

Research Statement

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I am an applied microeconomist with primary research interests in environmental and urban economics, and secondary interests in labor and public economics. My research focuses on two broad topics: (i) the impact of oil and gas extraction on local economies and (ii) immigration. My research goal is to provide new insights to inform economic policy.

The impact of oil and gas extraction

My job market paper is titled “*The Long-Term Consequences of Oil and Gas Extraction: Evidence from the Housing Market*”. The recent literature has emphasized the benefits brought by oil and gas extraction to local economies, including stronger labor markets and increased tax revenues. Those short- and medium-run benefits are dispersed among many residents, and they are relatively easy to quantify. However, oil and gas extraction is also sometimes associated with substantial long-term harder-to-quantify environmental and public health costs, including explosion hazard and risk of water, atmosphere, and soil contamination. To quantify these costs, I use rich data on oil and gas drilling, housing market transactions, and lease agreements to conduct difference-in-differences and instrumental variable analyses.

I show that the housing price impact of actively-producing wells is small. However, I find that abandoned wells decrease sale prices of nearby houses by 4%–24%, depending on the number of wells and their proximity. However, this loss is reversible: I find that if a site is cleaned-up, house prices recover almost entirely. The clean-up involves land reclamation and well plugging that substantially reduces environmental risks. The estimates imply that the social benefits of clean-up and site restoration far exceed the costs. This paper motivates environmental policies aimed at creating incentives for oil and gas producers to plug wells, such as higher bankruptcy insurance requirements or environmental taxes.

Focusing on non-producing, abandoned wells, I disentangle the long-term deterioration of local amenities from the economic benefits, such as royalty payments and stronger labor markets. There are three major identification challenges. First, location of wells across space is likely non-random and correlated with unobserved local attributes. To address this, I use the sample of properties sold more than once, which allows me to control for time-invariant property or neighborhood characteristics. Second, decisions to abandon or to plug a well could be correlated with unobservable time-varying local attributes. Moreover, measurement error could arise from misreporting, delay in reporting, or failure to report well status. To address these two challenges, I construct a plausibly exogenous instrumental variable (IV) for well abandonment and plugging. This IV is similar in spirit to shift-share instruments, isolating the changes in the macroeconomic environment, driven by gas and oil prices, regulation, and technology.

I have a special interest in examining how regulations impact firm behavior in industries that pose long-term environmental risks. In “*Do Strict Regulations Improve Environmental Outcomes?*”, I study how stricter environmental requirements for certain gas operators, adopted in Pennsylvania in 2012, affected environmental outcomes across the industry. I use this natural experiment in a difference-in-differences design to study its impact on two outcomes: (i) well status – i.e., how the policy changes the probability of well abandoning and plugging; and (ii) environmental violations. My findings so far indicate that strict regulations incentivize well plugging. I also find that small firms are far more likely to leave unplugged wells behind, possibly due to liquidity constraints or to the strategic use of bankruptcy.

I am drawn to environmental projects, and especially to policy-relevant research at the intersection of environmental, labor, and public economics. My research agenda includes exploring how oil and gas extraction affects local economies. I am working on an early stage project that uses an exogenous increase in income, generated by the shale oil and gas boom, to recover labor supply elasticity with respect to income. Understanding this effect is important for policy applications, for example, tax system design. I am also interested in the economics of climate change, in particular, the design of economic policies that incentivize emissions reduction.

Immigration

In a work joint with David Albouy and HeePyung Cho, titled “*Immigration and the Pursuit of Amenities*” (Journal of Regional Science, 2019), we examine whether amenities affect the location of immigrants within the United States. Previous research has documented how immigrants sort toward places with high nominal wages and with stronger immigrant networks, or “enclaves”. In contrast, we consider how amenities affect the real wages immigrants earn. High-amenity areas often have high costs-of-living that lowers real wages. Many amenities are natural, such as warmth or hilliness, and are essentially fixed over time. Therefore, immigrant enclaves may themselves result from the continued attraction of some amenities. We examine whether immigrants are drawn to different kinds of amenities than natives.

We find that immigrants live disproportionately in metropolitan areas where real wages are low, even though their nominal wages are high. In contrast, native-born migrants — who live in a different state than they were born in — go to places with both low nominal and real wages. Moreover, immigrants are willing to take lower real wages — that is, pay more — to live in areas with pre-existing enclaves of immigrants. This finding is consistent with the idea that existing immigrant networks are an amenity to new immigrants.

Immigrants’ location choices relative to native-born migrants, i.e., their differential “sorting”, is arguably more revealing. Immigrants sort more toward cities with sun, hills, high population, low education, near ports of entry, and which have heavier land-use regulations. In contrast, native migrants — relative to native non-movers — sort towards metros that are warmer, non-coastal, small, and more educated.

In another early stage project, titled “*Racial Wage Gap and Immigration*”, I estimate the impact of immigration on earnings of black and white native men in the U.S. Labor force participation rates vary dramatically across races. I show that since standard mean regression only allows one to include observations with positive earnings, it provides a misleading picture of the actual racial differences. Using quantile regression, I demonstrate that immigration contributes to an increase in racial earnings inequality: the impact on median earnings of white men is moderately positive, while the impact on earnings of black men is close to zero.

My research agenda for immigration related topics focuses on policy relevant issues, such as the impact of immigration enforcement. I believe that more work is needed to understand the unintended consequences of these policies. I plan to examine how recent enforcement programs, such as Secure Communities, affected well-being of both immigrant and native populations. Specifically, I am interested in mental health outcomes, such as deaths of despair – i.e., suicides, opioid overdoses, and alcohol-related illnesses.