Research Statement

I am a Ph.D. candidate in Economics at the University of California, San Diego. My current research studies how different transport costs and frictions prevent the smooth flow of agents and goods across space—within cities and across regions—and what this implies for welfare and policy. At the city level, I study: (i) how commuting monetary costs and times are determined in settings with mixed public–private transit, (ii) the effects of policies that directly shift prices (price regulation and subsidies), and (iii) the optimal design of transit networks under these mixed systems. At the regional level, I study (iv) how violent cargo robbery on roads affects transportation firms' outcomes and (v) the aggregate implications for interregional trade, costs, and welfare. I currently focus on Mexico.

My previous research as an Economist at the Bank of Mexico studied the implications spatial competition among gasoline retailers on the determination of cost pass-through and retail gasoline prices in Mexico, providing scope for antitrust policy design at the local level.

To study these questions, I combine a blend of theory and empirical analysis. For structural questions, I build quantitative spatial models disciplined by rich geospatial and administrative data; for empirical questions, I rely on state-of-the-art reduced-form causal methods. My research has been recognized with the Clive Granger Research Award for the most promising graduate student research, and the Walter Heller Memorial Prize for best third-year paper. My research has been published in peer-reviewed working paper series such as the Bank of Mexico Working Paper Series.

More broadly, I am interested in understanding 1) how workers and firms are affected by costs, frictions, and shocks that reflect direct influence of geographic fundamentals—such as location, connectivity, or distance—and the spatial structure of the economy, and 2) how economic agents interact with each other across space. I find it fascinating how responses of economic agents further shape the patterns of economic activity, potentially resulting in aggregate effects on prices, trade, output, and welfare. Understanding these issues using richly-disaggregated geospatial data and novel structural tools provides a new angle for the design of policy at the local, sectoral, or aggregate level.

1 CITY-LEVEL ANALYSIS OF COMMUTING COSTS

1.1 Commuting costs and the effects of price-shifting policies

Many developing-country cities rely on a mix of public and private transit to meet mobility needs. A first question is how these systems coexist and what that implies for commuting costs when private markets flexibly respond to demand. A second question is how to alleviate commuting costs in such settings. While large infrastructure investments are often welfare-enhancing, they are fiscally costly, slow to deliver, and disruptive. A natural follow-up is then what are the effects of alternative policies governments commonly use, such as price regulation or subsidies?

My job market paper, **"Equilibrium Commuting Costs: the Role of Private and Public Transit"** (Mosqueda, 2025) studies how commuting costs are determined in equilibrium in such mixed systems and how (i) uniform price regulation for private providers and (ii) a subway subsidy affect welfare and the spatial distribution of activity. I develop a quantitative spatial framework in which private operators shape prices, frequencies, and trip times through entry and congestion, and coexist with a broader mass-transit network. This interaction determines commuting costs by in turn shaping route costs via multimodal route cost-complementarities and congestion. I calibrate the model to newly collected data on the near-universe of private and public transit lines in the Mexico City metropolitan area and identify two key elasticities of substitution and congestion using quasi-experimental variation from a subway line collapse. I then evaluate two price-shifting policies. In the baseline, deregulating private fares increases welfare by about 0.9%, removing the metro subsidy increases welfare by roughly 0.5%, and applying both jointly yields a net gain of around 1.4%.

Because route costs vary widely across corridors (vehicle type, terrain, congestion) but fares are effectively compressed, the fare regulation binds differentially across markets. Allowing prices to adjust realigns fares with heterogeneous route costs, reallocates capacity toward high-demand peripheral corridors, and reduces generalized commuting costs as quicker trips from eased congestion offset frequency losses where entry falls.

Given the metro's high ridership, the subsidy represents a large recurrent transfer that shapes generalized costs along multimodal trips. Removing the subsidy—holding private-sector regulation fixed—raises metro prices and reallocates demand toward substitute private routes. Entry on these substitute routes, especially in central areas, increases congestion, raising trip times but improving frequency. By contrast, complementary (feeder) markets lose demand and see lower frequency, increasing waits. On average, generalized commuting costs rise. However, higher disposable income from not funding the subsidy partially offsets this, yielding an overall welfare gain of roughly 0.5%.

Evaluating both policies jointly delivers a net welfare gain near 1.4% while saving fiscal resources. The broader lesson is that price-shifting policies interact through endogenous supply and demand on a heterogeneous network and can have effects comparable to infrastructure construction. Accounting for these interactions is then crucial when measuring the impacts of any transit intervention in mixed systems.

An interesting future line of work would be to study what is the optimal level of entry across space, and what kind of policies can implement such an allocation? For example, reducing fixed costs of entry with subsidies or directly implementing the allocation with public transit. A similar follow up regarding price-shifting policies themselves, is what is the price regulation that maximizes welfare in the presence of externalities? In a first-best world, the decentralized allocation would reveal such prices, but how close can we get to that? Furthermore, what are the optimal subsidy levels for mass transit fares, considering the all the network interactions that these subsidies imply?

