their plants when they substitute capital for labor, rather than simply purchasing new machines to replace their workers at their original location. This distinction is important for understanding the welfare implications of technological changes on workers and inequalities across geographical locations. Relocation of manufacturing plants may take other employment opportunities away from workers who are left behind in the CZs where those manufacturing plants were located.

Because the publicly-available version of the CM and the ASM does not cover all counties, in my follow-up work on this project, I will use restricted-access establishment-level data and aggregate to commuting zones to confirm the findings and explore margins beyond employment and capital expenditures.

Industry-Specific Capital-Labor Ratios

As the book *Capital in the 21st Century* by Thomas Piketty points out, a high capital-labor ratio in production can lead to high income inequality: therefore, understanding changes in capital-labor ratios is useful to understanding current trends in income inequality.

In this project, I utilize three datasets: Annual Capital Expenditure Survey (ACES), Census of Manufactures (CM), and Annual Survey of Manufactures (ASM). All three datasets provide measures of capital expenditures (on structures and equipment separately). Aggregating these datasets to industry-year level, I can estimate the time path of industry-specific capital-labor ratios. Examining the trends of these capital-labor ratios will improve our understanding of the trends of income inequality. Additionally, because I have multiple datasets measuring capital-labor ratios for manufacturing industries, I can cross-check the data quality of measures of capital expenditures and acquire Bayesian-improved measures of capital-labor ratios for these industries.