RESEARCH

My research is centered at the intersection of international trade, transportation economics, and urban economics. It empirically investigates a host of economic issues ranging from the effects of transport policy and carrier conduct on the patterns and composition of international trade to the microeconomic ramifications for trade and land values arising from weather and climate extremes, as well as noise pollution. Rooted in the synthesis of these fields, I have developed a multifaceted and cohesive research agenda that can be divided into three strands of scholarship. My primary work explores the impact of transportation costs on international markets, the resilience of international trade against natural disasters and the resulting urban labor market externalities. The second strand of my research explores the effects of transport infrastructure investments and infrastructure utilization on local economic development. Lastly, I have expanded my work on the externalities of transportation on urban environments and developed a research agenda investigating the urban equilibrium effects arising from aircraft noise pollution.

I. <u>Published Scholarly Work</u>

"Trade, Transportation and Trade Imbalances: An Empirical Examination of International Markets and Backhauls." (with Wesley W. Wilson.) Forthcoming at the *Canadian Journal of Economics*.

The U.S. trade deficit has been growing for over 25 years and has been accompanied by enlarging freight rate differentials. While traditional models of trade have ignored these gaps assuming symmetry across all bilateral trade costs, the specific linkages between trade imbalances and international transportation costs have remained unexplored. Given the current trade policies, the implications arising from the endogenous adjustment of bilateral transport costs to policy-induced changes in the U.S. trade deficit, for example, are of particular importance. To break new ground on this issue, we develop and estimate a model of international trade and transportation that accounts for the effects of persistent trade imbalances. The theoretical results are supported by our empirical analysis and indicate that bilateral transport costs adjust to a country's trade imbalance. The implication is that a unilateral import policy, for example, will cause spillover effects into the bilaterally integrated export market. To illustrate, we use our empirical results to simulate the anticipated spillover effect from the Chinese ban on waste imports. We find that China's ban and the projected 1.5% rise in the U.S. trade deficit will not only lead to a 0.77% reduction of transport costs charged on U.S. exports to China, but also a 0.34% increase in transport costs on U.S. imports from China.

II. Scholarly Work Under Submission

"Natural Disasters, Aggregate Trade Resilience and Local Disruptions: Evidence from Hurricane Katrina." Under review at *Economic Inquiry*. 04/30/2019.

What drives the resilience of international trade against increasingly destructive natural disasters? In this study, I investigate the dynamics and spatial distribution of Hurricane Katrina's trade effects across U.S. infrastructure and break new ground on the mechanisms

underlying the static and dynamic trade resilience. Analyzing port-level data, I find that ports subject to this calamity experience significant and lasting trade reductions, while shipments handled by the adjacent ports increase by as much as 13,000%. Interestingly, the duration of this rerouting effect is persistent for eight years uncovering novel path dependencies and providing important policy insights in light of recent events.

"Valuation of Noise Pollution and Abatement Policy: Evidence from the Minneapolis-Saint Paul International Airport." (with Jeffrey P. Cohen). Under review at the *Journal of Urban Economics*. 03/06/2019.

Aircraft noise pollution adversely affects physical and mental health. We break new ground on quantifying the resulting losses, capitalized into housing prices, and evaluating the efficacy of national noise abatement policies by disentangling the causal effect of noise across soundproofing-eligible and ineligible Minneapolis homes. Combining a repeatsales sample with data on aircraft noise pollution (1990-2014), we find that aircraft noise persistently reduces the rate of appreciation of abatement-ineligible properties, while eligible homes are unaffected. We approximate the average losses around \$25,000 per sale and find that the return on abatement investments could be as a high as 40% in Minneapolis.

"Trade, Infrastructure and Local Factor Prices: The Urban Equilibrium Effect of Rerouted Trade." Under review at the *Review of Economic Studies*. 05/21/2019.

As evidenced by recent events, natural disasters are increasingly potent and cause significant disruptions to international trade. I investigate the impact of Hurricane Katrina and the resulting rerouting of international trade on employment and factor prices in otherwise unaffected Floridian communities. Developing a new identification strategy that exploits the disaster-induced quasi-random variation in trade, my IV results are the first to quantify the urban economic impact of international cargo shipments and suggest that a 10% increase in seaport services raises factor prices and employment by 0.46% to 0.69%. Consistent with the predictions of the urban equilibrium theory, I find that the productivity-enhancing effects in traded goods-producing industries and transportation sectors drive the estimated intensive margin effects of transport infrastructure. As natural disasters are not the only cause of changing shipping patterns, my findings have considerable relevance for trade and other public policies that shape the affected urban equilibria.

"The Economic Impact of Infrastructure Investment and Leakages: A Literature Review." (with Wesley W. Wilson). Under review at the *Journal of Economic Surveys*. 06/08/2019.

This survey is of the growing body of research investigating the economic development effects of transport infrastructure expenditures, and seaport investments in particular. Much of the literature evolved from early studies that examine the effects of general public capital expenditures on macroeconomic productivity and labor markets. Based on this context, we provide a detailed survey of the research investigating the direct and indirect effects of transport infrastructure investments. Our survey suggests that the relevant literature continues to be characterized by an ongoing debate about the magnitude of the resulting earnings, productivity and employment benefits and that the reported findings with respect to seaport investments are particularly contentious. Highlighting the most recent advances in this field of study, we summarize the various methodologies and empirical results underlying these controversial findings. As part of our discussion of the potential causes for the contradictory economic impacts of seaports, we identify cross-border investment benefit leakages as one potential determinant and find that the sparse literature on this topic delivers key insights that deserve more attention going forward.

III. Scholarly Work in Progress

"Asymmetric Trade Effects in the Presence of Integrated Bilateral Transport Costs: The Importance of Trade Imbalances." Working draft.

"Creative Destruction: Evidence from the Pharmaceutical Industry and Hurricane Maria." (with Abigail Crispin*). Preliminary.

"Trade, Natural Disasters and the Role of Seaport Infrastructure." (with Gan Qi Tang*). Preliminary.

"Perception vs. Reality: The Noise Complaint Effect on Home Values." (with Jeffrey P. Cohen). Preliminary.

"International Disaster Spillovers and the Role of Global Value Chains: Evidence from Japan" (with Daijiro Yokota*). Preliminary.