1.2 Optimal Public and Private Network

The findings in my job market paper take the network geometry as given and thus focus on the intensive margin of supply: what happens on each line, holding line geography fixed. What happens if we relax this assumption?

A second project studies the optimal arrangement of these lines. In recent work in progress, **"Optimal Transit Networks in Developing Countries"** (Juarez and Mosqueda, 2025), my coauthor Leticia Juárez (IDB) and I study what is the optimal transit network when a budget-constrained planner can choose across technologies. We extend the Fajgelbaum and Schaal (2020) planner's framework from trade to commuting and crucially allow network edges to be characterized as either public or private: a private edge might not need fixed costs investments, but it is subject to larger marginal costs and congestion externalities, among other market failures. A public edge, on the other hand, might have large fixed cost investments but virtually no marginal costs.

With this framework, we plan to quantitatively study counterfactual policies such as where should government build mass transit relative to allowing private/informal transit operate, and what are the welfare and spatial consequences of different network configurations?

2 REGIONAL-LEVEL ANALYSIS OF TRADE FRICTIONS AND COSTS

Domestic trade frictions—supply-chain disruptions, intermediary inefficiencies, and poor infrastructure—are pervasive and especially salient in developing countries. In Mexico, violent cargo robbery has become a growing concern for the transportation sector. From 2011 to 2019, robberies of merchandise in transit reported by firms rose from 250,000 to 350,000. In 2019, theft of merchandise in transit represented almost 10% of crimes reported by all firms and about 20% among large firms (more than 250 employees). Beyond public safety, crime can distort routes and costs, reducing market access and welfare. How are transportation firms affected by road insecurity? How large are the welfare effects? On the intensive margin, firms may ship fewer (or less valuable) goods through unsafe routes and divert shipments to longer, costlier routes, raising final-goods prices and lowering market access. On the extensive margin, firms may reconfigure destinations, reducing overall interregional trade.

In ongoing work, **"Domestic Trade Frictions: Road Insecurity in Mexico"** (Cebreros and Mosqueda, 2025), my coauthor Alfonso Cebreros (Banco de México) and I study these mechanisms empirically and theoretically. Using confidential firm-level data for transportation companies (2014–2021), we examine how exposure to crime affects costs, revenue, trade volume and value, and trip characteristics (distance, trip counts).

At first glance, it is unclear where crime spatially occurs, as criminals maximize expected profit based on the probability of being caught, so either low-surveillance roads or high-value corridors seem plausible places. Using data on the main origin-destination shipping municipalities that firms report, we build exposure measures to crime based on the likelihood of utilizing routes that pass through unsafe roads. Preliminary findings suggest that crime is not randomly placed; it happens where trade flows are the largest: coming in and out metro areas. In ongoing work in progress we try to leverage a shift-share IV design that exploits both the timing and placement of crimes to estimate the causal

effect of crime.

In future work, we plan to quantify welfare losses using a Ricardian model with shipping intermediaries that choose routes to maximize profits, discipline route-level trade costs from the microdata, and perform counterfactuals under alternative crime scenarios.

An interesting line of future work is to consider a crime sector in a trade model, so that the spatial distribution of crime is an equilibrium outcome. This would allow for predictions on crime spots based on trade openness, with important implications for policy. Another interesting line of work is to investigate the macroeconomic effects of crime and the mechanisms through which crime operates. For instance, if firms react on the extensive margin and stop shipping, there would be consequences for supply chains and integration across regions. What happens with international trade and the growth of regions? Further, if firms react on the intensive margin and increase surveillance costs or find alternative costly routes, then this has implications for costs, prices, and potentially to inflation.

3 Country-level analysis of prices and markups

In this paper (Contreras et al., 2020) we study competition and coordination in the Mexican retail gasoline market. We analyze how spatial competition shapes firms' pricing behavior and the pass-through of wholesale cost changes (e.g., oil prices) to retail prices.

The study focuses on the 2017 deregulation that opened the market to foreign firms and replaced the uniform, regulated prices set by the state firm Pemex with market-determined prices.

We document three novel stylized facts. (1) Retail prices adjust slowly after wholesale price decreases, leading to temporary markup increases, but respond almost immediately to wholesale price increases, keeping markups stable. (2) Greater market competition—measured by the spatial density of stations—correlates with lower prices and markups. (3) Following a decline in wholesale prices, retail prices fall faster in more competitive areas.

We also find suggestive evidence of price coordination overriding market competition in certain isolated regions. To distinguish coordination from competitive pressures, we develop a method based on the distance between modal and maximum prices. Markups are higher in locations where the modal price is close to the maximum price, and these areas also exhibit slower pass-through. Together, the evidence points to anti-competitive coordination being more prevalent in such markets.

This analysis complements my broader research agenda on spatial costs and frictions and the organization of markets across space. Whether in commuting, trade, or retail, the geography of economic activity shapes how agents interact and how costs, prices, and welfare are determined. Understanding how spatial structure and market forces jointly shape outcomes—be it through congestion, crime, or coordination—offers a unified lens to study inefficiencies that arise from geography and to design policies that improve welfare through better spatial and market integration.

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